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# Analyzing Determinants of Rural Poverty in Kuyu Woreda, North Shoa, Oromia Regional State, Ethiopia

Feleke Yehuwalashet Motuma (Principal investigator) [1]
Professor Devarajan Sundara Rajan (Advice-giver)[2]
1.Department of Geography and Environmental Studies, Wolaita Sodo University, Ethiopia, POBox138
2.Department of Rural Developments and Agricultural Extension , Wolaita Sodo University, POBox138

**Abstract**
The objective of this study was assessing the level of rural poverty and exploring associated factors causing poverty in North Shoa, Kuyu Woreda. Relevant data were collected through questionnaires, key informants, personal observation and reviews of document. The generated data were analyzed through FGT index, logistic regression and measure of dispersion. The local poverty line was identified as 7.66 Ethio-birr per individual per day. Accordingly, Majority of rural households were below local poverty line. Incidence of households to poverty is high (0.648). The amount of income required to remove the poor out of poverty is 1.72 birr per individual in day in kuyu woreda. The severity of poverty was 0.05 which represents the poorest among the poor from households .The result of the logistic regression model indicates that Household heads that did not educated are almost five times as likely to be poor than those who have at least educated. Household who didn't own title of farm land are almost one times as likely to be poor relative to those who titled to have farm land. Household who have no access to extension service are almost one times as likely to be poor than who accessed to extension service. Household who used hoeing farm land for crop production are eight times likely to be poor than who do not. The age of the household heads sampled was also found to be correlated to the poverty status indicating that the household head below 18 years were likely poor. Finally, it was recommended that the detail of question like where is poverty located? In what forms poverty exists? Who does it affects? In the kuyu woreda should be added and get attention in research and development to reduce poverty in the study area.
**Keywords:** Rural poverty, Prevalence of poverty, Severity of poverty, FGT index, logistic regression

## 1. INTRODUCTION

### 1. 1. Back ground and Justification

Poverty has many faces, such as hunger, lack of shelter, being sick and not being able to see a doctor, not being able to go to school, not having a job, fear of the future, living one day at a time. Poverty is losing a child to illness brought about by unclean water. Poverty is powerlessness, lack of representation and freedom. Poverty has many features; changing from place to place and across time, and, has been described in many ways. "Poverty is the inability to retain a minimal standard of living, measured in terms of basic consumption needs or some income required for satisfying them (World Bank,2006) .

Poverty is the oldest and the toughest like virus that brings about a distressing disease in developing countries (Tazoacha, 2001). Its rate of killing cannot be compared to any disease from the origins of mankind. It is worse than malaria and HIV/AIDS which are claimed to be the highest killer diseases (Tazoacha, 2001). Three fourths of the poor in the developing world live in rural areas (World Bank, 2008). Likely, the burden of poverty in sub-Saharan Africa is disproportionately borne by rural residents and women (UNECA, 2012). Nowadays, across sub-Saharan Africa rural infrastructure has almost deteriorated, farming has languished, food systems have stagnated, and income inequalities have deepened (UNDP, 2012).

Explicitly, poverty is widespread in Ethiopia as a large proportion of its population lives below one dollar a day. Despite rapid economic growth in the past decade, poverty is still prevalent in Ethiopia that makes the country among the poorest in the world. According to UNDP (2012), Ethiopia is ranked 174th out of 187 countries in terms of HDI. Similar to in other developing countries, majority of the poor in Ethiopia live in rural areas (Alemu et al., 2011) where 83 percent of the total population lives (World Bank, 2012). According to CSA (2007), only, 19,872 (16.42%) of kuyu woredas' population are urban dwellers. This means majority of the population are rural inhabitants. These rural communities were failed under poverty. Kuyu woreda is one of five woreda which embodied to safety net program. In addition, rural households of this woreda became direct beneficiary of food aid. For instance, data obtained from MoA (2012) indicate that about 3,301 households in Kuyu woredas were under food aid program. But, these episodes were not the experience of the area in the past decades. This shows most rural households' of kuyu woreda were fall under poverty line. In order to tackle poverty, analyzing factors that determine the possibility of falling into poverty is indispensable. Examining and understanding factors that determine the situation of rural poor helps to draw clear direction for policy making and enlightens appropriate intervention areas.

Therefore, identifying major cause of rural poverty which these studies focus on is very imperative to take measures that reduce the present condition of poverty in kuyu woreda.

### 1.2. General objective of the study

The overall objective of the study is to assess the level of rural poverty and to explore associated factors in, kuyu woreda, North Shoa, Oromia Regional State, Ethiopia.

#### 1.2.1. Specific Objectives of the Study

- To assess the status of poverty situation in the study area
- To analyze the determinants of rural poverty in the study area.

## 2. Methodology

### 2.1 Methods of Data Collection

Data were collected by both primary and secondary methods. The primary data were collected by using key informant interview, personal observation and questionnaire or scheduled interview to gather relevant and appropriate information about the rural poverty. The secondary data were collected from related research results, books, and journals.

### 2.2 Sampling design procedures and sample size

Multi-stage sampling method was employed to determine sample size for the study. Accordingly, kuyu woreda is one of the 14 woreda of north shewa/selale zone. The researcher focused on this woreda because, the area is food insecure declared woreda. Incidence of rural poverty is very high. Most of the people live below the poverty line. Apart from humanitarian considerations, the high incidence of poverty becomes a crucial social factor for the governance of civil society. In this woreda there are 23 rural kebele, the researcher selected five rural kebeles of kuyu woreda by purposive sampling method. This was carried out because of the following issue, 1st the selected kebeles fall under food aid program, randomly as proportional as that of the woreda, 2nd the selected kebeles expected to represent the woreda in terms of socio-economic characteristics adequately, 3rd spatial accessibility these kebeles have. From these identified five rural kebeles, two kebeles were selected by using simple random sampling method. This is because it gave equal chance for all population understudies that were selected and the selected kebele was believed to be representing in reflecting the character of the remaining parts of the kebele. At this stage, the DAs were consulted to identify the location of each household within both kebele. Accordingly 1092 and 1100 households were identified in *Dubana-agalo* kebele and *Wuyye-gose* kebele respectively. The sample size was decided by using Emane formula (1967), in focusing on published tables on 10% precision level. Accordingly 95(48+47) samples were taken from 2192 households. By using "PPS", sample was taken from each kebele. Through systematic sampling method individual household was derived from the each group.

### 2.3. Method of data analysis (Analytical Techniques Procedures)

A. To measure status of poverty in kuyu woreda, the researcher used:

I. Head count index

Proportion of population whose consumption (y) is less than the poverty line Z= $\underline{Y_1, Y_2, \ldots Z,} \ldots . Y_n$ H =q/n

II. Poverty gap index

Aggregate short-fall of the poor relative to the poverty line Z. mean proportionate poverty gap across the whole population (zero gaps for the non-poor)

$$PG = 1/n \sum_{i=1}^{q} [(Z-Y_i)/Z]$$

III. Squared Poverty Gap Index (SPG)

The Foster, Greer and Thorbecke (FGT) index, P (Foster ete al 1984) was used to decompose poverty levels among the households. The FGT index (P) is given as:

$$SPG = 1/n \sum_{i=1}^{q} [(Z-Y_i)/Z]^2$$

B. To measure the Factors Influencing Poverty in kuyu woreda, the researcher used binary logistic regression model.

I. The probability of being poor

Given the dependent variable of main interest that households may be classified as Poor or non-poor, a binary logit model can be used for the analysis of the data. Consider that a household is poor (Y=1) if household are poor as of community perception or non-poor (Y=0) if household are non-poor relatively. So that:

**PBP** = $\begin{cases} 1, & \text{if non-poor} \\ 0, & \text{if poor} \end{cases}$

Where **PBP** denotes probability of being poor

Researcher then used a Logistic regression model as follows
If **Pi,** is the probability of probability of being poor,

$P(Xi) = \frac{e^{zi}}{1+e^{zi}}$……..1

If Pi, the probability of being non- poor, then **(1 − Pi),** the probability of being poor, is

$\mathbf{1\text{-}p\ (x_t) = \frac{1}{1+e^{zi}}}$ **……..……2**

Therefore, from equation **1** and **2**, we can write **odds ratio.** That is the probability of a being non-poor to the probability of probability of being poor as

$\frac{p(xi)}{1-p(xi)} = \frac{1+e^{zi}}{1+e^{-zi}} = e^{zi}$……..3

As logit is log of odd, we can get the following equation

$Logit(p(xi) = ln[\frac{p(xi)}{1-p(xi)}] = zi$…….4

Where

$zi = \beta o + \beta 1\ x1 + \beta 2\ x2 + \beta 3\ x3 \ldots + \beta 12 x12$

## 3. Result and Discussion

### 3.1 Determining poverty line

Adequate nutrition is a prerequisite for a decent level of well-being in the study area, so, quantity of calories consumed per person was used determine poverty line. Anyone consuming less than a reasonable minimum often set at 2,100 calories per person per day would be considered poor. This standard is widely used, and has been proposed by the Food and Agricultural Organization of the United Nations. In practice, researchers in this case used the price of food for households in the 3/5$^{th}$ quintile, on the grounds that those households were close to the poverty line because they were consuming near to 2,100 Calories per day. The food expenditure of the 3/5$^{th}$, grossed up to pay for 2,100 Calories, came to7.40 birr.

### 3.2. Analysis of Farm Household Poverty Status

The farm household's poverty statuses in the state were analyzed using the three indicators- prevalence of poverty, poverty depth and severity of poverty. Prevalence of poverty indicate the percentage of the households falling below the poverty line; poverty depth shows the amount by which the poor fall short of the poverty line and severity of poverty is the sum of the square of poverty depth divided by the number of poor households in the sample.

### 3.3. Status of poverty

#### A. Incidence of poverty

Absolute poverty may be measured by the number of head count (q) of those whose income fall below the absolute poverty line when the head count is taken as a fraction of the total population (n). The head count index may be defined as; H =q/n

As shown in table 2, the prevalence of poverty among the farm households in kuyu woreda was (0.648) representing 64.8 percent of the farm households with calorie intake expenditure level below the poverty line. These indicate that more than half of sample populations in the study area were falling under poverty line. So, prevalence of households to poverty is high in kuyu wereda.

#### B. Depth of poverty

It is the aggregate short fall in expenditure of the household from the poverty line. It measures the difference between actual expenditure and minimum non-poverty expenditure. It gives the depth of poverty at a point in time.

As indicate in table 3, the poverty depth was 0.224 representing 22.4% whose average calorie intake expenditure was below the poverty line. This gap represents the percentage of expenditure required to bring poor households below the poverty line up to the poverty line. On the other hand, as Poverty gap was summarized and presented in Table above, the average poverty gap was 1.72 only. This shows that the amount of income required to remove the poor out of poverty is 1.72 per individual in kuyu woreda.

#### C. Severity of poverty

The FGT index was used to determine the threshold which was used to categorize the level of poverty among farm households in the study area. The FGT index is computed with the mathematical formula as stated below:

As indicated in above table 4, the severity of poverty index was 0.05 which represents the poorest among the poor from households who require the attention of policy maker in the distribution of the standard of living indicators, like income generating activities.

### 3.3. Determinants of Poverty Status of Farm Households

#### 3.3.1. Univariate Results

The systematic association between each predictor variables and households poverty status was conducted by cross-tabulating each predictor variables against the outcome variable. In addition, a univariate logistic regression of each predictor variable against the household poverty status was performed to select the significant candidate predictor variables that would qualify for the multivariate logistic regression model.

The results in Table 5 indicate that the proportion of poor households is higher among households who age is below 18 years in kuyu woreda (100%). The proportion of poor is higher among households with no education level (91.7%). The proportion of poor household is higher among households with family size larger than and equal with sample mean (79.3%).The proportion of poor households is 79.2% among households who is seeking work in kuyu woreda. Poor households are higher among households who owned farm land below 2.5 hectares (78%) in the study area and households who have not get remittance (77.8%). Poor households was higher among households who have no title of farm land (84.3%) and those who have spent time on work less than 8 hours (70.3%). Proportion of the poor households who used traditional ploughing (73.2%) is higher in the study area. The proportion of poor household who have no access to market (79.7) is higher in the study area.

The chi-square and likelihood Ratio (LR) test results presented in table 9 were used to test whether or not there was a systematic association between poverty status and each indicator. These tests revealed that family size, labor force, land size, access to remittance, time of household spent on work, draught power, access to health center, access to safe water, access to market , all other indicators showed statistically a significant relationship with poverty status in the study area. Apart from the cross-classification table that displays the percentage, chi-square and likelihood ratio test results, a Univariate logistic regression model same was nearly fitting with its results presented in table 9.

Results in Tables 9 indicate that the Wald statistics for each of age of household, education level, title of having farm land, time household spent on work, draught power, extension service give for household were highly related with the household poverty status and were also statistically significant. This means separate effect of each of these predictors on household poverty status was significant. Therefore, each variable were selected for inclusion in the multivariate logistic regression model.

Hence, on the basis of the Univariate results, the list of predictor variables that were considered as candidates for multivariate logistic regression model were of age of household, education level, title of having farm land, time household spent on work, draught power and extension service.

#### 3.3.2. Multivariate Logistic Regression Results

Based on the results of Univariate analysis, a selected predictor Variable included in the multivariate analysis. Using the stepwise (likelihood ratio) method, six predictor variables were selected and have a significant joint impact in determining household poverty. The multivariate logistic regression result is summarized in Table 7.

The signs of the regression coefficients of the final model (Table 7) fulfill the underlying assumption and the corresponding Wald statistics or p-values less than 0.1 imply that the six predictor variables included in the multivariate model have a significant joint influence on the outcome variable. The Univariate analysis results also confirms that each of the six predictor variables have the expected sign and are also statistically significant in influencing households' poverty status. The result of the logit regression indicates that age of households ($p<0.01$), level of education ($p<0.01$), title of farm land ($p<0.05$), time households spent on works ($p<0.01$), draught power used by households ($p<0.05$), and extension service ($p<0.01$), significantly influence the probability that a household will be poor or non-poor.

The results obtained from the woreda further revealed that the likelihood event of being poor were more with households that have no any education level. Household heads that did not educated are almost five times as likely to be poor than those who have at least educated. Household who didn't own title of farm land are almost one times as likely to be poor relative to those who titled to have farm land. Evidence from other studies point to the same direction between poverty and Education. Education is vital for boosting the productivity of the human factor and making people more aware of opportunities for earning a living. In this wise, farm households sampled in the woreda with educated heads were found to be less likely to be poor. Bastos *et al.* (2009) validated that labor is by far the most important asset of the poor and increasing their education will in turn increase labor productivity and wages which ultimately will lessen their poverty. Household who have no access to extension service are almost one times as likely to be poor than who accessed to extension service in kuyu woreda. Access to extension service by farm households has significant relation with poverty status and this will aid the households to escape from poverty. This is in line with the general believed that extension service is an anti-poverty strategy because of the important role it plays among rural populace (Adeyeye, 2001). Example, Extension service supports the farm households in having of farm inputs such as fertilizer, herbicides, improved seeds and investment demand which will ultimately increase their productivity. Households who spent time on work below 8 hours are almost one times as likely to be poor than who spent time on work than eight hours. Household who used hoeing farm land for crop production are eight times likely to be poor than who do not. The age of the household heads sampled

was also found to be correlated to the poverty status indicating that the household head below 18 years were likely poor. Accordingly, households who age was below 18years are seven times as likely to be poor relative to those who age above 19 years old. This position is contradicting with those of Gang *et al.* (2002), and Rodriguez (2002) that poverty increases with old age as the productivity of the individual decreases

## 4. Conclusion and Recommendation

### 4.1. Conclusion

The following conclusions can be drowning from the present study on the analyzing rural poverty in the kuyu woreda. Accordingly, in this study area, adequate nutrition is a prerequisite for a decent level of well-being in the study area, so, quantity of calories consumed per person was used determine poverty line. Anyone consuming less than a reasonable minimum often set at 2,100 calories per person per day would be considered poor. Most awful, lowest and middle quantile, Households average intake of calories is below local poverty line. While households average intake calories are above local poverty line in upper and most upper quantile. Disbelieving the community, apathy, child morbidity and land degradation is the same across various poverty levels of households in the study area. More than half of sample populations in the study area were falling under poverty line. So, prevalence of households to poverty is high in kuyu wereda. The amount of income required to remove the poor out of poverty is 1.72 in kuyu woreda. The result of the logit regression indicates that age of households, level of education, title of farm land, time households spent on works, draught power used by households, and extension service, significantly influence the probability that a household will be poor or non-poor.

### 4.2. Recommendation

The following points are recommended for the future based on the researcher understanding from whole section of the study.

- Surveys for this study reveal that the calorie intakes of most of households are below 2100 cl in kuyu woreda. Amount of income required to remove the poor out of poverty is 1.72 birr per individual in the study area. So, great attention should be given to income generating activity.
- Logistic regression model indicate that Household heads that did not educated are almost five times as likely to be poor than those who have at least educated. So, educational bureaus of the woreda and other concerned body should pave the way household access to at least adult education.
- Logistic regression model indicated that households who didn't own title of farm land are almost one times as likely to be poor relative to those who titled to have farm land. So, the woreda agricultural bureau and other concerned body have to work to empower rural households through land redistribution and the like.
- Through Logistic regression model, the researcher revealed that household who have no access to extension service are almost one times as likely to be poor than who accessed to extension service in kuyu woreda. So, any concerned bodies have to work for better access to farm inputs such as fertilizer, herbicides, improved seeds and investment demand which will ultimately increase their productivity.
- Logistic regression model indicated that households who spent time on work below 8 hours are almost one times as likely to be poor than who spent time on work than eight hours. So, rural households should be trained as work is only means out of poverty.

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Table1 Illustration of Construction of Cost of Food Component of local Poverty Line

| **Food** | Expenditure per day /individual | Calories per individual | Calories, Adjusted to give 2,100 Calories | Expenditure, adjusted to cover 2,100 Calories |
|---|---|---|---|---|
| Teff | 1.85 | 443 | 483 | 2.00 |
| Sorghum | 1.54 | 585 | 615 | 1.60 |
| Coffee | 0.74 | 17 | 20 | 0.85 |
| Onion | 0.30 | 22 | 42 | 0.57 |
| Wheat | 0.37 | 134 | 154 | 0.43 |
| Barley | 0.49 | 229 | 249 | 0.53 |
| Maize | 0.65 | 347 | 367 | 0.69 |
| Peas | 0.86 | 150 | 170 | 0.97 |
| Total | 6.8 | 1927 | 2100 | 7.66 |

Source: own survey, 2016

Table 2 Headcount Poverty Rates in kuyu woreda, assuming poverty line of 7.66 birr

| Poverty status in kuyu woreda | | | |
|---|---|---|---|
| Non-poor | Poor | Total sample size | Headcount poverty rate (H) |
| 32 | 59 | 91 | 0.648 |

Source: own survey, 2016

Table 3 depth of poverty in kuyu woreda, assuming subjective poverty line of 7.66 birr

| Poverty status in kuyu woreda | | | | | |
|---|---|---|---|---|---|
| Non-poor | Poor | Poverty line | Average expenditure of the poor | Total poverty gap | *normalized poverty gap* |
| 32 | 59 | 7.66 | 5.94 | 1.72 | 0.224 |

Source: own survey, 2016

Table 4 severity of poverty in kuyu woreda, assuming subjective poverty line of 7.66 birr

| Poverty status in kuyu woreda | | | | | |
|---|---|---|---|---|---|
| Non-poor | poor | Poverty line | Average expenditure of the poor | Total poverty gap | *Squared poverty gap* |
| 32 | 59 | 7.66 | 5.94 | 1.72 | 0.05 |

Source: own survey, 2016

 

Table 5 Association between poverty status and selected predictor variables in kuyu *Woreda*

| Variables | N | % | Poor% | Non-poor% | Pearson chi-square | LR | df |
|---|---|---|---|---|---|---|---|
| age of household head | | | | | 7.207 (0.027) | 10.478 (0.005) | 2 |
| below 18 | | | | | | | |
| 19-60 | 14 | 16.3 | 100 | 0 | | | |
| above 61 | 40 | 46.5 | 75 | 25 | | | |
| | 32 | 37.2 | 62.5 | 37.5 | | | |
| Education | | | | | | | 3 |
| none | 36 | 41.9 | 91.7 | 8.3 | 21.736 | 21.416 | |
| adult education | 18 | 20.9 | 88.9 | 11.1 | (0.000) | | |
| primary school | 18 | 20.9 | 38.9 | 61.1 | | (0.000) | |
| secondary school | 14 | 16.3 | 57.1 | 42.9 | | | |
| Family size | | | | | | | 1 |
| below 5 members | 28 | 32.6 | 64.3 | 35.7 | 2.239 | 2.168 | |
| 6 members and above | 58 | 67.2 | 79.3 | 20.7 | (0.135) | (0.141) | |
| Labor force | | | | | | | 2 |
| Seeking work | 24 | 27.9 | 79.2 | 20.8 | 0.498 | 0.503 | |
| At work | 42 | 48.8 | 73.8 | 26.2 | (0.780) | (0.777) | |
| Unable to Work | 20 | 23.3 | 70 | 30 | | | |
| Land size | | | | | | | 1 |
| below 2.5 hectares | 59 | 68.6 | 78 | 22 | 1.242 | 1.207 | |
| 2.5 Hectares and above | 27 | 31.4 | 66.7 | 33.3 | (0.265) | (0.272) | |
| Access to remittance .yes | 32 | 37.2 | 68.8 | 31.2 | 0.860 | 0.847 (0.357) | 1 |
| .No | 54 | 62.8 | 77.8 | 22.2 | (0.354) | | |
| Having title of farm land | | | | | | | 1 |
| yes | | 40.7 | 60 | 40 | 6.445 | 6.382 | |
| No | 35 | 59.3 | 84.3 | 15.7 | (0.011) | (0.012) | |
| | 51 | | | | | | |
| time HH spent on works | | | | | | | 1 |
| 8hours and above | 64 | 74.4 | 70.3 | 29.7 | 2.216 | 2.431 | |
| below 8 hours | 22 | 25.6 | 86.4 | 13.6 | (0.13 7) | (0.119) | |
| Draught power | | | | | | | 2 |
| Hoeing | 4 | 4.7 | 100 | 0 | 1.442 | 2.430 | |
| BM ploughing | 26 | 30.2 | 73.1 | 26.9 | (0.486) | (0.297) | |
| Ploughing trad | 56 | 65.1 | 73.2 | 26.8 | | | |
| HH access to health center yes | 52 | 60.5 | 78.8 | 21.2 | 1.354 | 1.336 | 1 |
| No | 34 | 39.5 | 67.6 | 32.4 | (0.245) | (0.248) | |
| access to safe water | | | | | | | 1 |
| Yes | 19 | 22.1 | 68.4 | 31.6 | 0.461 | 0.446 | |
| No | 67 | 77.9 | 76.1 | 23.9 | (0.467) | (0.504) | |
| access to extension service | | | | | 3.606 | 3.574 | 1 |
| Yes | 36 | 41.9 | 63.9 | 36.1 | (0.058) | (0.059) | |
| No | 50 | 58.1 | 82 | 18 | | | |
| access to market | | | | | | | 1 |
| Yes | 27 | 31.4 | 63 | 37 | 2.713 | 2.613 | |
| No | 59 | 68.6 | 79.7 | 20.3 | (0.100) | (0.106) | |

Source: own survey, 2016

 

Table 6 Univariate logistic regression result

| Indicator | B | S.E. | Wald | df | Sig. | Exp(B) | 90.0% C.I.for EXP(B) | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Lower | Upper |
| ageHH | 1.922 | .712 | 7.292 | 1 | .007 | 6.832 | 2.119 | 22.025 |
| educ | 1.531 | .422 | 13.134 | 1 | .000 | 4.623 | 2.308 | 9.263 |
| titleland | -1.653 | .752 | 4.838 | 1 | .028 | .191 | .056 | .659 |
| timeondu | -3.700 | 1.383 | 7.155 | 1 | .007 | .025 | .003 | .241 |
| draughpo | 2.027 | .867 | 5.464 | 1 | .019 | 7.588 | 1.823 | 31.582 |
| extensio | -2.438 | .952 | 6.554 | 1 | .010 | .087 | .018 | .418 |

Source: own survey, 2016

Table 7 Multivariate logistic regression result

| Indicator | B | S.E. | Wald | df | Sig. | Exp(B) | 90.0% C.I.for EXP(B) | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Lower | Upper |
| ageHH | 1.922 | .712 | 7.292 | 1 | .007 | 6.832 | 2.119 | 22.025 |
| educ | 1.531 | .422 | 13.134 | 1 | .000 | 4.623 | 2.308 | 9.263 |
| titleland | -1.653 | .752 | 4.838 | 1 | .028 | .191 | .056 | .659 |
| timeondu | -3.700 | 1.383 | 7.155 | 1 | .007 | .025 | .003 | .241 |
| draughtpo | 2.027 | .867 | 5.464 | 1 | .019 | 7.588 | 1.823 | 31.582 |
| extension | -2.438 | .952 | 6.554 | 1 | .010 | .087 | .018 | .418 |
| Hosmer-Lemeshow test<br>$X^2$=7.509<br>P=0.378<br>Df=7 | | | Omnibus tests of models coefficients<br>$X^2$=45.640, P=0.000, Df=6 | | | Model summery | | |
| | | | | | | Cox and Snell=0.412 | Nagelkerke pseudo R-square=0.606 | |

Source: Own survey, 2016