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15 June 2010

Online at <https://mpra.ub.uni-muenchen.de/28196/>

MPRA Paper No. 28196, posted 20 Jan 2011 06:59 UTC

The Determinants of Self-Employment in Pakistan: Evidence from Primary data Analysis

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Abstract

The foremost objective of this paper is to investigate the various determinants of self-employment in Pakistan, considering primary source of data at the district level. The sample of 494 workers residing in Bahawalpur district has been interviewed. We have employed Logistic Regression technique to estimate the determinants of self-employment model. The study concludes that experience and age of the workers have positive and significant impact on self-employment. Moreover, educational attainment and good health variables have also significant and positive influence on workers' decision to be self-employed. Based on the results and discussions, study suggests that government should provide technical and agricultural education at basic and secondary level to the workers. It is also concluded that health facilities should be provided at the massive scale particularly in rural areas.

Keywords: Self-Employment; Logistic Regression; Experience; Health; Educational attainment; Household assets; Bahawalpur; Pakistan

Introduction

Creation of employment has remained a top priority in developing countries like Pakistan. A number of studies regarding growth and development have also focused on the labour market. Because the main source of an individual's income is associated with employment opportunities. Moreover, income and quality of job both affect social welfare significantly. Employment and economic development are concomitant. Among the various employment statuses, self employment has attained a big deal of attention presently. Policy makers especially in developing countries are mainly focusing on promoting self-employment and small business. There has been made a close and actively political and academic discussion on the importance of self-employment in under developed countries for last two decades, based on the controversial issue of whether self-employment is a choice or it is a need. If we consider, first point of view expansion of self-

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employment in under-developed countries is not only economically ineffective but it also assimilates the supply of entrepreneurial abilities or talents. This view contradicts with alternative view of self-employment that it provides low incomes for survival and is considered as an option for transitory and involuntary employment. These two contradict view or hypothesis has been tested individually based on household surveys¹.

Considering the labour market trends in Pakistan, it is noted that the total estimated population of the country is 158.17 million in the year 2006-2007 (Labour force survey 2006-2007) and has increasing trend over the years. There has been observed increasing trend in employed labour force during the present decade (2000's) along with rising participation of the population in the labour market (see table 1). Considering the situation of overall labour market, it is perceived that there is a significant change or improvement in employment, unemployment and labour force participation rate. Although, unemployment rate has declined significantly during the years 2005-06 and 2006-2007, but still it needs solution. Therefore, self-employment is considered as the best solution of high unemployment and under-employment. The share of self-employed worker is 34.5 percent during the years 2006-07 and we have observed a rising trend (Govt. of Pakistan Economic Survey 2007-08).

Table 1: Civilian Labour force, Employed and Unemployed for Pakistan.

Labour Force Status	2001-02	2003-04	2005-06	2006-07
Total Labour Force	41.83	45.50	50.05	50.33
Employed	38.37	42.00	46.95	47.65
Un-employed	3.46	3.50	3.10	2.68

Source: Various issues of labour force survey.

The main objective of the present study is to explore or identify the various socio-economic factors which determine the self-employment status of the workers in Pakistan. This study becomes more unique on the following grounds. First, there are very few previous studies investigating issues of self-employment in developing economies like Pakistan. Second the present research uses primary data, collected by the authors, to attain better results through closely observing the problem. The present study is arranged as follows. Brief introduction of the problem is given in the 1st section. The second section provides the review of the literature on self-employment. Data and methodological issues are discussed in the section three. The section four presents the discussion of the results. The last section offers the concluding remarks.

Review of the studies on Self-employment

The self-employment problem has become more important comparatively in the literature of economics now-a-days. In addition, the available literature mainly relates to developed nations but a limited and few studies exist in developing countries like Pakistan. No direct study on the topic is found in Pakistan. Here, we present the review of some relevant studies both at the national and international level.

The present study follows the theoretically model of time allocation developed by Becker (1965) following the traditional theory of utility maximization². Time is used as an additional commodity in the utility maximization process. The study assumes the dual role of households. Households are simultaneously producers as well as consumers. They produce commodities by combining inputs of goods and time. The effect of changes in earnings, other income, commodities prices and the productivity of working and consumption time on the allocation of time and commodity set produced has been analyzed.

Nadvi (1993) examined different aspects of the informal sector enterprises in the manufacturing sector, on the basis of a survey of 328 manufacturing enterprises situated in Karachi and Gujranwala³. In this analysis, household activities discriminated from small scale activities and significant differences were found in both types of activities where as household units depend greatly on household labour incorporating unpaid family helpers and small scale units largely lean on wage employees. The incomes of the both, the self-employed and the employees in the informal sector enterprises were quite low. Kamal and Zafar (1993) presented different aspects of the informal sector by conducting a survey of urban informal sector⁴. The total data comprised on 1500 units of 11 cities of the country. The study made an in-depth knowledge of the basic characteristics of the self-employed, who going to set-up enterprises in the informal sector. It was observed that 80 percent entrepreneurs in the informal sector had some formal education, more than half of workers had at least secondary education and about 3 percent of self-employed worker had a post graduates degrees. Father's education played a very little role in the education of self-employed. As far concerned training, most of the entrepreneurs received informal training and only a small proportion of the entrepreneurs receive formal training.

Yamada (1996) reported the results of an investigation of the theoretical and empirical aspects of the urban informal and self-employment sector in the under-developed economies.⁵ The analysis based on household survey data from Lima, Peru for 1985-86 and 1990. The author presented detailed information on incomes of the self-employed as well as of wage employees. The result of the study supported a neutral policy towards urban informal sector in developing countries. Kazi (1987) traced out the origins of the informal sector to twin problems of rapid urbanization, which is the result of rural urban migration and low rates of employment expansion in the modern sector.⁶ The study concluded that earnings of the skilled self-employed in the informal sector exceeded the

earnings of skilled workers in the formal sector. Eighty nine percent of the self-employment was earning more than Rs.1500 as against Rs.1100 by an assistant in the government. The study further suggests that the informal sector makes an important contribution to skill acquisition in the economy through a system of the informal apprenticeship. Kazi and Raza (1989) also analyzed the productive choice of females living at Karachi and studied the problems of working women in the informal sector.⁷

Georgellis and Wall (2004) discussed the gender differences in self-employment basing on the data from the West-German sub-samples of the GSOEP panel for the period 1984-1997.⁸ Tobit model is used to estimate the coefficients of earnings equations. The study concluded that the male workers choice between salaried and self-employment is due to differences in wages. Liquidity constraints had more importance for males regarding self-employment and the relationship between the father's self-employment status and the probability of self-employment was more powerful for male workers.

Trang (2008) studied the various determinants of self-employment in Vietnam using the Vietnam Household Living Standard survey 2004.⁹ The study used Heckman technique to determine the level and recognize the variables which influence the workers' decision to participate as self-employed or salaried employed. The importance of the differences in expected earnings were emphasized in the analysis for workers' decision making. Authors made comparison between male and female workers. The results of analysis indicated that there existed variety of factors in setting the pattern of self-employed as well as salaried workers in Vietnam. Rees and Shah (1986) analyzed the determinants of self-employment in U.K by developing an econometric model.¹⁰ For estimating the self-employment model, the research used the sample of 4762 workers, drawn from the General Household Survey, conducted in 1978. Findings showed that the self-employment was positively influenced by the higher education, and old age people are less likely to be self-employed and self-employment rose for younger. Further, Good health and marital status had positive impact on self-employment.

Le Anh T. (2000) made an analysis of the determinants of the self-employed among the foreign born in the Australian labour market by using both single cross-section and dual cross-section approaches.¹¹ The findings of single cross-section regression showed that educational attainment, experience of the Australian labour market, capital availability, marital status of the worker and characteristics relating to job significantly influenced the self-employment. The results of dual cross section technique indicated that cross-section self-employment growth among immigrants is predominantly an adjustment influence rather than a cohort effect.

In addition to these studies, enormous literature on self-employment is available in developed nations. For example, Gill, 1988¹²; Evans and Jovanic, 1989¹³; De

wit, 1993¹⁴; Le, 1999¹⁵; and Constant and Zimmermann; 2006¹⁶ discussed the various self-employment related factors in their studies.

Methodology

Data

The present study is based on the primary source of data which is collected by authors through field survey in the year (2007-08). Respondents are interviewed directly. District Bahawalpur is selected as research area which is the least developed district of the southern Punjab and is situated almost in the center of the country. The total area of the district is 24830 square kilometers. The district Bahawalpur is land locked from all sides and almost its one third of total area is desert (Called Cholistan). It consists of five sub-divisions namely Bahawalpur, Hasil Pur, Ahmad Pur, Khair Pur Tamewali and Yazman. We have selected three sub-districts (Bahawalpur, Ahmad Pur East and Yazman) for data collection. Different household related factors are incorporated in the study to examine the labour force activities. For studying the determinants of self-employment, we have incorporated both human capital and non-human capital related variables in the present study. A sample of 494 workers in the age cohort of 15-64 years is randomly drawn from urban as well as rural areas of selected study area.

An empirical analysis is carried out in the present study. This analysis is made at two stage levels. First, we have made a descriptive analysis of some selected variables considering their mean, standard deviation, kurtosis and Skewness. Second, an econometric analysis of self-employment is modeled in the framework of the conventional theory of utility maximization (See Becker 1965) by using the maximum likelihood Logit model.

Model Specification

There are multiplicities of macroeconomic and microeconomic variables that decide whether an individual who wants to join labour market as a wage employed or self-employed worker. Labour supply decision is affected by some of these factors and others need decision. We start with general function.

$$Y_i = f (X_1, X_2, X_3, \dots, X_n) \dots \dots \dots (1)$$

Where, Y_i shows the labour force participation decision as self-employed worker. Y_i is equal to "1" If a worker decides to be self-employed and equal to zero if the worker does not work.

Following Blundell (1987)¹⁷, an index function, $S E_j^*$ may be defined that depends on a vector of independent variables X_j . These variables decide whether an individual who wishes to work is in self-employment. Hence

$$SE_j^* = \beta X_j + w_j \dots\dots\dots(2)$$

if

$$SE_j^* = \beta X_j + w_j > 0 \dots\dots\dots(3)$$

The individual would obtain self-employment, where as if:

$$SE_j^* = \beta X_j + w_j \leq 0 \dots\dots\dots(4)$$

He or she would not.

While, SE_j^* is not observed practically, only categorical variable SE is observed which is defined as:

$$SE = 1 \quad \text{if} \quad SE_j^* > 0$$

$$SE = 0 \quad \text{Otherwise}$$

The probability of finding the self-employment is then

$$\text{Prob}(SE_j = 1) = \text{Prob}(w_j > -\beta X_j)$$

$$= 1 - F(-\beta X_j)$$

Where F is the cumulative distribution function for w. it is assumed that w_i is normally distributed with mean zero (i.e. $IN(0, \sigma^2)$).

The dependent variable in our analysis is binary or latent variable “SE”. The inadequacy of linear probability model suggests that non-linear specification may be more appropriate. In order to explain the dichotomous dependent variable, we will use the Logit model. The Logit model assumes the following cumulative probability density function.

$$SE = \frac{1}{1 + e^{-(\beta X_j)}} \dots\dots\dots(5)$$

Where, SE is the probability that a person participation in the self-employed labour market, “e” is the exponential value. β is a row vector of parameters and X_j is the column of the variable.

With the Logit model, the natural log of the odds ratio of self-employment to wage/salary employment, $\ln\left(\frac{SE}{1-SE}\right)$ is expressed as a linear function of independent variables, such as;

$$\ln\left(\frac{SE}{1-SE}\right) = \beta X_j \dots\dots\dots(6)$$

Therefore, the coefficients in the Logit model register the effect on the log odds of a little change in the independent variables.

The general model specified above can be used as a guiding paradigm. Based on the theoretical rationale; the operational model consists on the variables which are supplied by the data.

The operational model of self-employment for estimation is outlined in the following equations. In order to analyze the detailed effect of different variables on self-employment, four specifications have been selected for the estimation of Logit model. The first specified model for self-employment is given as follows:

$$SE = \alpha_0 + \alpha_1 AGE + \alpha_2 AGE^2 + \alpha_3 CYEDUC + \alpha_4 HELTH + \alpha_5 PHAST + \alpha_6 SPART + \dots\dots\dots (A) \\ \alpha_7 NDEPT + \alpha_8 MARTS + \alpha_9 FAMUP + \alpha_{10} HSIZE + \alpha_{11} SEX + \alpha_{12} LOCTN + \mu_i$$

In the equation of self-employment model, the explanatory variable are Age, Age square, completed years of education, Health status, presence of household's Assets, Spouse's Participation in economic activities, Marital status, Number of dependents, Family setup, Household Size, Sex and Location.

To analyze the impact of experience on self-employment, the study incorporates a continuous variable experience in the self-employment model. Experience is obtained by subtracting completed years of schooling and age of the worker at the time of entry into the school from the completed Age of the worker. i.e. EXP = AGE – Education – 5, Age and Age² is omitted from equation, just to remove the Multi-collinearity effect.

$$SE = \beta_0 + \beta_1 EXP + \beta_2 EXP^2 + \beta_3 CYEDUC + \beta_4 HELTH + \beta_5 PHAST + \beta_6 SPART + \dots\dots\dots (B) \\ \beta_7 NDEPT + \beta_8 MARTS + \beta_9 FAMUP + \beta_{10} HSIZE + \beta_{11} SEX + \beta_{12} LOCTN + \nu_i$$

To capture the effect of different age groups on self-employment, four categorical age dummy variables are included in the model of self-employment determination.

$$SE = \gamma_0 + \gamma_1 AGE_1 + \gamma_2 AGE_2 + \gamma_3 AGE_4 + \gamma_4 AGE_5 + \gamma_5 CYEDUC + \gamma_6 HELTH + \\ \gamma_7 PHAST + \gamma_8 SPART + \gamma_9 NDEPT + \gamma_{10} MARTS + \gamma_{11} FAMUP + \gamma_{12} HSIZE + \dots\dots\dots(C) \\ \gamma_{13} SEX + \gamma_{14} LOCTN + \omega_i$$

Finally to analyze the contribution of education at each level, a set of dichotomous variables representing the various level of education are also introduced in the 4th Logit equation of self-employment model while taking age as a continuous variable.

$$SE = \lambda_0 + \lambda_1 AGE + \lambda_2 AGE^2 + \lambda_3 EDUCI + \lambda_4 EDUCII + \lambda_5 EDUCIII + \lambda_6 EDUCIV \\ + \lambda_7 EDUCV + \lambda_8 HELTH + \lambda_9 PHAST + \lambda_{10} SPART + \lambda_{11} NDEPT + \lambda_{12} MARTS \dots\dots\dots (D) \\ + \lambda_{13} FAMUP + \lambda_{14} HSIZE + \lambda_{15} SEX + \lambda_{16} LOCTN + \varepsilon_i$$

The list of the variables for Logistic estimates of the determinants of the self-employment is explained in the table 2.

Table 2: List of the Variables used in the self-employment estimating equations

Variables	Description of variables
Dependent variable	
SE	=1 if worker is self-employed. =0 otherwise
Explanatory variables	
AGE	Age of the workers (in years).
AGE ²	Square of the worker's age.
CYEDUC	A continuous variable defined as the completed years of education.
EXPER	A continuous variable defined as: Experience = Age – Education - 5
EXPER ²	Square of Experience.
Educational attainment (Non formal education is reference category)	
EDUC I	= 1 if the worker's education level is up to middle (8 years of education) = 0 otherwise
EDUC II	= 1 if the worker's education level is Matric (10 year of education) =0 otherwise
EDUC III	=1 if the worker's education level is Intermediate (12 years of education) =0 otherwise
EDUC IV	=1 if the worker's education level is graduation (14 years of education) = 0 otherwise
EDUC V	=1 if the worker's education level is M.A/M.Sc (16 years of education) =0 otherwise
AGE Groups [AGE3 (35-44 years) has been taken as reference age group	
AGE 1	=1 if worker belongs to age group (15-24) years =0 otherwise
AGE 2	=1 if worker belongs to age group (25-34) years =0 otherwise
AGE 4	=1 if worker belongs to age group (45-54) years =0 otherwise
AGE 5	=1 if worker belongs to age group (55-64) years =0 otherwise
Closed relatives' educational status	

Other socio-economic variables	
MARTS	=1 if the workers are married =0 otherwise
PHAST	=1 if the workers have assets in any form =0 otherwise
SPART	=1 if the workers' spouse participates in economic activities =0 otherwise
H SIZE	Size of the household or total member of the family
FAMUP	=1 if the workers belong to joint family =0 otherwise
NDEPT	Total number of dependents in the family
LOCTN	=1 if the workers is residing in the urban area =0 otherwise
SEX	1 = if the worker is male 0 = otherwise
HEALTH	1 = if the worker is affected by major diseases (high blood pressure, heart disease, seeing difficulties, diabetes etc) 0 = otherwise

Results and Discussion:

1). Statistical Analysis

Descriptive statistics of some selected variables are interpreted or described in the table 3. The average age of self-employed worker is 39.72 years with 13.37 variability about mean. The shape of the negatively skewed distribution is platokurtic. If we consider the various age groups instead of completed years, on the average the highest the ratio of workers is in the age group (35-44). The mean ratio of the various age groups shows a concave shape of the workers' age being self-employed. The values of kurtosis indicate that the shape of the distribution is Lepto-Kurtic at the early age group and at the old age group. As far concerned, the completed years of education, the self-employed workers on the average have 10.64 year education with standard deviation 3.84. The average experience of the self-employed worker is almost 24.08 years. If various educational level are taken into account, 0.27 self-employed workers on the average have education up to middle level and followed by the matriculate (0.22). It is also observed from the statistical analysis that the average ratio of Assets' holding workers; is 0.57. On the average, number of dependents are 4.5 and the variability about mean (standard deviation) is 1.85. The descriptive analysis indicates that the average household size is 7.34. The average ratio of self-employed male is 0.67. Urban self-employed workers are 0.34 on the average. This is the preliminary analysis of the determinants of the self-employed. The detailed analysis would make in forthcoming section.

Table 3: Summary statistics of some selected variables for self-employed worker aged 15-64

Variables	Mean	Standard Deviation	Skewness	Kurtosis
AGECY	39.72	13.37	-0.02	2.04
AGE1	0.16	0.37	1.84	4.37
AGE2	0.21	0.41	1.45	3.10
AGE3	0.25	0.43	1.15	2.32
AGE4	0.24	0.43	1.25	2.50
AGE5	0.15	0.36	1.92	4.68
CYEDUC	10.64	3.84	-0.49	2.83
EXPER	24.08	13.63	0.16	2.11
EDUCI	0.27	0.45	1.03	2.06
EDUCII	0.23	0.42	1.33	2.78
EDUCIII	0.17	0.37	1.80	4.22
EDUCIV	0.16	0.37	1.82	4.29
EDUCV	0.15	0.36	1.94	4.77
HELTH	0.12	0.33	2.29	6.24
PHAST	0.56	0.50	-0.26	1.07
PARTS	0.44	0.50	0.26	1.07
NDEPT	4.51	1.85	0.35	2.36
MARTS	0.74	0.44	-1.12	2.26
FAMUP	0.57	0.50	-0.27	1.07
HSIZE	7.34	2.67	0.30	2.41
SEX	0.67	0.47	-0.71	1.51
LOCTN	0.34	0.47	0.68	1.46

2). Econometric Analysis:

Table 4 interprets the estimates of maximum likelihood Logit equations and their z-statistics. To verify the reliability of the point estimates, two tailed test of significance or z-statistic are used in the present study to determine the acceptance or rejection of null hypothesis. For this purpose, 1 percent, 5 percent and 10 percent level of significance has been used. The intercept term turns out to be highly significant and negative in all Logit equations. In most of the cases, intercept term has no economic explanations except that it shows the expected impact of all other omitted independent variables on the dependent variable.

The co-efficient of the variable AGE in equation “A” and “D” shows that the probability of self-employment raises significantly with age. While the negative and significant co-efficient of AGE² indicates the diminishing effect of age that is the shape of age – self-employment profile is concave. In order to see the self-employment response for various age groups, dummy variables for age groups are incorporated in third equation “C” of self-employment model considering the age group of (35-44) years as base outcome, four age groups have been taken

as categorical variables (15-24, 25-34, 45-54, 55-64). The results indicate that the co-efficient of all age groups in equation "C" except AGE5 are highly significant. The workers' participation as self-employment is lower among the age groups like AGE1 and AGE2 as compared to the workers belonging to AGE3 (Base category). The reason may be that workers are still studying or acquiring education and are in-experienced. The co-efficient of age group 44-54 is significant and shows positive relationship. The probability of self-employment rises in the age group 44-54 as compared to the workers 35-44 years old. The reason may be that the workers in the age group of 44-54 are matured, experienced and have ability to face the risk, involved in own account work or business. Supporting to previous results, the co-efficient of experience is positive and highly significant. The significant and negative co-efficient of experience squared shows concavity of the age/experience- profile.

Education plays an important role in improving human capital. The co-efficient of the variable of completed years of education (CYEDUC) is positive and highly significant at one percent level of significance in first three Logit equations. The study indicates that self-employment rises as the years of schooling rise. The result is consistent with the human capital model developed by G. Becker (1965) that workers' education is directly related with their participation in the labour market.

In the present study, we have introduced the dummies for various levels of education just to observe the clear impact of education on self-employment. Non-formal education has been considered a base category. The co-efficient of all the education levels are positive and significant at different levels of significance, besides basic education level up to middle (EDUCI), which influences self-employment directly. The probability of work participation in self-employment activities increases as the level of education increases. The economic interpretation of this positive relationship between different level of education and self-employment is that as the level of education improves, it raises the confidence, skill, bargaining qualities and ultimately expected market earnings.

Workers' health condition is another important factor which influences the workers' participation in self-employment market. The study has incorporated dummy for health. If a worker is badly affected by a chronic disease, the self-employment falls. The co-efficient of health is negative and highly significant. The probability of self-employment falls if the worker is affected by severe disease. Presence of household assets is another important factor which influences the self-employment directly. The co-efficient of PHAST is positive and significant at 1 percent level of significance in all four equations of self-employment model. The probability of participation as self-employed worker increases as the workers' assets rise. The spouse's participation in economic activities has negative and significant impact on work participation in self-employment business. Self-employment is significantly and positively influenced by number of dependents (NDEPT). The probability of self-employment rises due to high dependency burden.

Marital status of the workers is another factor influencing the worker's decision regarding participation in self-employment activities. The co-efficient of MARTS is positive and insignificant in all Logit equation. Similarly, the workers belonging to joint family system are less likely to participate in self-employment business. The co-efficient of FAMUP is not only negative but its impact on self-employment is insignificant. The study indicates that household size has positive and significant effect on workers' participation in self-employment labour market. The probability of self-employment rises as the household size increases.

Male workers are more likely to be self-employed as compared with females. The co-efficient of SEX is positive and statistically insignificant. Location or Region of Residence plays very important role in partaking self-employment activities. The result shows that probability of participation in self-employment business falls for urban workers. The reason may be that the job prospects for self-employment business are better in rural areas. Because mostly workers are busy in farming and live-stock management activities.

Table 4: Logistic Regression Estimates of Self-Employment Model:

Variables	Equation A Co-efficient (Z-Statistics)	Equation B Co-efficient (Z-Statistics)	Equation C Co-efficient (Z-Statistics)	Equation D Co-efficient (Z-Statistics)
AGE	0.1806*** (1.83)	-	-	0.1565*** (1.66)
AGE ²	-0.0016*** (-1.64)	-	-	-0.0013*** (-1.86)
EXPER	-	0.1354* (2.15)	-	-
EXPER ²	-	-0.0018*** (-1.65)	-	-
CYEDUC	0.1521* (3.14)	0.1845* (3.67)	0.1515* (3.11)	-
EDUCI	-	-	-	1.1672 (0.76)
EDUCII	-	-	-	1.6667*** (1.68)
EDUCIII	-	-	-	3.2116** (2.15)
EDUCIV	-	-	-	2.8653** (1.96)
EDUCV	-	-	-	2.1401*** (1.73)
AGE1	-	-	-2.2134* (-2.41)	-
AGE2	-	-	-1.1278* (-2.26)	-
AGE4	-	-	0.3579*** (1.79)	-
AGE5	-	-	0.1999	-

			(0.467)	
HELTH	-2.5908* (-3.36)	-2.5570* (-3.31)	-2.5409* (-3.302)	-2.6346* (-3.3)
PHAST	2.7653* (7.26)	2.7069* (7.12)	2.8149* (7.29)	2.4888* (6.36)
SPART	-0.5270*** (-1.68)	-0.5362*** (-1.67)	-0.5485*** (-1.66)	-0.5163*** (-1.63)
NDEPT	0.2793*** (1.77)	0.2636*** (1.69)	0.2888*** (1.74)	0.2286*** (1.83)
MARTS	0.5441 (1.18)	0.5749 (1.26)	0.2697 (1.08)	0.6246 (1.005)
FAMUP	-0.3489 (-0.9704)	-0.3340 (-0.9256)	-0.3278 (-0.8975)	-0.2382 (0.6399)
HSIZE	0.0084*** (1.64)	0.0167*** (1.78)	-0.00797*** (1.69)	0.01998*** (1.63)
SEX	0.2953 (1.19)	0.2892 (1.37)	0.3232 (1.26)	0.2581 (1.23)
LOCTN	-0.4017 (-1.171)	-0.4085 (-1.187)	-0.4601 (-1.325)	-0.388 (-1.093)
CONSTANT	-11.014* (-5.32)	-8.8991* (-6.16)	-6.002* (5.75)	-10.9073* (-4.16)
Log Likelihood	-153.1778	-152.9482	-151.1079	-145.0421
LR Statistics	153.5076	153.9668	157.6473	169.7789
DF	12	12	14	16
P-Value	0.0000	0.00000	0.00000	0.00000
Mc Fadden R²	0.334	0.335	0.343	0.369
Size of Sample	494	494	494	494

Note: Z-statistics are in Parenthesis. Non Formal education and AGE3 (35-44) are considered as base category.

* Significant at 1 Percent level of Significance

** Significant at 5 percent level of Significance

*** Significant at 10 percent level of Significance

Conclusion and Policy Recommendations

In the present study, we have investigated the different micro-determinants that might influence the decision of workers to join the self-employment market in Pakistan. The study concludes that the experience and age of the workers positively and significantly affect the self-employment. The findings of the research indicate that the educational attainment and good health have direct and significant impact on self-employment. In addition, we have observed that presence of household's assets also has positive and significant effect on workers' decision regarding self-employment. Except these core variables, the spouse participation in economic activities, number of the dependents and household turn out to be more significant variables in determining the self-employment.

In light of the above discussion and findings of the study, following policies may be proposed:

- i. The government and NGOs should concentrate on education specifically at basic and secondary level rather stressing on higher education.
- ii. Since agriculture is the mainstay of Pakistan's economy so government while formulating its education policy must focus on agriculture education to enhance the employment and growth of economy.
- iii. Technical education is an area which has been neglected for many years in Pakistan. If government stresses on technical education, it would not only increase human capital but also create self employment opportunities in the country.
- iv. In Pakistan, financial dualism exists. Financial institutions should establish its branches at rural areas so that the hoardings of rural areas may convert into savings which in turn enhance the household assets.

End Notes:

¹ Blau David M., 'Self-employment and Self-Selection in Developing Country Labour Markets', *Southern Economic Journal*, Vol. 52, No. 2, 1985, pp. 351-363.

² Becker, G. S., 'Theory of the Allocation of Time', *Economic Journal*, No. 76, 1965, pp. 493-517.

³ Nadvi, K., 'Multiple Forms of Sub contracting arrangements: Implications for the growth of the informal manufacturing sector', QAU/FES, National workshop on the informal sector of Pakistan: Problems and Policies. September 12-14, 1993.

⁴ Kamal, A. R. and Zafar Mehmood, 'The urban informal sector of Pakistan: Some stylized facts', Pakistan Institute of Development Economics, Research Report No. 161, 1993.

⁵ Yamada, G., 'Urban Informal Employment and Self-Employment in Developing Countries', *Economic Development and Cultural Change*, Vol. 44, No. 2, 1996.

⁶ Kazi, S., 'Skill formation, Employment and Earnings in the Urban informal sector', *The Pakistan Development Review*, Vol. 26, No. 4, 1987.

⁷ Kazi, S. and B. Raza, 'Women in the informal sector: Home Based workers in Karachi', *The Pakistan Development Review*, Vol. 28, No. 4, 1989.

⁸ Georgellis, Y. and Howard J. Wall, 'Gender Differences in Self-employment', Working Paper Series, Federal Reserve Bank of ST. Locus, MO 63102, 2004.

⁹ Trang, Do Thuy, 'Determinants of Self-employment: The Case in Vietnam', CES Working Paper No. 38, 2008.

¹⁰ Rees, H. and A. Shah, 'An empirical analysis of self-employment in the UK', *Journal of Applied Econometrics*, No. 1, 1986, pp. 101-108.

¹¹ Le Anh T., 'The determinants of Immigrant Self-employment in Australia', *International Migration Review*, Vol. 34, No. 1, 2000, 183-214.

¹² Gill, A.M., 'Choice of employment status and the wages of employees and the self-employed: some further evidence', *Journal of applied econometrics*, No. 3, 1988, pp. 229-234.

¹³ Evan, D.S. and Jovanovic, B., 'An Estimated Model of Entrepreneurial Choice Under Liquidity Constraints', *Journal of Political Economy*, No. 79, 1989, pp. 808-827.

¹⁴ De Wit, G., 'Model of Self-Employment in a Competitive Market', *Journal of Economic Surveys*, No. 7, 1993, pp. 367-397.

¹⁵ Le Anh T., 'The determinants of Immigrant Self-employment in Australia', *International Migration Review*, Vol. 34, No. 1, 2000, 183-214.

¹⁶ Constant, A. and Zimmermann, K. F., 'The making of entrepreneurs in Germany: Are native men and immigrant alike?' *Small Business Economics*, No. 26, 2006, pp. 279-300.

¹⁷ Blundell, R., 'Specification Testing in Limited and Discrete Dependent Variable Models', *Journal of Econometrics*, Vol. 34, No. 2, 1987, pp.105-123.