Asian Journal of Management Sciences & Education Vol. 6(4) October 2017

THE SCAVENGERS' INCOME OF THE DISTRICT OF NORTH PADANG SIDIMPUAN, INDONESIA

Sulhana Lely Lubis

Universitas Graha Nusantara, Padang Sidimpuan,
INDONESIA.

ABSTRACT

The poor group income such as the scavengers' one showed the economic condition of one city. This paper focuses on the several factors which influence the economic level of poor group such the amount of household waste, level of education, and cost of living. This study analyzed the household waste variable (X1), level of education (X2), cost of living (X3) which gave the significant influence on scavengers' income in the district of North Padang Sidimpuan, Padang Sidimpuan city, Indonesia. The data contained the distribution items of each variable; with linear regression and partial regression analysis, thus they showed the simultaneous household waste variables (X1), level of education (X2), cost of living (X3) on scavengers' income (Y) organized by value of r- Square is 0,921. It concluded that the household waste (X1), level of education (X2), cost of living (X3) had a significant and positively partially effect to the scavengers' income in the district North of Padang Sidimpuan, Padang Sidimpuan city.

Keywords: scavengers' income, household waste, level of education and cost of living.

INTRODUCTION

Income of poor group in a country shows the people productivity. National income According to Junaiddin Zakaria (2008: 9) is the amount of income received by all family households (Indonesia=RTKs) in a country from the delivery of factors of production in one period, usually for one year. The concept of national income was first initiated by Sir William Petty of England who sought to estimate the national income of his country (England) in 1665. In his calculations, he used the assumption that national income was the sum of the cost of living (consumption) for a year. However, that opinion is not agreed upon by modern economists, because in the view of modern economics, consumption is not the only element in the calculation of national income. According to them, the main tool as a measure of economic activity is the Gross National Product (Gross National Product), ie the total amount of goods and services produced each year by the country concerned is measured by market price in a country. Thus, income, according to the Indonesian Institute of Accountants in (http://sisyfasyfa4.blogspot.com/2012/04/pendapatan.html): "Revenue is income arising from ordinary corporate activities and known as different names such as sales". This means that income is one of the goals of the establishment of a business which becomes something very important in every company. Without income there is no income or earnings will be earned.

This paper explores the garbage that used as the way of making life of scavengers; it is as the result of natural processes often causes problems especially in urban areas. Scavengers are seen as the lowest strata of the caste in our society. Perhaps it is because of their work that is directly related to the waste. That is, it is only a few people of our society who realize how great the role of waste pickers in waste management. The more developed a city due to the increase of population and the increase of its life activity caused the problems caused by increasingly large and complex garbage. Another thing is related to the increasingly difficult and expensive to get the location of Final Disposal Site (Indonesai=TPA) waste, also its location which has further extend the transportation and increase the cost of transportation. Looking at the garbage problem, the scavengers actually have a role in managing the waste in North Padangsidimpuan District, because the presence of the waste picker is very helpful in reducing the amount of waste in North Padangsidimpuan Subdistrict so that people do not need to dispose waste that can produce money, such as plastic, aqua bottles, Cardboard, iron, metal and other items that can be sold. It is therefore important to examine how much income and scavenger contributions in optimizing household wastes that can generate money in the District of North Padangsidimpuan, Padangsidimpuan City.

Therefore, the environmental costs are costs incurred by the company related to environmental damage caused and protection issued (Susenohaji in Rossje, 2006: 5). Internal costs include both internal costs (related to reductions in production processes to reduce environmental impacts) and external (related to repair of damage caused by waste). According Ikhsan (2009: 135) that "Waste is a material that has been purchased and paid to be directed into a product contained in the market". Waste therefore indicates production inefficiency. Thus, the cost of waste materials, capital and labor must be added to arrive at the amount of environmental costs and a basis for further calculations and decisions. Environmental pollution according to the Law of the Republic of Indonesia Number 32 Year 2009 Article 1 point 2 on Environmental Protection and Management is a systematic and integrated effort undertaken to preserve environmental functions and prevent the occurrence of pollution and / or environmental damage which includes planning, utilization, Control, maintenance, supervision, and law enforcement.

Recycling can prevent environmental pollution. The advantage is that the environmental load is reduced. We know that pollution can not be eliminated. All we can do is prevent the negative impact or control it. In addition to repetition and recycling, there are more efforts to prevent contamination, ie reducing materials / savings (reduce), and perform maintenance (repair). In developed countries, the slogans reuse, reduce, and repair, widely circulated to the public. Based on the discussion above, the formulation of the research problem:" How does the household waste affect the scavengers' income the District of North Padang Sidimpuan, North Sumatra Province of Indonesia ?

Household Waste

Liquid household waste is a source of water pollution. From liquid household waste can be found various organic materials (eg vegetable residue, fish, rice, oil, fat, and human wastewater) carried by water drains / ditches, and then join the river flow. There are also inorganic materials such as plastics, aluminum, and bottles drifting in the water currents. Trash is piled up, clogging waterways, and causing flooding. Other pollutants from household waste are biological pollutants such as disease, bacteria, and fungi. Organic material dissolved water will be decomposition and decaying. As a result oxygen levels in the water dropped so that the biota of water will die. If the contamination of organic matter increases, we can see the reddish Tubifex worms clustered. This worm is a biological directive (bioindicator) of severe pollution by organic matter from residential waste. In cities, the water got blackish and smelled stinging. In the soil water there is no living organism except bacteria and fungi. Compared with industrial waste, household waste in urban areas in Indonesia reaches 60% of all waste. According to Slamet Prawirohartono and Sri Hidayati (2007: 266), Ecosystem is a functional unity between living creatures and their environment. The interaction between organism and environment is not life. Ecosystem is a central concept in ecology, which is an ecological system formed by reciprocal relationship between creatures living with the environment. The sustainability of human life depends on predicted ecological processes. If the process is uncertain, then humans will not know, such as when to plant and when to harvest. Thus man will not be able to learn anything from nature, and can not put forward hypotheses, and can not bring forth the laws of nature.

Garbage

Definition of waste according to Government Regulation No. 81 of 2012 on Management of Household Waste and Garbage Similar Household Waste in Chapter 1, article 1 in points 1 and 2; 1).Household waste is garbage that comes from daily activities in households that do not include stools and specific waste**;2).**Household waste comprises households from commercial areas, industrial estates, special areas, social facilities, public facilities and other facilities.

Garbage is an unwanted waste material after the end of a process. Garbage is defined by humans according to degrees of exposure, in natural processes there is no concept of waste, only the products produced after and during the natural process take place. Garbage (waste) has many meanings within the limits of science. However, in principle, the definition of waste is a material that is wasted or removed from sources of human and natural activities that have no economic value. Human waste is a term commonly used for human digestion, such as feces and urine. Human waste can be a serious health hazard because it can be used as a vector (developmental tool) of virus and bacterial diseases. One of the major developments in human dialectics is the reduction of disease transmission through human waste through hygienic and sanitary lifestyles. This includes the development of plumbing theory. Human waste can be reduced and reused for example through a waterless urinal system.

Life of Scavengers

Scavengers are seen as the lowest strata of the caste in our society. Perhaps it is because of their work that is directly related to the waste. That is, it is only a few people of our society who realize how great the role of waste pickers in waste management. They choose the job because scavenging is an informal job that does not require academic requirements. Social interaction for scavengers, facilitating the circulation of collection and sale of used goods. The strategy developed by scavengers to survive is by maintaining social networks both vertically and horizontally.What it does is one of the tangible forms of environmental management, since the garbage collected by scavengers is on average an organic waste such as bottles / plastic glasses of mineral water, used cardboard, scrap iron, glass and so on. And it turns out all of it still has the selling value. What is left by the scavengers is the organic garbage that the management part is the task of the Local Government in this case is the duty of the Office of Sanitation and Garden City. The scavenger can be divided into two, namely, sedentary scavengers and scavengers who do not settle.

1. Permanent scavengers are scavengers residing in cardboard, plywood, tarpaulins or other huts around the garbage dump.
2. While scavengers are not settled are scavengers who are looking for garbage from alleys to alleys, streets, residents' garbage cans, river banks and others.

Not all of those who work as scavengers from scavenging results, some also just make scavenging as a side job or to make extra money.

Framework of Thinking

The framework of thinking is a conceptual model of how theory relates to various factors that have been identified as important issues. Based on the understanding in this study also seen the influence of dependent and independent variables, then to see the development of waste that becomes the object of research is needed analysis on the income aspect of the scavenger. Therefore, in every preparation of research paradigm should be based on the framework of thinking (Sugiyono, 2010). In summary the flow of the framework of thought in this study can be seen in the following figure: Drinks, and bottles of shampoo.

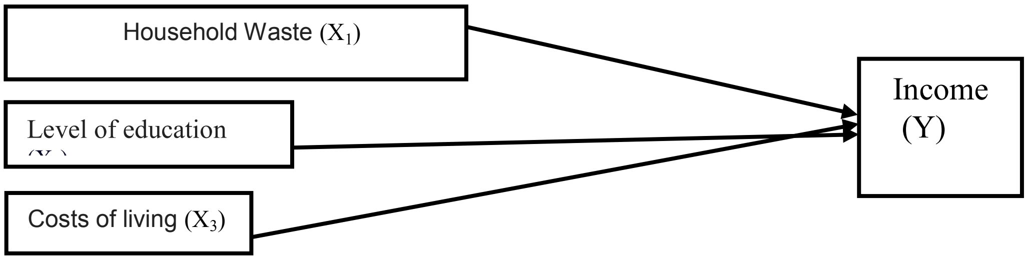

Figure 1: Research thinking framework

RESEARCH METHOD

This research applied a quantitative design which connected the causal relationship between independent variable that is Household Waste to dependent variable that is scavengers' income in North Padang Sidimpuan Subdistrict, Padang Sidimpuan City. According to (Sugiyono, 2006), "Population is a generalization region consisting of objects / subjects that have certain qualities and characteristics set by the researchers to be studied and then drawn conclusions. There were 20 scavengers as sample.

Technique of Data Analysis

A simple regression analysis is a regression equation that describes and explains the effect of one independent variable on the dependent variable, in which the relationship of both can be described as a straight line. (Puspowarsito, 2008) Data analysis tool used is inference statistics that aims to test the hypothesis by using Multiple Linear Regression with the following formula:

$$\mathbf{Y = a + b_1x_1 + b_2x_2 + b_3x_3}$$

Where: Y = Revenue Scavenger
a = Constants
b = regression coefficient for X
X1 = household waste
X2 = Education Level
X3 = costs of living

The reason for choosing a logarithm model (Imam Ghozali, 2005: 25) is as follows:

1. Avoid the presence of heteroscedasticity
2. Knowing the coefficient showing elasticity
3. Close the data scale

In relation to the above, the research model using logarithm is as follows:

$$LnY = LnX_1 + LnX_2 + LnX_3 + e$$

Note: Ln Y = Scavenger Income
Lnx1 = Household waste

Lnx2 = Education Level
Lnx3 = costs of living
e = annoying error (Standard Error)

The formula coefficient of determination can be shown as follows:

$$KP = r^2 \text{ x } 100\%$$

Note: KP = coefficient determinant or coefficient of determination
R^2 = Correlation Coefficient.

The effect of household wastes on scavenger' income can be expain. With acceptance criteria as follows:

Ha = accepted if t count> t table
Ho = rejected if t count <t table

The coefficient value for Waste Sales variable (X1) is 1.031 where Sales of waste have a positive and significant effect to revenue of Scavengers north Padangsidimpuan district. This is indicated by t_{count} = 8,513 and value t_{table} significance level on degrees of freedom (*df*) = n-k (20-4) = 16 is 1,745, so t_{count}> t_{table} 8,513 > 1,745). If there is an increase in Waste Sales (X1) of 1 percent, it will affect the increase in revenue of Scavenger (Y) of 8,513 (cateris paribus).

Based on the results of regression, waste sales have a significant effect on the revenue of scavengers, which means that according to the initial hypothesis that the variable sale of waste is positive and significant to revenue scavengers. This is because the sales of waste is very influential on the level of income, the greater the Sales the greater the chance to earn income, where Sales waste here is calculated based on the price per kilogram that each waste has its own price. This positive relationship is consistent with what is stated in the level of sales, that when the number of sales increases will increase the increase in income and vice versa with the decrease in the amount of waste and income due to the small amount of waste picked up by scavengers.

Education Level (X2)

The result score for the Education Level (X2) variable is 0.247 where the education level is significant and positive for the income of the Scavenger in North Padangsidimpuan District. It is tcount = 1,981 and ttable value with 5% significance level on degrees of freedom (df) = n-k (20-4) = 16 is 1.745, so t_{count}> t_{table} (1,981> 1,745). If there is an increase in Education Level (X2) by 1 percent, there will be a scavenger increase (Y) of 1,981 (cateris paribus, other conditions remain the same).

Costs of living (X3)

The value of things for the dependent variable is 0.161. The number of dependents has a positive and significant effect on the income of scavengers in north Padangsidimpuan district. The number of dependents is 2.050 where the t_{table} level with the 5% significance level on degrees of freedom (df) = n-k (20-4) = 16 is 1.745, so t_{count}> t_{table} (2.050> 1,745) for cost of living variable and positive to scavengers' income in North Padangsidimpuan District. A positive and significant relationship indicates the number of dependents can affect many scavengers in North Padangsidimpuan District. If more numbly of scavenger cost (X3), for example 1 child increases, it will affect the scavenger level (Y) of 2.050 (cateris paribus). The higher cost of scavengers, the scavenger level is also to determine the number of scavengers that is the number of dependents or capital dependents

Coefficient of Determination (R^2)

The coefficient of determination refers to the ability of the independent variable (X) in explaining the dependent variable (Y). The influence of the variable of household waste (X1), education level (X2) and the costs of living (X3) to the income of scavenger (Y), the value of R^2 equal to 0.921 indicating that 92 percent of variation of income change (Y) can be explained simultaneously By variables Sales of household waste (X1), Education Level (X2), and Number of Dependents (X3), While the rest that is equal to 8 percent is explained by other variables that have not been included in the model so that R^2 of 0.92 stated that Valid model,

There is no definite size of how much R^2 to say that a choice of variable is correct. If R^2 gets bigger or closer to 1, then the model is more appropriate. For survey data that means cross section, data obtained from many respondents at the same time. The bigger n (sample size) then the R^2 value tends to be smaller. Conversely in time series data where researchers observed the relationship of several variables in one unit of analysis (company or State) in a few years then R^2 tends to be large. This is due to the smaller data variation in time series data consisting of only one analysis unit (Yusilisman).

Simultaneous Significant Testing (Test-f)

Tabel 2. ANOVA[b]

Model		*Sum of Squares*	*Df*	*Mean Square*	*F*	*Sig.*
1	Regression	1.503	3	.501	62.426	.000[a]
	Residual	.128	16	.008		
	Total	1.632	19			

a. Predictors: (Constant), cost of living families (X3), last education (X2), household waste (X1)

b. DependentVariable: scavengers' income (Y)

Tests on the influence of all independent variables in the model can be done by simultaneous test (f-test). This test aims to determine the effect of all independent variables contained in the model together to the dependent variable. From result of regression of influence of sales variable of household waste (X1), education level (X2), number of dependent (X3), to scavenger income (Y), hence obtained f_{table} equal to 3,01 (0: 5% and df: 20-4 = 16) while $f_{statistic}$ / f_{count} 62.42 Thus, $f_{statistic} > f_{table}$ (62,42> 3,01). This shows that the independent variables together have a significant effect on the dependent variable.

Analysis of variable Total sales

Hypothesis Formulation:

Ho: β1 = 0, There is no positive and significant influence between the total of sales of household waste (X1) partially to the Scavenger Income (Y)

Ha: β1 <0, There is a positive and significant influence between the amount of sales of household wastes (X1) partially to the Scavenger Income (Y)

The results of statistical calculations obtained for variables the total of sales of household waste (X1), obtained t value = 8,513 with significance t of 0.00. Using significance and α 0,05, t table value with df = n-k = 20 - 4 = 16 obtained t table equal to 1,745. Then obtained tcount (8,513) <ttabel (1,745). This indicates that there is a positive and significant influence between the total of sales of household waste (X1) to scavengers income (Y). The significance test result of 0.005 indicates that the value less than 0.05 represent a significant influence between the total of sales of household waste (X1) to the income of the scavenger (Y).

Thus Ho is rejected and Ha accepted, so the hypothesis that there is a positive and significant influence between the total of sales Household Wastes (X1) partially to the Income Scavenger (Y) is acceptable. Image testing hypothesis can be described as follows:

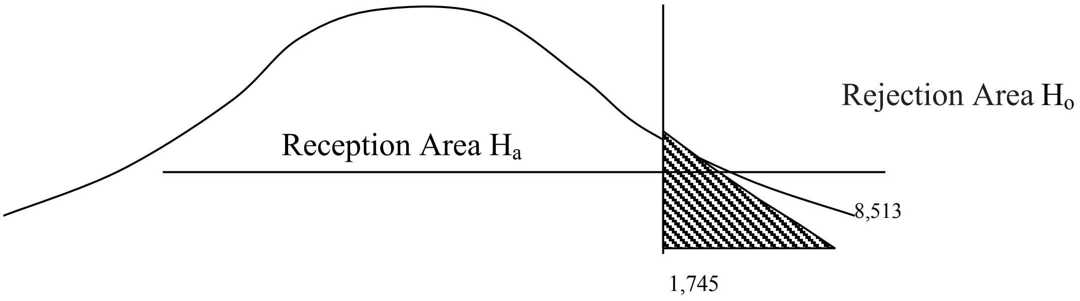

Figure 2: Test T for Variable total Sales

Analysis of Education Level Variables

Hypothesis Formulation

Ho: β1 = 0, There is no positive and significant influence between the Education Level (X2) partially to the Scavenger Revenue (Y)

Ha: β1 <0, There is a positive and significant influence between the Education Level (X2) partially to the Scavenger Revenue (Y)

The result of statistical calculation is obtained for education level variable (X2), obtained by t_{count} = 1,981 with significance t equal to 0,065. Using significance and α 0.05, the value of t_{table} with df = n-k = 20-4 = 16 obtained t_{table} of 1.745, then obtained t_{count} (1,981) t_{tabel} (1,745). This shows there is a positive influence between Education Level (X2) to Scavenger Income (Y). The test significance result of 0.005 indicates that the value less than 0.05 represent a significant influence between the Education Level (X2) on the Scavenger Revenue (Y). Thus Ho is rejected and Ha accepted, so the hypothesis which states there is a negative and significant influence between the Education Level (X2) partially to the Income Scavenger (Y)

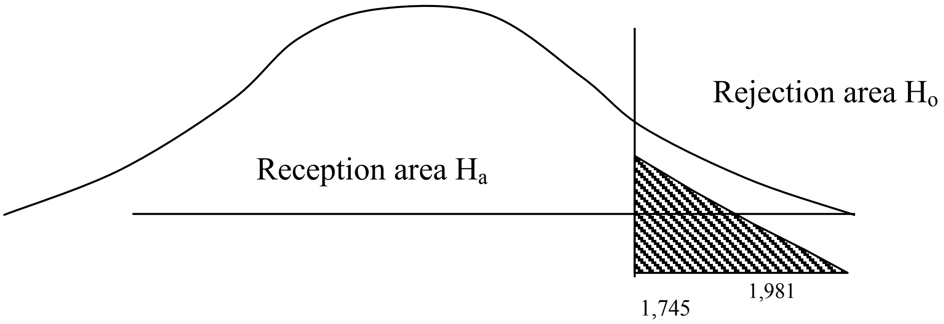

Figure 3: T Test for Educational Level Variables

Analysis of the Dependent Variable Variable

Hypothesis Formulation

Ho: β1 = 0, There is no positive and significant influence between the Number of Dependents (X3) partially to the Scavenger of Thought (Y)

Ha: β1 <0, There is a positive and significant influence between the number of dependents (X3) partially to the Scavenger (Y). Statistical calculation result for variables, cost of living (X3), obtained t_{count} = 2.050 with significance t, 0.057. Using significance and α 0, 05, t_{table} value with df = n-k = 20 - 4 = 16 obtained t_{table} equal to 1,745. Then obtained t count (2.050) <t_{table} (1,745). This shows there is a positive influence between the costs of living (X3) to the Scavenger (Y). The result of significance testing of 0.005 indicates this is less than 0.05 significant meaning between the costs of living (X3) on particular scavenger (Y).

Thus, Ho is rejected and Ha accepted, so the hypothesis which states there is a negative and significant influence between the Number of Dependents (X3) partially to the Scavengers Users can be accepted. The hypothesis test images can add the following:

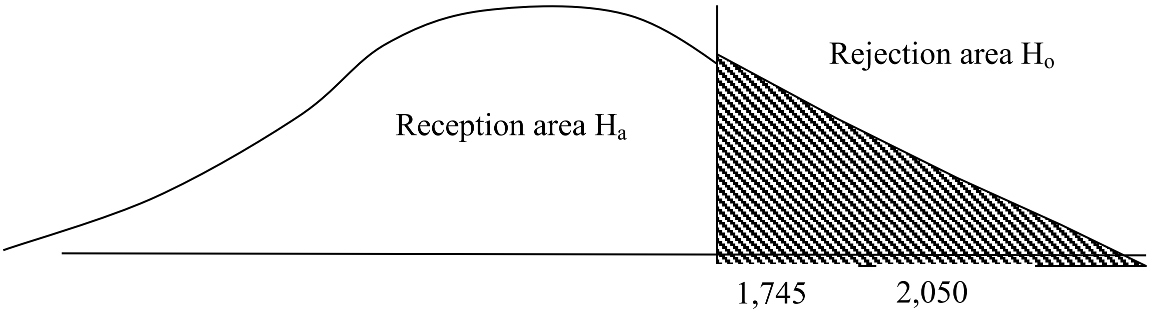

Figure 4: Test for Variable Sales Volume

Classic Assumption Test

Autocorrelation Test

Autocorrelation test aims to test whether in the regression model there is a correlation between errors in a period of disturbance. To perform the autocorrelation test, this study uses Durbin Watson scale.

Table 3. Test Autocorrelation Model Summary^b

Model	*R*	*R Square*	*Adjusted R Square*	*Std. Error of the Estimate*	*Durbin-Watson*
1	.960^a	.921	.907	.090	2.224

a. Predictors: (Constant),cost of living families (X3), last education (X2), household waste (X1),

b. Dependent Variable: scavengers' income (Y)

Autocorrelation test results can be seen from Durbin_Watson value of 2.224. For n = 20, and k = 4 we get the value of DW table = 0.894 Dl (Lower limit) and Du (upper limit) 1.828. The DW value counts 2.224> from the upper limit (du) is 1.828 and less than 4 - du, so it can be concluded there is no positive or negative autocorrelation on the model. If the data spreads far from the diagonal line and / or does not follow the diagonal line, then the regression model does not meet the assumption of normality.

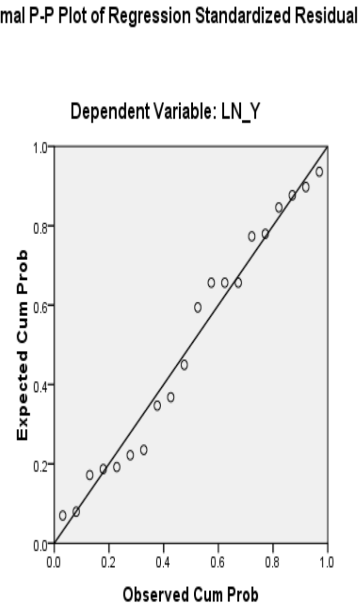

Figure 5. Normal Data Test With Normal P-Plot

Taking note of these findings, the residual normality test was performed by Kolmogorov-Smirnov statistical test technique.

Table 4. Kolmogorov Test – Smirnov Test One-Sample Kolmogorov-Smirnov Test

		Income (Y)	*Household waste (X1)*	*Last education (X2)*	*Cost of living (X3)*
N		20	20	20	20
Normal Parameters[a]	Mean	13.75	10.33	.96	1.24
	Std. Deviation	.293	.217	.198	.300
Most Extreme Differences	Absolute	.161	.275	.413	.236
	Positive	.161	.275	.258	.132
	Negative	-.146	-.128	-.413	-.236
Kolmogorov-Smirnov Z		.720	1.231	1.846	1.056
Asymp. Sig. (2-tailed)		.678	.097	.002	.214

Ho: The population is normally distributed

Ha: The population is not normally distributed

The basis for decision-making is based on probability

If the probability value is> 0.05 then Ho is recepted

If the probability value <= 0.05 then Ho is rejected

*** Decisions**

a. Sales of Wastes, Seen in the significant column (Asymp Sig (2-tailed)) is 0.097 or probability more than 0.05 then Ho is recepted which means the population is normally distributed.

b. Education Level, Seen in the significant column (Asymp Sig (2-tailed)) is 0.02 or whose probability is less than 0.05 then Ho is rejected which means the population is not normally distributed.
c. Costs of living, Seen in the significant column (Asymp Sig (2-tailed)) is 0.214 or probability less than 0.05 then Ho is rejected which means the population is normally distributed.

CONCLUSIONS

Some conclusions from the factors influencing garbage income in North Padang Sidimpuan can be stated as follows:

There is a very significant relationship between household wastes on waste income of 1,031. This is indicated by t_{count} = 8,513 and t_{table} value with 5% significance level on degrees of freedom (df) = n-k (20-4) = 16 is 1.745, so $t_{count}> t_{table}$ 8,513> 1,745). If there is an increase in Waste Sales (X1) of 1 percent, it will affect the increase in revenue of Scavenger (Y) of 8,513 (cateris paribus). There is a positive and significant correlation between education level and scavenger income. If there is an increase in Education Level (X2) of 1 percent, it will affect the increase in income scavenger (Y) of 1,981 (cateris paribus, other conditions remain the same). There is a positive and significant relationship between the number of dependents and scavenger income of 0.161. If more total of scavengers (X3), for example 1 child increases, it will affect the income level of scavenger (Y) for 2.050 (cateris paribus).

REFERENCES

[1] Arikunto, S. (2012). *Manajemen penelitian.* Jakarta: Rineka Cipta.

[2] Ghozali, I. (2005). *Aplikasi analisis multivariate dengan program SPSS: Edisi ketiga*. Semarang: BP UNDIP.

[3] Ikhsan, A. (2009). *Akuntansi manajemen lingkungan*. Yogyakarta: Graha Ilmu.

[4] Puspowarsito. (2008). *Metode penelitian organisasi dengan aplikasi program SPSS*. Bandung: Humaniora

[5] Rossje. (2006). *Akuntansi lingkungan, suatu perspektif*. Retrieved from http://www.rossje.com.

[6] Salamah, A. M.A., & Nengsih, J. (2007). *Makanan materi ekologi, CV*. Bogor: Duta Grafika.

[7] Slamet, P. H., & Sri, H. (2007). *Sains Biologi 1 SMA/MA Kelas X*. Jakarta: Bumi Aksara

[8] Sugiyono. (2006). *Statistik untuk penelitian*. Bandung: Alfabeta.

[9] Sunyoto, D. (2007). *Analisis regresi dan korelasi bivariat*. Yogyakarta: Amara Books.

[10] Suprapto. (2010). *Hubungan antara jenjang pendidikan dan pendapatan dengan sikap kepala keluarga terhadap pengelolaan sampah rumah tangga di desa candisari kabupaten grobogan*. Surakarta: Universitas Sebelas Maret.

[11] Zakaria, J. (2009). *Pengantar teori ekonomi makro*. Jakarta: Gaung Persada: GP Press.