Growth of oil/gas and non oil/gas trade sectors: The impact on labor-force participation rates in Indonesia

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--**ABSTRACT**---

Export trade balance, oil and non-oil imports, Indonesia is in an active state or economy to prosper, while the results of multiple regression analysis showed that the export of non oil/gas, non oil/gas import, oil and gas imports and economic growth positive effect on the labor force participation rate, which means every increased four variables also increased labor force participation rate, while oil and gas exports have negative effect means that any increased export of oil and gas resulting in a decline in labor force participation rates and significant effect of all the variables of the labor force participation rate in Indonesia. Multiple correlation coefficients obtained r = 0.998 shows the effect of variable export of non oil/gas, non oil/gas import, export of oil and gas, oil and gas imports, economic growth together very strong and the coefficient of determination together the five variables can be R = 0.996 shows the percentage contribution of influence together of 99% means that only 0.01% contribution of other variables influence the level of labor force participation in Indonesia. It can be concluded that the development of oil and gas trade and non-oil and gas in Indonesia still need cooperation between individual communities, private sector, civil society and government in an effort to increase trade in Indonesia, because it is very big influence on the labor force participation rate that could lower the unemployment rate and can automatically reducing poverty, because unemployment and poverty in Indonesia is still high when compared with some other countries in the world.

Keywords *- trading export, import of oil/gas sectors and non oil/gas economic growth, labor-force participation*

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I. INTRODUCTION

Indonesia's economic growth of the last few years is quite encouraging compared to some other countries in the world, however, economic growth has not been able to solve the problems the economy faced by Indonesian nation is the problem of unemployment and poverty (Siregar and Wahyuniarti, 2007). Economy of a country is said to be advanced one indicator that is considered is the problem of unemployment and poverty mean that Indonesia is still considered underdeveloped economies, they need no effort or hard work began of individual communities, private sector and government in an effort to boost economic development in Indonesia (Aroef et al. 2009). Indonesia's economic growth as the data in the following the table:

Table 1. Indonesian Economic growth

Years	Economic growth (%)
2010	6,1
2011	6,5
2012	6,3
2013	5,8
2014	5,1
2015	5,7
2016	5,3

Table 1 shows that the Indonesian economic growth from 2010 to 2016 is still considered decreased, while economic growth is absolutely necessary in the efforts of labor, labor force absorption be required an effort to reduce unemployment, poverty and income inequality public.

Table 2. Development of work force, work population, unemployment, LFPR and TPT

Years	Labor force (Million people)	Labour (Million people)	Unemployment (Million people)	Labor Force Participation Rate (LFPR/TPAK) (%)	Open Unemployment Rate (OUR/TPT) (%)
(1)	(2)	(3)	(4)	(5)	(6)
2001	98,81	90,81	8,01	68,6	8,1
2002	100,78	91,65	9,13	67,76	9,06
2003	102,75	92,81	9,94	67,86	9,67
2004	103,97	93,72	10,25	67,54	9,86
2005	105,86	93,96	11,9	66,79	11,24
2006	106,39	95,46	10,93	66,16	10,28
2007	109,94	99,93	10,01	66,99	9,11
2008	111,95	102,55	9,39	67,18	8,39
2009	113,83	104,87	8,96	67,23	7,87
2010	116,53	108,21	8,32	67,72	7,14
2011	117,37	109,67	7,7	68,34	6,56

The data in table 2 of the development of the labor force from the 2001 to 2011 has increased, labor force that works from 1997 -2011 have also increased, unemployment of 1997 - 1999 increased and in 2000 dropped from the year 2000 to 2006 increased, whereas in the year 2006 to 2011 decreased, but unemployment in Indonesia is still very high, can be described as follows.
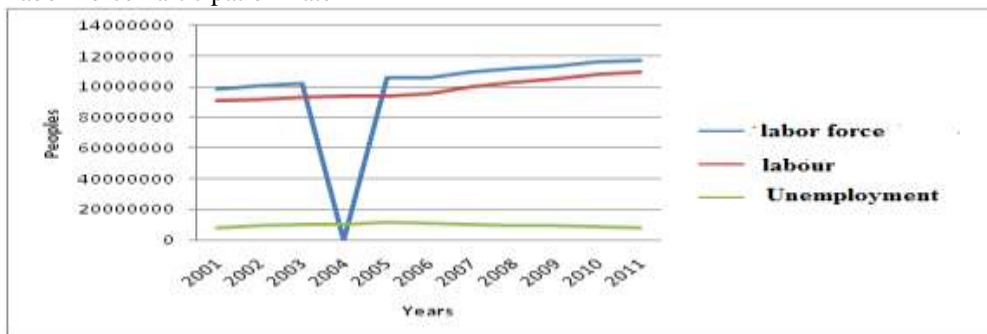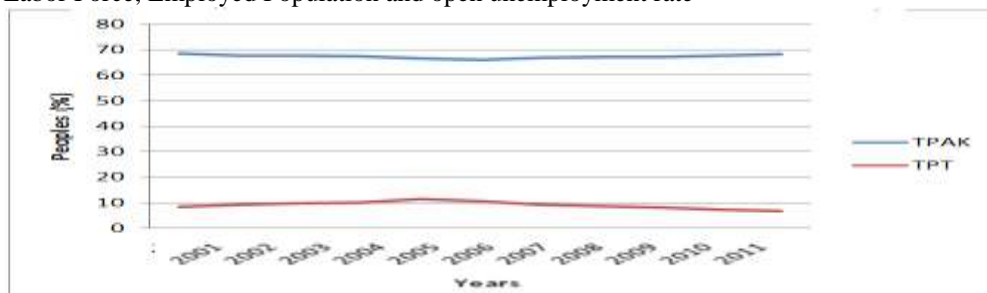
Figure 1. Labor Force Participation Rate

Figure 2. Labor Force, Employed Population and open unemployment rate

Indonesia is one of the rich countries in the world, rich in natural resources and human resources only the quality of human resources still need to be taken seriously no maximum efforts of individual communities, civil society organizations and the government to improve its quality is the quality of the knowledge, skill,

creative, innovative, independence and quality of various other characters as well as the ability of repair or damage control natural resources is increasing is now experienced by the people of Indonesia are very concerned (Tan et al., 2017) economic development is very big influence on addressing the problems experienced by the Indonesian people are unemployed, employment, poverty, improve social welfare. Populist economic development required human resource development policies, because the quality of human resources is seen as one of the key factors in the era of populist economic growth, national trade and free trade. Mastery of science and technology in addition to these factors, entrepreneurship is seen as a key factor in the era of free trade, essentially stems from the quality of human resources or a reliable worker.

The role of worker resources here are not solely limited to workers in the bottom layer, but includes all layers, from the workers (blue collar workers) up to the management level (white-collar worke) (Hidayat, 2016). The strategy should be developed for economic empowerment of the people is put potential that has not been exploited or explored more seriously in a broader economic perspective (extend). Potentials for empowerment such as the agribusiness, marine, agriculture and plantations, agro-industry. In this context, building a democratic economy that can compete in the global economy level aimed at exploiting the potential of the nation (Roesmanto, 2007). In terms of strategy, there are some things that need to be considered and developed in the direction of economic development, namely the equal opportunity to have the assets of the national economy, the government's attention to the small and medium enterprises, protection of the people's economy, cultivate the informal economy and organize a cooperative in accordance with the spirit and the demands of globalization. Results of previous studies show the important role of exports in economic growth and job creation (Tambunan, 2001; Saimul, 2017; Alisjahbana & Busch, 2017).

II. LITERATURE REVIEW

2.1. Economic growth

Economic growth is something that in desire every country in the world, but not as easy as it can be achieved because there are many factors that affect economic growth is a process of changes in economic conditions of a country continuously towards a better state for a certain period. Economic growth can be defined as well as the increase in production capacity of an economy that is realized in the form of increase in national income. Their economic growth is an indication of the success of economic development. Measuring the economic growth of a country can be measured by comparing, for example, for a national measure, Gross National Product (GNP), the current year to the previous year (Tambunan, 2001).

2.2. Labor Force Participation Rate

The labor force is the number of population of productive age level, for the Indonesian population of productive age population that is in the interval of 15 years of age until the age of 65 years. Labor force participation rates for men at a certain age is the proportion of men included in that age shall be classified as members of the workforce (Pollard et al., 1990). The labor force participation rate is the ratio between the labor forces by mid-year population (Bakir and Manning, 1984). This is formulated as follows:

$$\text{Employment Opportunities} = \frac{\text{People in work}}{\text{number of labor force}} \times 100\%$$

$$\text{Labor Force Participation Rate} = \frac{\text{People in work}}{\text{the working age population}} \times 100\%$$

$$\text{Unemployment} = \frac{\text{Number of unemployment}}{\text{the working age population}} \times 100\%$$

2.3. Oil/gas and non oil/gas

Gas is a commodity which is a derivative of petroleum products and gas, while the non-oil is the stuff out of gas and earth or goods that are not in the form of oil and gas such as agriculture, plantation, fishery, animal husbandry and so on etc (Sugiyono, 2017).

2.4. Export and import

Export is the expenditure of goods and services from domestic to foreign countries, while imports include the import of goods and services from abroad into the country. Export is closely related to GDP, which are the increased exports will increase in the GDP also ceteris paribus condition. The main import determinant is income of the people of a State. If the State's revenue change, then naturally imports will also change, namely the higher the income, the higher country imports and vice versa.

Exports and imports are closely related to the balance of trade (Trade Balance), export is a component of the national income, changes in the value of exports will affect the level of national income, if exports greater than imports of the national income will increase so that the balance of payments surplus (Inflation) (Tambunan and Wijanarko, 2000). If the import of goods greater than the national export revenue will be decreased so that the balance of payments deficit (Deflation) (Hasmarini and Murtiningsih, 2017).

2.5. Effect of changes in exports on the trade balance

Important factor in the direction of flow export and import is an improvement in the trade balance, which has experienced a huge increase. The trade surplus large is able to cover the deficit in the balance of trade in services and the deficit in capital flows. Although the effect of the increase of exports to imports of the same magnitude to the effect of an increase in investment to imports, however in terms of the balance of payments effects of changes in export is not equal to the change in investment (Widyasanti, 2010). A clear increase in imports as a result of the increased investment is not preceded by ekspor.Ini rise means that the increase in exports is always the tendency to increasing or decreasing surplus balance of payments deficit. Instead declining export value always resulted in increased or decreased deficit balance of payments surplus. Improved trade balance requires rapid export growth. In addition to the entrepreneurs need in that direction, encouragement is needed. Creating it is our collective responsibility, government, government administration, employers and society in general (Husman 2007).

The negative impact that may occur as a result of international trade occurs when can be affect on national economy by the circumstances of the world market. If the Indonesian government had not responded to the world market situation, then Indonesia will be left behind by other countries. Such conditions affect changes to the national development policies that have been established if global conditions have a negative impact on people's lives (Tambunan, 2001).

III. METHODS

The data that will be used is the economic growth, export, import of oil/gas and non oil/gas, the level of employment, labor force participation rate, poverty rate, unemployment rate Indonesia all this data in Jakarta, this research is conducted in Jakarta Central Statistics Agency office and related agencies' offices. For research purposes only propose that with increasing economic growth, export, import of oil and non-oil, the rate of employment and labor force participation rates can reduce the level of poverty in Indonesia, it is considered that the population data of all data in Indonesia related to these variables. By him that investigators determined the study population all national-level data related to the research problem in BPS-Statistics Indonesia and on the relevant agencies.

Because of the ability of researchers in terms of time and energy is limited, so in this study is limited in that the data sample last 15 years, i.e. from the data from 2001 to 2015, the data concerning the increase in economic growth, employment and labor force participation rates and poverty rates in Indonesia. Draft analysis to be used in between descriptive statistics to be able to provide an overview on research and Inferential statistics for testing the hypothesis that the frequency distribution table groups, chart histograms and polygons frequency, mean, variance, median, mode, standard deviation, formula workforce, formula employment, formula unemployment rate, labor force participation rate formula, formulas level of poverty, multiple linear regression (Ghozali, 2005).

Multiple regression models:

$$Y = a_0 + a_1 x_1 + a_2 x_2 + a_3 x_3 + a_4 x_4 + a_5 x_5 + e,$$

Where:

Y	=	labor force participation rate
a	=	constant
b,c,d	=	regression coefficient

|			
X_1	=	Economic growth
X_2	=	level of oil and gas exports
X_3	=	level of oil and gas imports
X_4	=	level of non oil/gas exports
X_5	=	level of non oil/gas import

IV. RESULTS

The data of oil/gas exports and non oil/gas, economic growth, labor force participation rate from 2001 to 2015 obtained in the following table:

Table 3. Export trading, oil/gas and non oil/gas imports, economic growth, the labor force participation rate

Years	non oil/gas exports (X_1)	non oil/gas import (X_2)	oil and gas exports (X_3)	oil and gas imports (X_4)	economic growth (%) (X_5)	Labor Force Participation Rate (LFPR/TPAK) (Y)
2001	43 684,6	25 490,3	12 636,3	5 471,8	3,5	90,81
2002	45 046,1	24 763,1	12 112,7	6 525,8	3,7	91,65
2003	47 406,8	24 939,8	13 651,4	7 610,9	4,1	92,81
2004	55 939,3	34 792,5	15 645,3	11 732,0	4,8	93,72
2005	66 428,4	40 243,2	19 231, 6	17 457,7	5,6	93,96
2006	79 578,7	42 102,6	21 219,9	18 962,9	5,5	95,46
2007	92 012,3	52 540,6	22 088,6	21 932,8	6,3	99,93
2008	107 894,1	98 644,4	29 126,3	30 552,9	6,1	102,55
2009	97 491,7	77 848,5	19 018,3	18 980,7	4,5	104,87
2010	129 739,5	108 250,6	28 039,6	27 412,7	6,1	108,21
2011	162 019,6	136 734,1	41 477,0	40 701,5	6,5	109,67
2012	153 043,0	149 125,3	36977,3	42 564,2	6,3	112,5
2013	149 918,8	141 362,3	32 633,0	45 266,4	5,8	112,76
2014	145 961,2	134 718,9	30 018,8	43 459,9	5,1	114,63
2015	131 791,9	118 081,6	18 574,4	24 613,2	5,7	118,2

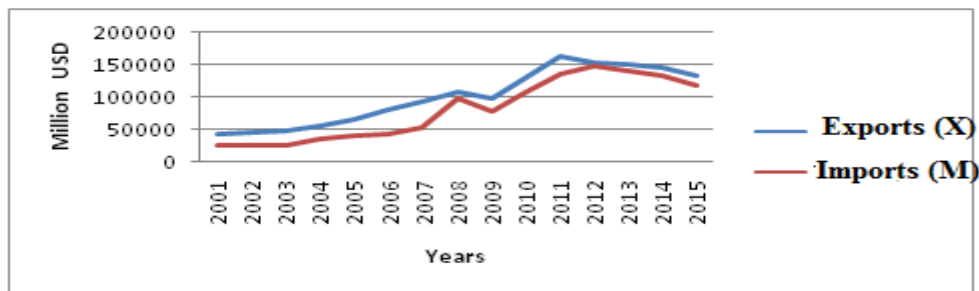Figure 3. Export, oil/gas and non oil/gas imports
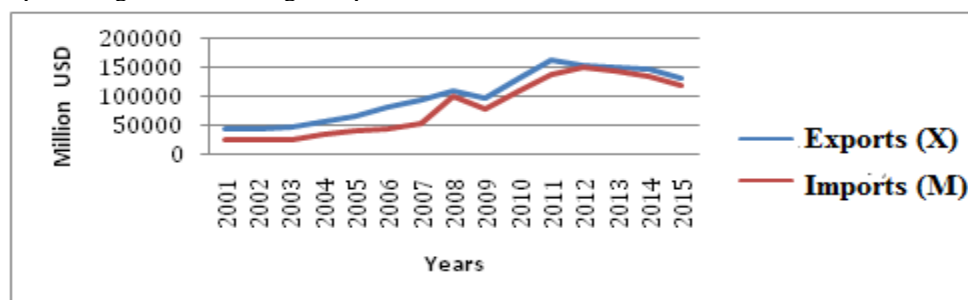
Based on the charts from 2001 to 2015 exports is always greater than imports, the trade balance showed exports, oil and gas imports and Indonesia's non-oil is in an active state or a profitable economy.

Figure 4. Export and import of oil and gas
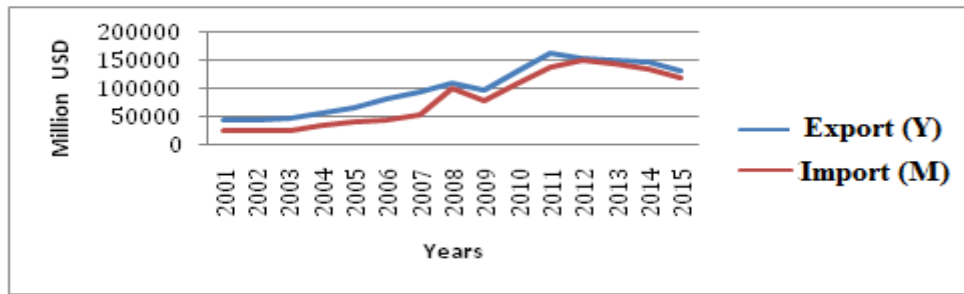
On the charts from 2001 to 2015 show that exports are always greater than imports, the trade balance showed exports, specifically oil and gas imports, Indonesia is in an active state or a profitable economy

Figure 5. Exports and imports of oil and gas

Based on the charts from 2001 to 2015 exports is always greater than imports, the trade balance showed exports, non oil/gas imports, Indonesia is in an active state or a profitable economy. From the results of multiple regressions analysis was obtained:

$$Y = 86,823,908.89 + 229.669_{x^1} + 101.414_{x^2} - 796.0753_{x^3} + 28.331_{x^4} + 510,724.21_{x^5}$$

These results indicate that the export of non oil/gas, non oil/gas import, oil and gas imports and economic growth has a positive effect, which means every increased four variables also increased labor force participation rate, while oil and gas exports have negative effect means that any increase oil exports resulted in a decline in labor force participation rates and all variables have a significant effect on the labor force participation rate in Indonesia, because the influence of independent variables on the dependent variable significant together with the values of F-statistics at 434.574. The results of the analysis of multiple correlation coefficients obtained the value of r = 0.998 shows the effect of variable export of non-oil, non-oil import, export of oil and gas, oil and gas imports, economic growth together very strong and the coefficient of determination together the five variables can be make a contribution R = 0.996 indicates the percentage jointly influence of 99% means that only 0.01% contribution of other variables influence the level of labor force participation in Indonesia.
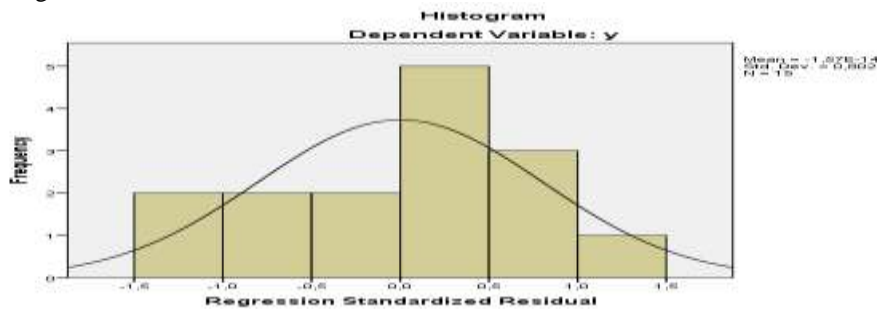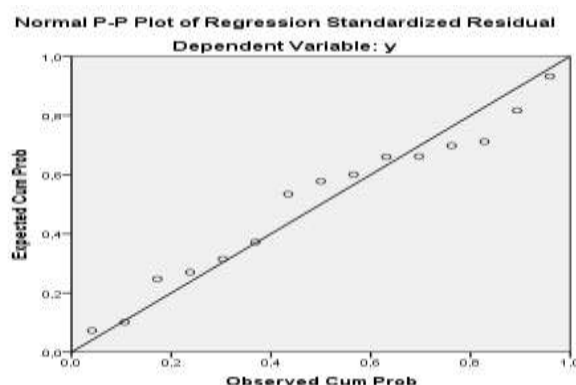
Figure 6.Histogram

Figure 7. Normalized

V. CONCLUSION

The results of multiple regression analysis showed that the export of non oil/gas sectors, non oil/gas imports, oil imports and economic growth positive effect on labor force participation rate, which means every increased four variables also increased labor force participation rate, while oil and gas exports increased negative effect means any oil and gas exports resulted in a decline in labor force participation rates and significant effect of all the variables of the labor force participation rate in Indonesia.

The results of the analysis of multiple correlation coefficients obtained r = 0.998 shows the effect of variable export of non-oil, non-oil import, export of oil and gas, oil and gas imports, economic growth together very strong and the coefficient of determination together the five variables can be R = 0.996 indicates the percentage contribution jointly influence of 99% means that only 0.01% contribution of other variables influence the level of labor force participation in Indonesia. It can be concluded that the development of oil and gas trade and non-oil and gas in Indonesia still need cooperation between individual communities, private sector, civil society and government in an effort to increase trade in Indonesia, because it is very big influence on the labor force participation rate that could lower the unemployment rate and can automatically reducing poverty, because unemployment and poverty in Indonesia is still high when compared with some other countries in the world.

The Indonesian government is recommended in order to increase development aid policy means supporting the activities of agriculture and plantations, such as the agriculture industry and plantations in Indonesia is still around 50% expect rainfed, so there needs to be an idea or effort so that rainwater given by God Almighty does not squandered that with the construction of dams and irrigation that can collect rain water, increase the knowledge, skills Indonesian people through formal or non-formal can form qualified human resources who can manage raw material gas into finished goods new oil and gas in exports, so that it can increase the labor force participation rate, could have an impact on the level of unemployment and poverty reduction in Indonesia, suppressed import policy export policy be improved by supporting the activities of agriculture, plantation, farming, fishing and domestic industries as well as industrial conglomerate.

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Appendix 1:

Descriptive Statistics			
	Mean	Std. Deviation	N
y	102782142,1	9418241,268	15
x1	100530,4	42870,6451	15
x2	80642,52	47972,8426	15
x3	23496,7	9099,13171	15
x4	24216,36	13820,70651	15
x5	5,3067	0,97941	15

Appendix 2:
Pearson Correlation

Correlations							
		Y	x1	x2	x3	x4	x5
Pearson Correlation	y	1	0,939	0,947	0,705	0,848	0,605
	x1	0,939	1	0,982	0,901	0,953	0,749
	x2	0,947	0,982	1	0,873	0,947	0,668
	x3	0,705	0,901	0,873	1	0,934	0,789
	x4	0,848	0,953	0,947	0,934	1	0,737
	x5	0,605	0,749	0,668	0,789	0,737	1
Sig. (1-tailed)	y	.	0	0	0,002	0	0,008
	x1	0	.	0	0	0	0,001
	x2	0	0	.	0	0	0,003
	x3	0,002	0	0	.	0	0
	x4	0	0	0	0	.	0,001
	x5	0,008	0,001	0,003	0	0,001	.
N	y	15	15	15	15	15	15

x1	15	15	15	15	15	15
x2	15	15	15	15	15	15
x3	15	15	15	15	15	15
x4	15	15	15	15	15	15
x5	15	15	15	15	15	15

Appendix 3:

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,998[a]	0,996	0,994	754431,1652
a. Predictors: (Constant), x5, x2, x3, x4, x1				
b. Dependent Variable: y				

Appendix 4:

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1,23672E+15	5	2,47345E+14	434,574	,000[b]
	Residual	5,1225E+12	9	5,69166E+11		
	Total	1,24185E+15	14			
a. Dependent Variable: y						
b. Predictors: (Constant), x5, x2, x3, x4, x1						

Appendix 5:

Coefficients[a]									
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	86823908,89	1308654,497		66,346	0			
	x1	229,669	34,052	1,045	6,745	0	0,939	0,914	0,144
	x2	101,414	28,246	0,517	3,59	0,006	0,947	0,767	0,077
	x3	-796,075	68,492	-0,769	-11,623	0	0,705	-0,968	-0,249
	x4	28,331	62,352	0,042	0,454	0,66	0,848	0,15	0,01
	x5	510724,21	400910,293	0,053	1,274	0,235	0,605	0,391	0,027
a. Dependent Variable: y									

Appendix 6:

Residuals Statistics[a]					
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	91325112	117889456	102782142,1	9398796,514	15
Residual	-1097072,375	1126897,5	0	604890,6304	15
Std. Predicted Value	-1,219	1,607	0	1	15
Std. Residual	-1,454	1,494	0	0,802	15
a. Dependent Variable: y					

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