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Research Paper

The determinants of household income in Afghanistan: case study of Samangan province

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Abstract

In this study the determinants of household income in Afghanistan: case study of Samangan province has been researched, In the literature review, generally the factors affecting household income in developing and undeveloped countries have been greatly examined. In this study, bachelor degree, high school, household size and over the age of 25 have been taken as the variables affecting total household income in Samangan province. For this purpose, firstly in order to know weather, the variances of the predication determined by regression remain constant or differ heteroscedasticity test was run and the result showed that there is no heteroscedasticity in our model, also by running Ramsey Reset test we found that our model is well-fitted. According to regression results all variables except household size have significantly affect household income in Samangan province. If we subtilize on the result, a person with having bachelor degree in Samangan province can affect his or her total household income, it means that a person with bachelor degree can affect 14.9 percent total household income. A person with having high school degree in Samangan province can affect his or her total household income about 15.2 percent. if a household increase with one person over the age of 25 it can affect total household income approximately 24.3 percent. But household size has negative affect on total household income it means by increasing one person in the family, total household income decreases -4 percent.

Keywords: Afghanistan; household; Regression; Income, Samangan.

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1. Introduction

The median annual household income worldwide is $9733, Norway with $51489, United States with $43585, Germany with $38584, Japan with $33822, Zambia with $1501, Liberia with $781, Burundi with $673, Iran with $12046, Tajikistan with $5137, Pakistan with $4060 and Afghanistan with $4121. The statistics show that there are vast differences between more economically developed countries and those with developing or transitional economies illustrate how dramatically spending power varies worldwide(Gallup, 2019)

Families are always trying to maximize their source of income and various factors affect household income in the world, necessity of studying household incomes is subjected by the role of this index in development of economic system. On the one hand, incomes define the level of households' consumer spending which form part of country's gross domestic product. On the other hand, incomes play an important role not only in macroeconomic system but also in development of household and particular members of society (Khondoker, Mohanty, & Ashok, 2015). Household incomes are one of the key indicators of economic growth, which characterizes purchasing capacity, consumer demand of households and quality and level of people's live (Varlamova & Larionova, 2015).

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A household's economic well-being can be expressed in terms of its access to goods and services. The more that a household can consume, the higher its level of economic well-being. While other theoretical approaches have underlined the importance of other aspects of people's lives as determinants of human well-being(Canberra Group Handbook, 2011)

Monitoring rural household income is important because increasing rural household income is at the heart of achieving many development goals, including reducing poverty, hunger, and food and nutrition insecurity. However, accurately assessing rural household income is time consuming and costly(Benin & Randriamamonjy, 2008)

The area of Afghanistan is 652864 km, a mountainous and land locked country. The total population of Afghanistan in the year (2014-2015) was estimated around 28 million, including 20.1 million living in rural area and 6.5 million living in urban area and the rest part of the population are living nomads (Temory, 2016). Afghan population is very young 42% under age 15 years old and only 3.5% older above 65 years old. The Afghan populations belong to various ethnic groups such as Pashtuns, Tajiks, Hazaras, Uzbeks, Nuristani, Baluchi's Turkmens etc. and the official languages of the country are Pashto and Dari (Temory, 2016)
The procedure of sampling will follow random sampling method. The data analysis of this case study follows Multiple regression analysis with Ramsey Reset Test and Heteroskedasticity test.

2. Problem statement

Afghanistan is one of the poor and low – income countries, economic recovery is slow as continued insecurity is curtailing private investment and consumer demand. Agricultural growth has been constrained by unfavourable weather conditions in the past years. The fiscal year position has remained strong, driven by improvements in revenue performance, although the government remains heavily reliant on donor grants. Poverty has increased amid slow growth, security disruptions to services, and poor agricultural performance due to severe drought. In Afghanistan output growth has slowed to an estimated 1.0 percent in 2018, down from 2.7 percent in the previous year. Despite the lower agriculture output, inflation remained moderate at 0.6 percent on average in 2018, due to lower regional food prices and appreciation of exchange rate against major trading partners. Poverty is estimated to have increased and deepened. The severe drought resulted in lower income for rural households and large internal displacement in the country (Worldbank, 2019)52

It is well documented that in many countries female – headed household occupy a vulnerable position with higher level of poverty and deprivation. The ALCS 2016 – 17 estimates that there is a total of 3.8 million households in the country with an average household size of 7.7 persons. The majority of households (52.3 percent) consist of one family of a married couple with children. In Afghanistan, only 0.3 percent, or 45 thousand households are headed by women, with a total of 212 thousand people living in female headed households Marriage is almost universal in Afghanistan. Above age 40, less than one percent of men and women remains unmarried. The mean age at first marriage is 21.6 years for women and 24.4 years for men(Central Statistics Organization, 2016-2017)

Samangan is a province with the poverty rate of 55.1 %, per capita monthly total consumption 1.188 AfN, literacy rate 23%, child labour 10.1 %, school enrolment 45.7%, female literacy rate 8.8%, and female share in active population rate is 25.8% (UCDAVIS, 2019). A province with such socio – economic rate needs to be done researches specially its household income in detail.
The main goal of this study will be to figure out what determinants the household income in Afghanistan with evidence from Samangan province.

3. Literature Review

Farm income is the most important source of income for rural households, level of education of the household head, farm size and access to electricity and gender of the household head were identified as the major determinant of household income (Fadipe, Adenuga, & Lawal, 2014). Levels of education of the household head, some province dummies, race of the household head, dependency ratio, gender of the household head, employment status of the household head and marital status of the household head are statistically significant determinants of household welfare (Biyase & Zwane, 2018).

Tuyen has studied socio-economic determinants of household income among ethnic minorities in the North-West mountains – the poorest region of Vietnam in 2015, the researcher has found that the vast majority of the sample households heavily depend on agricultural activities. He also confirmed the important role of education, non-farm employment and fixed assets in improving household income. In addition, some commune variables such as the presence of the means of transportation, post offices and non-farm job opportunities are found to have an increasing impact on household income.

(Dassanayake, Martin, & Sandeep, 2015), researched Heterogeneity of household structures

and income in Zimbabwe and South Africa. They found that, female-headed households, as a whole, do not have lower incomes than male-headed households. Income differentials across female-headed households are significantly related to the amount of adult male presence, and its complementarity with children living in the households.

(Teame & Woldu, 2016), examined the factors affecting rural household's income diversification of Zoba Maekel, Eritrea the finding showed that ownership of irrigated and rain-fed area and livestock units; human capital; social capital, off-form income and unearned income, have positive effect on total household income. Regarding activities income, income from any kind of wage-employment and non-agricultural wage-employment are negatively related with livestock possession. Probability of being male headed household has positive effect on income from non-agricultural wage-employment and any kind of wage-employment, while it has a negative effect on income from non-agricultural self-employment. The positive effects of: years of schooling of head of household on income from off-farm; adult members on income from non-agricultural self-employment and crop production, number of dependents on income non-agricultural self-employment and off-farm employment; risk on income from all agricultural and non-agricultural wage-employments are documented. Furthermore, negative effects of distance to the nearest market on income from any kind of wage-employment and non-agricultural wage-employment are found.

4. Data collection and research methods

The primary data collection will involve a sample survey which will be conducted in the targeted province during the survey 174 household head will be interviewed in Samangan. The data will be collected by employing random sampling technique through a structured questionnaire in three stages in the districts and in one stage in Aybak city, centre of Samangan province. In the districts the first stage will involve a random selection of three districts from six districts of the province, the second stage was a random selection of four villages including the districts centres making a total of twelve villages with three districts centres and the final stage is going to involve the selection of ten households from each of the twelve villages including the districts centres which make the total of 174 households. Selection of the 174 remaining households will be from different parts of Aybak city. The list of households will be obtained from statistical yearbook of central statistical office. Because of the extended family system and due to current transition in the family structure we will consider household as those people who work and eat together and share the income and expenditures as one household.

Descriptive statistics such as frequency counts and percentages is used to describe the socio-economic characteristics of the respondents. In analysing the determinants of household income in the study area. to satisfy the regression assumptions and be able to trust the results, the residuals should have a constant variance in order to know this status its need to run heteroskedasticity test, also Ramsey Reset test has been run in order to know about existence of significant non-linear relationship or it explain the specification of the model can be improved(Sapra, 2018). multiple regression analysis will be adopted. The regression model is specified as follows:

$$Y = \beta_0+\beta_1X_1+ \beta_2X_2+ \beta_3X_3+ \beta_4X_4+\beta_5X_5+e$$

Where,

Y= customer satisfaction (independent variable).

$X_{1...4}$ = dependent variables

β_0 = The intercept

β_1... β_4 = estimation Parameters

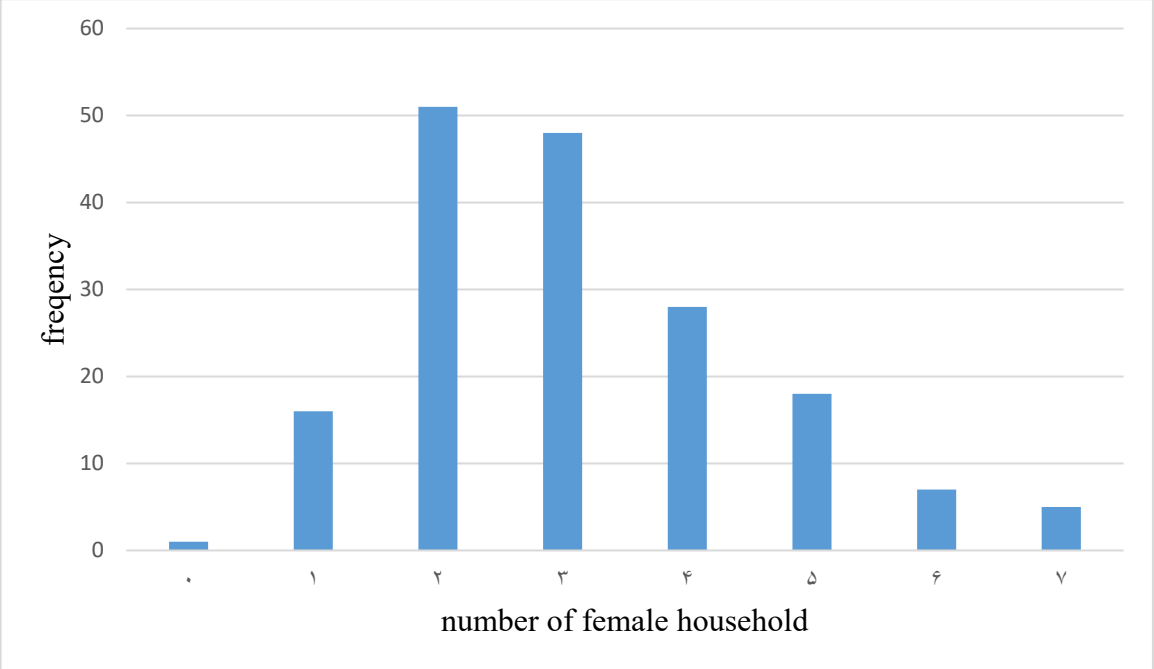
e = the error term

Results and discussion of findings

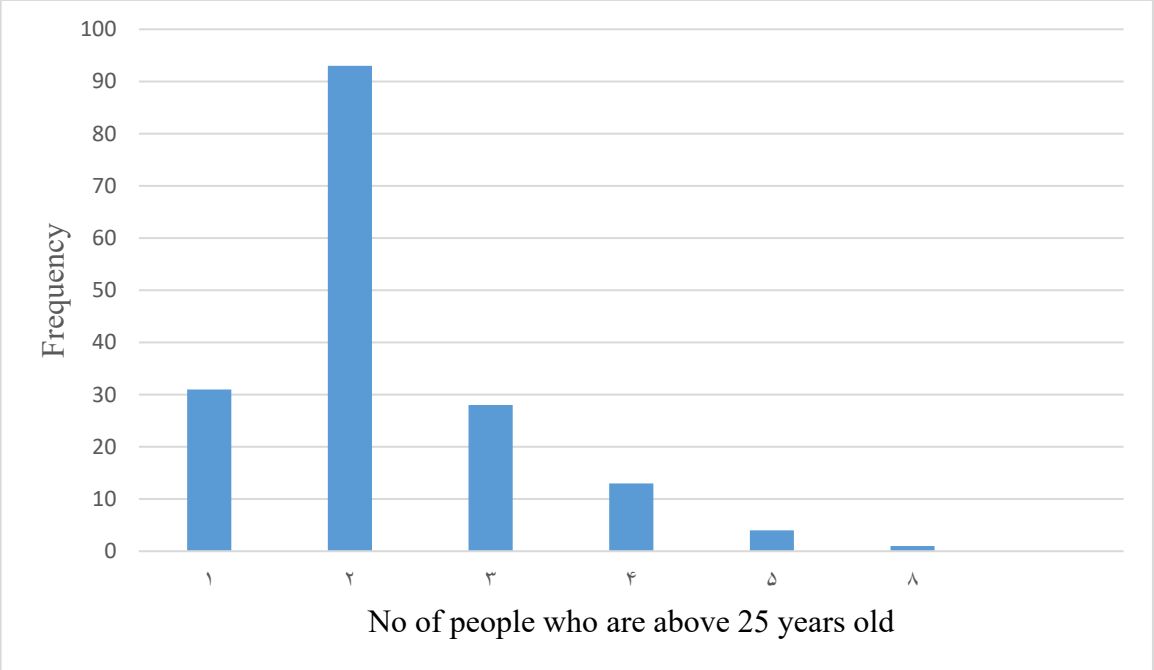
Descriptive Statistics.

variables	Maximum	Median	Minimum	Std. Dev.	Observations
Y_tot	480000.0	27748.276	3500.0	38307.5553	174
Household size	14.0	6.092	2.0	2.2916	174
High school	5.0	1.075	0.0	1.2354	174
Bachelor Degree	5.0	.920	0.0	1.1701	174
Above age 25	8.0	2.190	0.0	1.0555	174
Under age school	4.0	1.029	0.0	1.0225	174
Number of male employments	5.0	1.092	0.0	.7470	174
Number of males	8.0	2.966	0.0	1.5688	174
Number of female employments	9.0	.460	0.0	.8709	174
Number of females	7.0	3.109	0.0	1.4524	174
7-25 years old	9.0	2.862	0.0	2.1079	174

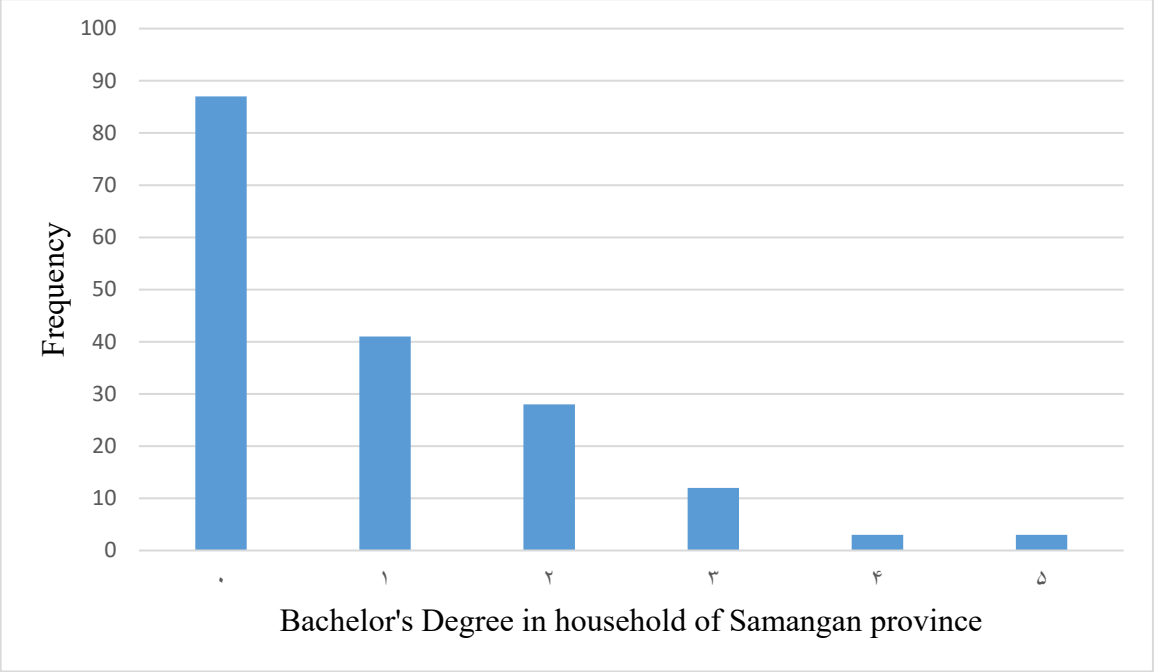
Graph 1: shows number of females in household of Samangan province.



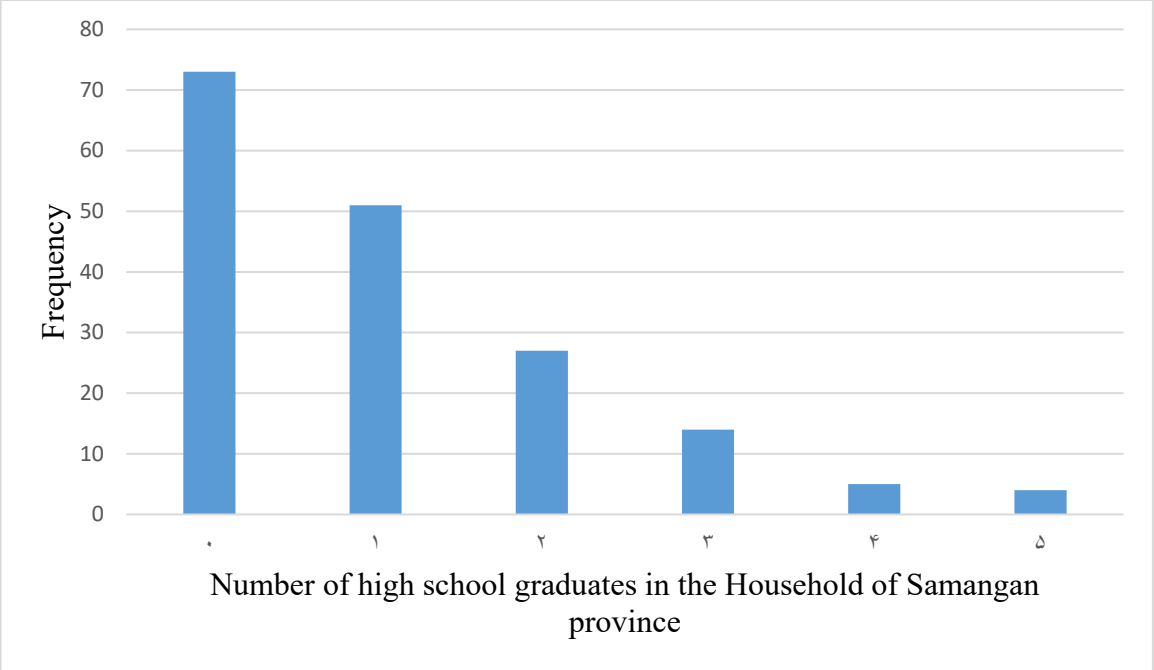
Graph 2: shows number of people which are above 25 years old in households of Samangan province.



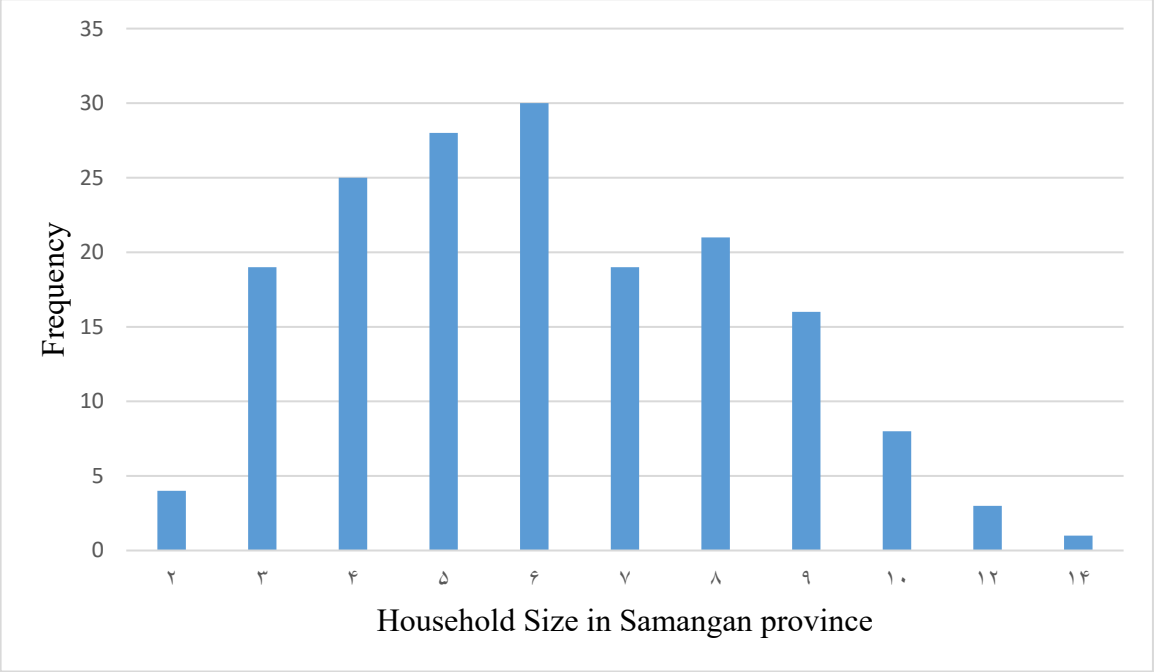
Graph 3: shows number of bachelor's degree in households of Samangan province.



Graph 4: shows number of high school graduates in the households of Samangan province.



Graph 5: shows household size in Samangan province.



5. Econometric Analysis

5.1. Heteroskedasticity Test:

Homoscedasticity and heteroscedasticity refer, respectively, to whether the variances of the prediction determined by regression remain constant or differ. When we assume that variance is constant and that the regression is not necessarily through the origin linear regression in that case is referred to as ordinary least squares (OLS) regression. Linear regression that allows for variance that is not constant is called weighted least squares (WLS) regression(Knaub, 2007).

Table 1. Heteroskedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey Null hypothesis: Homoskedasticity			
F-statistic	0.298576	Prob. F(4,169)	0.8786
Obs*R-squared	1.221009	Prob. Chi-Square(4)	0.8746
H0			accepted

as it seen that in heteroskedasticity test, p value is (p=0.8786) and its bigger that p<0.05. it means that we accepted the null hypothesis and there is no heteroskedasticity in our model.

5.2. Ramsey Reset Test

The Ramsey Reset test proposed by Ramsey in 1969 is general misspecification test, which is designed to detect both omitted variables and inappropriate functional form. The RESET test is based on the Lagrange Multiplier principle and usually performed using the critical values of the F - distribution(Shukur & Mantalos, 2004).

Table 2. Ramsey Reset Test

Ramsey RESET Test Equation: UNTITLED Specification: LY_TOT ABOV_AG25 BACHELOR HI_SCH HOUSEHOLD_SIZE C Omitted Variables: Squares of fitted values		
	Value	Probability
t-statistic	1.629213	0.1051

F-statistic	2.654334	0.1051
H0		Accepted

As it seen in the Ramsey Reset test table, by rejecting the F -statistic we can say that the model is well-fitted.

Table 3. Regression analysis

Dependent Variable: LY_TOT
Method: Least Squares
Date: 11/11/19 Time: 06:35
Sample (adjusted): 1 174
Included observations: 174 after adjustments

Variable	Coefficient	t-Statistic	Prob.
BACHELOR	0.149709	3.973466	0.0001
HI_SCH	0.152165	4.208692	0.0000
HOUSEHOLD_SIZE	-0.041909	-1.797734	0.0740
ABOV_AG25	0.243078	4.936531	0.0000
C	9.382953	75.76859	0.0000
R-squared	0.309066		
Adjusted R-squared	0.292712		
F-statistic	18.89909	Durbin-Watson stat	1.977283

Table 3: reports the results from our model with household variables, as it is seen many coefficients are highly statistically significant ($p<0.05$) with their signs as expected. This study found that all variables except household size have significantly affect household income in Samangan province. If we subtilize on the result, a person with having bachelor degree in Samangan province can affect his or her total household income it means that a person with bachelor degree can affect 14.9% total household income. A person with having high school degree in Samangan province can affect his or her total household income about 15.2%. if a household increase with one person over the age of 25 it can affect total household income approximately 24.3 %. But household size has negative affect on total household income it means by increasing one person in the family, total household income decreases -4%.

6. Discussion and Conclusion

In this research the determinants of household income using a special case study of Samangan province has been studied. In order to know weather, the variances of the predication determined by regression remain constant or differ heteroscedasticity test was run and the result showed that there is no heteroscedasticity in our model, also by running Ramsey Reset test we found that our model is well-fitted.

Access to bachelor degree is positively associated with household income in Samangan province. A person with a bachelor's degree can affect 14.9 percent to total household income, a person with a high school's degree can affect his or her total household income about 15.2 percent. As size of the family increases, total household income decreases. household size has negative affect on total household income it means by increasing one person in the family, total household income decreases -4 percent. And finally, if a household increase with one person over the age of 25 it can affect total household income approximately 24.3 percent.

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