

EDUCATION INEQUALITY EFFECT ON POVERTY AND ECONOMIC GROWTH: EMPIRICAL STUDY IN PROVINCE OF EAST JAVA

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Abstract: This study examines factors that affect educational inequality in the areas of East Java province which have an indicator of inequality index higher and lower. Study on the factors that will be examined in more depth in this study includes: dependency ratio, poverty, economic growth, and sex ratio. The sampling technique used is purposive sampling technique. Number of samples taken four areas have highest and the lowest of educational inequality index score, each of two districts/cities in each group in East Java region, namely Pamekasan, Bojonegoro, Malang, and Madiun. Data in 2008 to 2013 periods were analyzed using panel data regression model (pooled data) by random effect method. The analysis showed dependency ratio, poverty, economic growth, and sex ratio contribute to educational inequality with variable dependency ratio and poverty decisively have an effect on educational inequality in East Java. Partially dependency ratio and poverty rate variable has a positive contribution to education inequality, while economic growth and sex ratio variables, partially no significant effect.

Keywords: Education inequality, dependency ratio, poverty, economy growth.

I. INTRODUCTION

Intellectual capital as materials such as knowledge, information, intellectual property, experience used to create prosperity. Intellectual modal include human capital, customer capital and structural capital (Bontis, 1996). Human capital more emphasis on the nature of learning and increased knowledge as organizational resources, highlight individuals role and groups in dissemination process of knowledge. Human capital theory states that skills and productivity differences lead to differences in individual income (Becker 1962 in Pressman, 2000). In fact that not all residents of a country is graduated from college. Many are not educated at all. This is called educational inequality problem. Educational inequality that is often experienced by some communities in third world/ developing countries occur because of changes in economic reforms, both between urban-rural areas and among men and women (Appiah-Kubi, 2002 in Digdowiseiso, 2010).

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The study on educational inequality has been widely applied in some countries, such as those conducted by Thomas, *et al.* (2000) that measures educational inequality by using panel data. The study was conducted for 85 countries in 1960 to 1990 period. The conclusion in this study is educational inequality has been declining in most countries over the past 3 decades, namely from 1960 to 1990, with the exception of Columbia, Hungary, Peru, and Venezuela are rising slowly since 1980.

Further studies conducted in MENA countries by Ibourk and Amaghous (2012). Where they divided MENA countries into two categories, namely the middle-income countries (Jordan, Turkey, Iran, Syria, Algeria, Tunisia, Egypt, Iraq, Maroco) and high-income countries (Bahrain, United Arab Emirates, Saudi Arabia, Kuwait, Libya, Qatar). MENA sample of 15 countries with a period of study from 1970 to 2010, proving that middle-income countries have a great educational inequality than high-income countries. Broadly speaking, from 1970 to 2010, Education Gini Index showed a decline in all MENA countries.

Studies conducted by Sholikhah and Ady (2014), which measures education inequality in province of East Java, Indonesia in the range 2008-2012. Produce data that education inequality in 2008, education Gini index of East Java is 0.333 with low criteria. Subsequently in 2009, the Education Gini index of East Java fell into 0,320 positions with low criteria. In 2010, the education Gini index of East Java again rose in position 0,328 with low criteria. In 2011 and in 2012 the education Gini Index of East Java decline in position 0.318 and 0.314 respectively with low criteria and the education Gini Index score of East Java in 2008-2012 by an average of 0.322 with low criteria.

Furthermore, Sholikhah (2014) also examined factors that affect educational inequality in East Java, based Klassen typology. Klassen Typology divide into four quadrants, with indicators of economic growth and educational inequality. The research sample: 1) First quadrant is Surabaya City, which showed economic growth in regions with above-average and education Gini Index is below average; 2) Second quadrant is Nganjuk, which indicates areas with economic growth below average and Education Gini index is below average; 3) Third quadrant is Jember, which indicates areas with economic growth above average and educational Gini index is above average; and 4) fourth quadrant is Sumenep, which indicates areas with economic growth below average and education Gini index is above average. The results showed government spending in education, gender gap and education of household spending significant affect educational inequality.

Furthermore, this research focused on the study "what factors are affecting education inequality in the area of East Java Province with inequality index highs and lows indicators?". Factors of the study will be examined in more detail in this study include: economic growth, gender gap, dependency ratio, as well as poverty.

II. LITERATURE REVIEW

Educational inequality first introduced by Thomas, et al (2000) using a measuring instrument such as Education Gini index. Education Gini index measures the average ratio (average years of schooling) of half average deviation of school years among all the population. Education Gini index has numbers ranging from 0 (indicating perfect evenness) and 1 (indicating perfect unevenness).

To measure the evenness of education of the population in an area used Gini index of education. Education Gini index calculation directly using the following formula (Thomas, *et al.*, 2000):

$$E_L = \left(\frac{I}{\mu} \right) \sum_{i=2}^n \sum_{j=1}^{i-1} p_i |y_i - y_j| p_j$$

Where:

E_L : Education Gini Index based on school achievement distribution

μ : Average length of schooling of the concerned population.

p_i and p_j : population proportion with a definite level school achievement

y_i and y_j : years of schooling at different levels of educational attainment

n : number of categories of school achievement data

Educational inequality become spotlight since 2000, factors that lead to educational inequality becomes a topic that must be resolved. According to Liao and Hua (2011) there are five factors that can be the cause of education inequality, which are:

- differences in socio-economic status. Differences in economic status, social and cultural influence student achievement in science, math and reading skills. This factor reflects education inequality from differences in economic status, social and cultural schools (education) students. Differences in economic status, social and cultural rights of these students include household wealth (parents), highest occupational status of parents and parents' views toward highest educational level, etc.
- differences in employment and ownership of cultural property. Parental employment status and ownership of cultural property in the home is also a major factor affecting educational equality. International socio-economic index of occupational status is derived from students' responses on parental occupation. This index is seen from work attributes that convert parents' education into income. This index is obtained by optimal scale of occupation groups to maximize indirect effect of education on income through occupation and to minimize direct effect of education on

income. Index of cultural treasures in the home comes from cultural items availability in a student's house, for example: a book of poetry and works of art such as paintings and others.

- differences in participation and educational resources. This third factor is how percentage of students and ability to scale science related to father and mother educational level, as well as level of educational resources owned.
- government educational investment. Fourth factor which affecting education gap is government's education investment. In this case amount of financial investment in GDP and public spending. The level of government investment in education can be a major factor in educational inequality.
- differences in parental education levels. In some countries it is proved that differences in parents educational level also have a significant contribution to a child's education inequality

Thomas Robert Malthus (1978 in Pressman, 2000) in his book entitled "Essay on Population" believes that human progress can not be achieved, because of the poverty and suffering is inevitable in society. One of the causes is the growing population increases along with geometrical progression. Population growing rapidly will result in high dependency ratio. With high dependency ratios, people will be harder to work in order to increase revenue and meet their needs. These conditions will encourage people to be more work-oriented due to welfare declining. People will no longer think about education were taken, which eventually will lead to educational inequality.

Malthusian population theory presented then amplified study by Dreze and Kingdon (1999) and Gaspart and Thomas (2012), mentions education inequality also influenced by the dependency ratio. Dependency ratio is ratio between numbers stating number of nonproductive age population (people aged under 15 years and population aged 65 years or over) with number of productive age population (population aged 15-64 years). Although no accurate economic dependency ratio can describe number of residents to be borne by working age population. By paying attention to dependency ratio, we can determine the age group which contributed most or less. Mathematically, formula to calculate dependency ratio as follows (Adioetomo and Naidoo, 2013) :

$$\text{Dependency Ratio} = \frac{P_{0-14} + P_{65+}}{P_{15-64}} \times 100$$

Description:

P_{0-14} = number of nonproductive age population (population aged under 15 years)

P_{65+} = number of nonproductive age population (population aged 65 years or more)

P_{15-64} = number of productive age population (population aged 15-64 years)

Dreze and Kingdon (1999) in his study entitled "School Participation in Rural India" presents five variable analysis of determinants school enrollment in rural North India, based on the five latest household variables that includes detail information about school characteristics. Some variables that affect school enrollment, especially among girls, among others: parental education and motivation; background variation; dependency ratio; employment opportunity; rural development; teachers; teacher regularity and lunch. Findings related to the study that is dependency ratio. Drèze and Kingdon found that high dependency ratios have an adverse effect on school enrollment. In other words, higher dependency ratio, is lower school participation. Furthermore, it will cause higher educational inequality.

Gaspart and Thomas (2012) in their study entitled "Does Poverty Rural Trap Malagasy Households?", to study determinants of the dynamics of poverty in some rural areas of Madagascar. Rural poverty in Madagascar can be explained by a vicious circle which leads to a poverty trap. Show that differences in the household characteristics and environment associated with differences in the probability of poverty transition. Vulnerable poor households have higher dependency ratios and less educated. They also showed activity patterns result in different revenue. They cultivate plants that are less market-oriented and have activities that are more susceptible such as agricultural wage labor. A Markov poverty transition model was used to evaluate the role poverty in the past situation. The result of studies show that a large part of the difference in probability of household poverty transition caused by the poverty status in the past. The result of the studies encourage development of domestic protection to prevent falling into the poverty trap as well as specific measures to drive out of the poverty trap.

The result of the studies conducted by Gaspart and Thomas (2012), showing that when household positioned under poverty trap mean that condition of dependency ratio is high. These condition will affect society revenue income. High burden dependency will reduce earnings. Low income one of them will lead to lower capital formation. Capital formation is not only in physical form, but also in non-physical capital form that is human capital. As said (Pressman, 2000) human capital is an investment that people make in themselves, through education, training and developing new skills. Thus can be concluded that dependency ratio affect education inequality. Higher dependency ratio, then higher education inequality.

Furthermore, studies conducted by Gaspart and Thomas (2012), mention other factors that affect educational inequality is poverty. Poor households vulnerable on less educated. Poverty affect household plan (family planning). Their reasoning

ii differ on the importance of school. They have low motivation on education. Consequently, we can conclude that poverty will affect education level that will be pursued. Hence, higher number of poor people, make educational inequality also rise up.

Theory of poverty trap circle by Ragnar Nurkse (1953 in Mahyudi, 2004), suggests that the circle of poverty trap is formed by two types of poverty traps circle, that are from supply side and capital demand side. Capital supply side causes poverty cycle starts from a low income level due to low productivity level, which can lead to the saving ability and capital formation is also low. While in the capital demand side, especially in poor excitation/stimulation countries. To carrying out capital investment is very low because of market narrowness. Lack of capital investment stimulation is caused by low income levels due to low productivity, resulting in a low saving ability. That means back to the causing factors from capital supply side is other type of poverty trap circle. Causal processes will be repeated in a circle, sometimes the effect become the causes, and vice versa.

In poverty trap circle theory, poor people do not have access to a deeper chances of getting a decent education. Thus, poverty will affect educational inequality, the more number of poor people, the higher education inequality.

One definition of poverty is absolut poverty. At this time the Central Statistics Agency (BPS), look at the absolute poverty with basic needs approach. This approach sees poverty as the inability (lack of capabilities) from an economic standpoint to meet basic needs of food and non-food which is measured from the expenditure side and revenue side. With this approach, it can be calculated Head Count Index (HCI), that is percentage of the population is under poverty line. The value of the poverty line used refers to minimum requirement of 2.100 calories per capita per day plus a minimum non-food requirement is the person's basic needs. The amount of expenditure (in rupiah) to meet minimum basic needs of food and non-food is called poverty line (Kuncoro, 2003).

In addition HCI Poverty there is deep poverty indeks (Poverty Gap Index - P_1) and Poverty Severity Index (P_2) is a tool to measure the poverty. Poverty Gap Index is an average size of each expenditure gap of the poor against poverty line. Higher index value, higher average expenditure of the population from poverty line. Poverty Severity Index provides a description about expenditure distribution among poverty population. Higher index value, hence higher expenditure inequality among the poor.

Study by Mesa (2007) also showed a similar case, that in the Philippines there is a difference in educational inequality between the poor Province and not. Poor Province have a higher education inequality than other not. In addition related to poverty, education inequality also causes discrimination between men and women. Women have a more equitable distribution of education than men. In contrast

with Mesa, Cuaresma et al. (2013) found that education in Europe is more prevalent among men than in women.

The sex ratio is a comparison of some population of men and women. If it is written in the form of equation (CBS, 2015),

$$\text{Sex ratio} = \frac{\text{number of men population}}{\text{number of women population}} \times 100$$

Sex ratio figures depict every 100 women population found number of men population of sex ratio figures.

Grossbard and Schectman (1995) argues that when sex ratio is high, women get marriage benefit. When sex ratio is low, men get marriage benefit. It shows that when the sex ratio increases, also applies to women part increase for consumption and recreation in the household. The income of spousal employment, determined in the labor market of husband and wife. Sources of individuals income will affect individual consumption in the household. If other variable are constant, the more individual's income either husband or wife, the more they can consumes what they like. Revenue of husband or wife will affect children welfare. The tendency that happened is mother more concerned about her child welfare rather than father. Consumption conducted by a wife more spent for her children.

Reinforced by D. Li and MC Tsang (2002) on Study in China about the existence of education inequality ingender. One of the factors that affect educational inequality is households expenditure. Household education spending will demonstrate the ability of households to pay for children's education. Higher education level of person then education personal costs will be higher as well (Todaro, 2011). Ability financing in household education has resulted in differences on graduate education, emerging educational inequality problems.

It can be concluded that sex ratio will be get impact toward education inequality. That is because there are differences in household spending between husband and wife on children education. Mentioned that mother's consumption is more concerned on children welfare, of course, this consumption include expenditure on children education anak. Higher sex ratio indicates greater number of male population compared to women population. Thus, high sex ratio will increase educational inequality.

Another factor that can influence educational inequality, namely economic growth. Tamura (1995) mentions that economic growth shows the improvement of living standards of a generasi. Currently generation enjoying better a standard of living than previous one, as well as to the length of the school year. According to Mankiw (2012), economic growth showed an increase in average incomes. Thus, economic growth shows level of society prosperity/welfare. Higher economic

growth shows the higher average income of society. Lagged countries has economic growth which is much smaller compared with developed countries. It is shows that the living standard is minimal. Related to education, in the underdeveloped countries, children are often out and quit of the school at an early age. Although the long-term benefits if the school is very high, students in the school cannot think of the wages they earn in the future. They dropped out and quit of the school because their power is needed to help the family. Human resource investment is equal to physical capital investment, which requires cost sacrifice. Thus, one of the ways the government to improve the standard of living by providing good schools and encourage population to take advantage of the schoolexistence.

III. RESEARCH METHODS

The method used in this study is descriptive and verificative. Descriptive research done to elaborate an idea of the magnitude of educational inequality between districts/cities in East Java province in 2008-2013 period. While verificativeresearch conducted to test and analyzes the effect of dependency ratio, poverty, economic growth, and sex ratio towards educational inequality among districts / cities in East Java province.

Population of this research is the districts/cities in the Province of East Java in 2008-2013. Sampling technique that used are purposive sampling and random area sampling. Number of samples taken four areas that have highest and lowest educational inequality index value, respectively of two districts/cities in each group in East Java region, namely Pamekasan, Bojonegoro, Malang, and Madiun.

For Pamekasan include: Sidoarjo and Surabaya (lowest education inequality) as well as Sumenep and Sampang (highest education inequality). Area of Bojonegoro including: Mojokerto and Kediri (lowest education inequality) as well as Bojonegoro and Tuban (highest education inequality). Malang area include: Malang and Pasuruan (lowest educational inequality) as well as Bondowoso and Situbondo (highest educational inequality). Madiun area includes: Madiun and Blitar (lowest education inequality) as well as Madiun and Ngawi (highest education inequality). Data obtained will be processed and analyzed in order to solve the problems in the study. The data analysis techniques used by the authors is the panel data regression analysis (pooled data).

With the model equation as follows:

$$DUINE = \alpha_1 + \alpha_2 GROWTH_{it} + \alpha_3 DEPENRATIO_{it} + \alpha_3 PROV_{it} + \alpha_3 SEXRATIO_{it} + e$$

Where:

DUINE : education inequality

GROWTH	:	economic growth in each districts/cities in East Java
DEPENRATIO	:	figures that stating ratio between number of nonproductive age population to number of productive age population in the district / city
PROV	:	The level of poverty districts / cities in East Java
SEXRATIO	:	comparison number men and women population
α_1	:	constants
$\alpha_2, \alpha_3, \alpha_4$:	coefficient variable
I	:	districts/cities in East Java
t	:	years
e	:	confounding variabel

Data Panel or pooled data is a combination of time series data and cross section (Ajija, *et al.*, 2011: 51). There are two stages of testing: First, Fixed Effecttest, using Likelihood Ratio Test to determine between common models (PLS) and Fixed Effects Model (FEM). Second, random effect method by using Hausman test to determine between fixed effect or random effect approach method.

IV. RESULTS AND DISCUSSION

There are four regions in East Java, namely Pamekasan, Bojonegoro, Malang, and Madiun. Pamekasan region shown with lowest average educational inequality data (2008-2013) contained in Sidoarjo regency, with a value of 0,207. With a Education Gini Index Value Sidoarjo regency in 2008 of 0,213, then in 2009 rose to positions of 0.216, then fell in three subsequent years amounted to 0,212, 0,205, 0,198, and at the end of 2013 rose by 0,199. While data on highest average educational inequality (2008-2013) contained in Sampang, with a value of 0.501. Where Education Gini Index in Sampang fluctuate from year to year, 2008 amounted to 0,560, in 2009 amounted to 0,506, in 2010 amounted to 0,556, in 2011 amounted to 0.506, in 2012 and 2013 fell by 0.494 and 0.383.

At Bojonegoro, from 2008 to 2013 the value of the lowest education Gini Index is located in Mojokerto and Kediri with a value of 0,210 lower inequality category. Furthermore, Bojonegoro for an average educational inequality of six years of research at 0,329. While highest average Education Gini Index in Tuban with a value of 0,330.

In Malang area, Malang has lowest average educational inequality index value of 0.223. Gini index values fluctuated during six years of education, in 2008 of 0.223, in 2009 of 0.230, in 2010 of 0.234, in 2011 of 0.219, in 2012 of 0.200, and in 2013 of 0.231. Situbondo hold highest average educational inequality index with a value of 0.396. Gini index value of education for six-year study to fluctuate, which in

2008 of 0.424, in 2009 of 0.358, in 2010 of 0.441, in 2011 of 0,393, in 2012 of 0,412, and in 2013 amounted to 0,348.

In Madiun area, Madiun get position lowest average education Gini index for six years which is equal to 0.195. With a Gini index value of education is fluctuative in 2008 of 0,212, in 2009 of 0,201, in 2010 of 0,186, of 0,192 in 2011, year 2012 of 0,194, in 2013 of 0.184. As for average educational inequality value is highest in Ngawi with a value of 0.344. With an Gini index value of education in Ngawi in 2008 of 0.360, in 2009 of 0,349, 2010 of 0,373, in 2011 of 0,333, in 2012 of to 0.346, and in 2013 of 0,301.

Table 1
Average Gini Index of Education in 2008-2013 Province of East Java

<i>District / Cities of East Java</i>	<i>Average Education Gini Index (2008-2013)</i>
Bakorwil Pamekasan	
Kab. Sidoarjo	0,207
Kota Surabaya	0,211
Kab. Sumenep	0,429
Kab. Sampang	0,501
Bakorwil Bojonegoro	
Kota Mojokerto	0,210
Kota Kediri	0,210
Kab. Bojonegoro	0,329
Kab. Tuban	0,330
Bakorwil Malang	
Kota Malang	0,223
Kota Pasuruan	0,253
Kab. Bondowoso	0,375
Kab. Situbondo	0,396
Bakorwil Madiun	
Kota Madiun	0,195
Kota Blitar	0,225
Kab. Madiun	0,296
Kab. Ngawi	0,344

Economic growth in sample districts in each region are likely to grow and increase in the period 2008 to 2013 as presented in Table 2. The area that experienced positive growth and fairly consistent are Sidoarjo, Surabaya, Madiun and Malang. Whereas Bojonegoro even occur a downward trend in growth. For other districts and cities the average economic growth has positive sloping trend.

Table 2
Economic Growth 2008-2013 in the area of East Java

	<i>Tahun</i>					
	2008	2009	2010	2011	2012	2013
Kab. Sidoarjo	4,95	4,41	5,92	6,88	7,13	7,04
Kota Surabaya	6,84	5,53	7,09	7,56	7,62	7,34
Kab. Sumenep	4,36	4,22	5,64	6,24	6,33	6,44
Kab. Sampang	4,65	4,27	5,40	6,04	6,12	5,74
Kota Mojokerto	5,71	5,03	6,66	6,62	7,11	6,86
Kota Kediri	4,31	4,19	5,99	7,93	7,67	6,45
Kab. Bojonegoro	9,24	10,1	11,84	9,19	5,68	5,30
Kab. Tuban	6,93	5,03	6,30	7,24	6,19	7,01
Kota Malang	5,93	5,20	6,60	7,22	7,57	7,30
Kota Pasuruan	5,91	5,02	5,99	6,29	6,46	6,54
Kab. Bondowoso	5,32	5,00	5,69	6,28	6,47	6,27
Kab. Situbondo	5,04	5,02	5,89	6,31	6,54	6,87
Kota Madiun	6,91	6,06	6,93	7,18	7,79	8,07
Kota Blitar	6,79	5,31	6,66	6,59	6,84	6,57
Kab. Madiun	5,26	5,08	5,92	6,41	6,43	6,37
Kab. Ngawi	5,49	5,65	6,09	6,14	6,58	6,98

The magnitude of the dependence burden on the districts and cities in East Java in general can be seen in Table 3. Where at the table presented growing amount of dependence burden of each district and city in the year 2008 to 2013. Overall area with greatest dependency ratio is Sampang whereas regions with smallest dependency burden is Malang. Averagely almost no significant change in the magnitude of the dependency burden on each area.

If the development trend of the dependency ratio of each generally tends to be flat, another case with poverty levels of society tend to decline slowly. On the average, the highest poverty level of the district and city samples is Sampang followed by Sumenep, while regions with lowest poverty rates are Surabaya and Malang. While for sex ratio of the population people in all districts and cities have a population of female sex a little more, except Sidoarjo Regency.

Results of the panel regression which examines variables effect of dependency ratio, poverty, economic growth, and sex ratio of the education inequality in the districts / cities of East Java, carried out in two phases namely Fixed Effect Test and Random Effect Test. First, Fixed Effect Test using Likelihood Ratio Test to choose a panel data whether to use model Pooled Least Square (PLS) / common effect or Fixed Effect (FE). Likelihood Ratio Test processing results obtained p-value cross-section Chi-Square of 0.0000. Value of p-value cross-section Chi-Square of 0.0000 < 0.05 (α), then H_0 is rejected, which means that model used is fixed effect.

Table 3
Dependency burden 2008-2013 in Bakorwill of East Java

	<i>Year</i>					
	2008	2009	2010	2011	2012	2013
Kab. Sidoarjo	44,928	41,784	44,473	44,134	42,41	42,369
Kota Surabaya	40,233	39,256	39,456	37,741	38,026	38,677
Kab. Sumenep	41,343	41,623	37,325	40,43	42,227	44,321
Kab. Sampang	67,308	63,239	66,417	56,47	60,128	57,744
Kota Mojokerto	44,113	44,913	42,288	46,013	44,697	46,049
Kota Kediri	47,536	49,388	46,077	43,596	44,781	43,637
Kab. Bojonegoro	50,512	49,135	45,054	44,55	44,544	45,773
Kab. Tuban	41,784	45,794	45,985	43,425	44,342	44,739
Kota Malang	39,256	40,193	39,198	41,369	40,41	38,933
Kota Pasuruan	50,083	49,978	47,066	48,236	47,399	46,456
Kab. Bondowoso	46,864	43,596	48,104	47,355	46,377	48,478
Kab. Situbondo	42,939	45,201	43,74	42,714	42,735	45,117
Kota Madiun	42,857	47,21	46,092	46,735	44,739	48,104
Kota Blitar	50,015	50,06	49,024	49,38	47,362	45,943
Kab. Madiun	48,876	51,837	47,189	52,03	49,054	48,765
Kab. Ngawi	47,297	46,757	48,258	45,815	48,06	48,368

Table 4
Likelihood Ratio Test

REDUNDANT FIXED EFFECTS TESTS
POOL: POOL
TEST CROSS-SECTION FIXED EFFECTS

<i>Effects Test</i>	<i>Statistic</i>	<i>d.f.</i>	<i>Prob.</i>
Cross-section F	28.330770	(15,76)	0.0000
Cross-section Chi-square	181.036416	15	0.0000

Thus, second test conducted is random effect method. A random effect method using Hausman Test to determine approach method between fixed effect or random effect method. Processing results of Hausman test obtained value of p-value cross-section Chi-Square as 1,0000. p-value cross-section Chi-Square of 1.0000 > 0.05 (α), then H_0 is accepted, which means that the model used is random effect.

Table 5
Hausman Test

CORRELATED RANDOM EFFECTS - HAUSMAN TEST
POOL: POOL
TEST CROSS-SECTION RANDOM EFFECTS

<i>Test Summary</i>	<i>Chi-Sq. Statistic</i>	<i>Chi-Sq. d.f.</i>	<i>Prob.</i>
Cross-section random	0.000000	4	1.0000

Furthermore, performed hypothesis test to determine whether random effect model specifications is suitable to be applied in the first panel data model. Based on regression analysis output showed value of F calculation of 11.39 with a significance of 0,0000atau below 0.05. Thus, F test statistic states that in the model dependency ratio, poverty, economic growth, and sex ratio variables simultaneously have a significant impact on educational inequality in the districts/citiesof East Java.

Table 6
Approach of random effect method

<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistic</i>	<i>Prob.</i>
C	0.192873	0.097948	1.969139	0.0520
GROWTH?	0.000641	0.001312	0.488467	0.6264
DEPENRATIO?	0.002897	0.001430	2.025545	0.0457
PROV?	0.071750	0.011550	6.212392	0.0000
SEXRATIO?	-0.000780	0.000961	-0.811498	0.4192
<i>Random Effects (Cross)</i>				
_KABSDA – C	-0.053229			
_KOTASBY – C	-0.039862			
_KABSMNP – C	0.104032			
_KABSPNG – C	0.090366			
_KOTAMJK – C	-0.052056			
_KOTAKDR – C	-0.065562			
_KABBJNGR – C	0.008743			
_KABTBN – C	0.018510			
_KOTAMLG – C	-0.031637			
_KOTAPSRN – C	-0.033712			
_KABBDW – C	0.062165			
_KABSTBD – C	0.091337			
_KOTAMDN – C	-0.070995			
_KOTABLTR – C	-0.053530			
_KABMDN – C	-0.013590			
_KABNGW – C	0.039019			
<i>Effects Specification</i>				
			<i>S.D.</i>	<i>Rho</i>
Cross-section random			0.030882	0.6224
Idiosyncratic random			0.024054	0.3776
<i>Weighted Statistics</i>				
R-squared	0.334435	Mean dependent var		0.089633
Adjusted R-squared	0.305179	S.D. dependent var		0.036879
S.E. of regression	0.030741	Sum squared resid		0.085996
F-statistic	11.43149	Durbin-Watson stat		1.101702
Prob(F-statistic)	0.000000			
<i>Unweighted Statistics</i>				
R-squared	0.475078	Mean dependent var		0.295794
Sum squared resid	0.448010	Durbin-Watson stat		0.211474

Partially four independent variables contributing to variation education inequality in the districts/cities of East Java can be seen from the results of t-test statistics. Where t-test output are presented in Table 2 below:

Table 7
Hypothesis test

<i>Dependent Variable:</i> <i>Education Inequality</i>	<i>Model</i>	<i>Remarks</i>
Economic growth	0.000641 (0.6264)	Insignificant
<i>dependency ratio</i>	0.002897 (0.0457)	Significant positive
Poverty	0.071750 (0.0000)	Significant positive
<i>sex ratio</i>	-0.000780 (0.4192)	Insignificant

From the results of panel regression obtained constant value which is different for each region of the districts/cities of East Java. It is due to differences in educational inequality condition districts/cities in East Java, if the independent variable of the study considered fixed. Constants value of the highest educational inequality data found in Sumenep. Constants value of the lowest educational inequality data found in Kediri. Complete constant values are presented in Table 3 below.

Table 8
Constant values per Districts/Cities of East Java

<i>Districts/Cities of East Java</i>	<i>Constant</i>
Kab. Sidoarjo	0,139644
Kota Surabaya	0,153011
Kab. Sumenep	0,296905
Kab. Sampang	0,283239
Kota Mojokerto	0,140817
Kota Kediri	0,127311
Kab. Bojonegoro	0,201616
Kab. Tuban	0,211383
Kota Malang	0,161236
Kota Pasuruan	0,159161
Kab. Bondowoso	0,255038
Kab. Situbondo	0,284210
Kota Madiun	0,121878
Kota Blitar	0,139343
Kab. Madiun	0,179283
Kab. Ngawi	0,231892

Value of adjusted R-square of 0,305 indicates variables of dependency ratio, poverty, economic growth, and sex ratio determines 31% of the education inequality variation between districts/ cities in East Java, while other factors outside the four variables have contributed to the education inequality between districts/ cities in East Java by 69%.

Based on the analysis of economic growth have not significant effect on poverty inequality. This condition is contrary to Tamura (1995) and Mankiw (2012), which states that the economic growth showed an increase in the standard of living of a generation, as well as to the length of the year of school. Nevertheless economic growth shows increase in the average people income. In real, economic growth does not significantly influence the decline of education inequality. One of them may be due to economic growth effect indirectly through government expenditure variable particularly education. Economic growth means that output over goods and services are increased, affect local revenues and people incomes. However, the revenue increase, not necessarily affect the local government expenditures or society for education facilities. Mean local government spending was not as concerned to education expenditure. Can be concluded that economic growth does not necessarily decrease educational inequality, if not supported by government policy in expenditure on education or the choice of public spending on education to a higher level.

In accordance with Sholikhah (2014) states that government expenditure significantly have positive effect on education inequality. Mean that more government spending the higher education inequality. Due to local government spending on education is less effective in its implementation. Government expenditure on education facilities is only prioritized in nine years of compulsory education program, whereas for other educational levels less attention. This is what causes inequality education increasingly. Society spending significantly have negative effect on educational inequality. This means family's attention to education spending would reduce inequality in education.

Apart from the expense, the conditions of economic growth in East Java is uneven thus contribute to educational equity indistinguishable. Rate of high economic growth tends to occur only in a few cores of growth while area outside the center their growth relatively lagged. Lack of transportation and other facilities have also contributed to this inequality.

Dependency ratios significantly have positive effect on education inequality. This means that higher dependency ratio, higher education inequality. According to Malthus theory (1978 in Pressman, 2000); Dreze and Kingdon (1999); and Gaspart and Thomas (2012). This condition means high dependency ratios become a burden to society. Due to high dependency burden, public expenditure will be taken for consumption spending compared to investment spending or saving. This investment also includes human capital investment.

Poverty significantly have positive effect on education inequality. Means, higher poverty severity index will increase educational inequality. Poverty is not only seen in absolute terms, but also in structural. Absolutely poverty affects education inequality because of the low ability of poor people in daily needs consumption, including education consumption. Structurally, poor consider that education is not crucial. So, they are more choose to work rather than go to school. Even, since childhood they are required to assist the work of parent. This condition, according to poverty trap circle theory proposed Ragnar Nurkse (in Mahyudi, 2004) and studies conducted by Gaspart and Thomas (2012); Mesa (2007).

Average figures of sex ratio in East Java is lower, meaning that women population is higher than total population of men ratio. Sex ratio has not significant effect on education inequality. Lower contribution of sex ratio in education inequality indicate that the views of people who prioritize men in terms of educational opportunities has shifted, as the view of traditional societies of East Java. This shift also indicates that changes in East Java community towards the modern society is getting clear-cut. Sex has not become a major problem in obtaining education at a higher level.

Unlike Grossbard and Schectman (1995) and D. Li and MC Tsang (2002), which states that mother's consumption is more concerned over her children welfare, of course, include the consumption expenditure on children education, high sex ratio will increase educational inequality. The result of data analysis showed that sex ratio did not affect toward educational inequality. Shifting the roles of men and women in the household, it can also be one of the causes. Formerly, traditional societies of East Java considers that men play more major role compared to women. Currently, this view has begun to shift. By same roles between men and women, also consumption carried out by the husband and wife. Thus, no longer affect the sex ratio education inequality. Because there is similarities thinking between husband and wife to education consumption.

V. CONCLUSION

The analysis result and discussion above shows variables of dependency ratio, poverty, economic growth, and sex ratio contribute to educational inequality with variable dependency ratio and poverty decisively have an influence on educational inequality in East Java. Partially variable dependency ratio and poverty rate has positive contribution to educational inequality, but economic growth and sex ratio variables, partially no significant effect. Result of this study again shows that circle of poverty trap is still real happened in East Java. Vulnerable poor household have less educated, while economic growth has not much contribute also indicate the occurrence of this inequality.

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