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Advances in Social Science, Education and Humanities Research, volume 292 1st Aceh Global Conference (AGC 2018) Analysis of Economic Development Disparity across Regencies in Aceh, Indonesia *Hijri Juliansyah, Yulius Dharma, Andria Zulfa, Asnawi, Depin Aprilla, Umaruddin Usman, Khairil Anwar, Fuadi, Tarmizi Abbas Faculty of Economics and Business, University of Malikussaleh, Indonesia *Corresponding author: hijri.juliansyah@gmail.com Abstract— This study empirically explores the influences of poverty and per capita income on inequality of economic development across 23 regencies in Aceh Indonesia over the period 2012-2016. To measure the inequality of economic development, the classical typology method of Williamson Index and Theil Index are adopted.

Meanwhile, the panel multiple regression is used to investigate the influences of poverty and per capita income on inequality of economic development in the region. The study is documented that the level of poverty did not affect the imbalance of economic development, while the per capita income positively affected the inequality of economic development.

This finding implied that to further reduce imbalance of economic development across the regencies, the government should distribute a just income so that all citizens could equally enjoy it. Keywords— Klassen typology; Williamson index; Theil index; Development disparity; Poverty I. INTRODUCTION Economic development is expected to provide equitable economic development.

This means that no region has experienced a gap or imbalance in economic development. The relationship between the income gap and economic development has been intensively discussed in the literatures, focusing mainly on developing country,

including Indonesia. Aceh Province is one of the provinces in Indonesia that has rich natural resources.

However, Aceh is one of the provinces in the country with the poverty line above the national level. Rich natural resources failed to contribute toward higher economic development in 23 regencies in the province wide. Economic development in the province is aspired to be enjoyed equitably by the people in regencies across Aceh.

Unfortunately, there has been an income disparity in the province. Although the level of economic in Aceh increased from 4.27% in 2015 to 4.31% in 2016, but it did not guarantee the absence of economic development gaps between the regencies in Aceh Province (Statistical Central Bureau, Aceh Province, 2017). Previous studies on income inequality in Indonesia have been done by Afidatina (2016) in the Tuban Regency, Asih (2015) in Cilacap District, and Andiny (2017) in Aceh. Afidatina (2016) only measured the level of income inequality, while Asih (2015) and Andiny (2017) examined the effect of poverty on inequality.

Andiny (2017) found that poverty insignificantly affected the inequality, while Asih (2016) found a negative effect of number of poor people on the inequality of economic development. These limited previous studies found a mixed finding on poverty-inequality nexus. Additionally, these studies only focused on poverty-inequality relationship, while other potential determinants of inequality of economic development were excluded.

Against the above backdrop, this study intends to measure the level of income inequality across 23 regencies in Aceh and its determinants over the period 2012-2016. Unlike the above studies, this study includes per capita income and poverty as the determinants of inequality of economic development in the regencies to enrich the existing empirical evidences on the determinants of income inequality.

The findings of this study are hoped to shed some lights for policy makers to reduce income disparity across rich provincial regencies. The rest of the study is structured in the following sequences. Section 2 discusses the previous related studies, while Section 3 highlights the research method and data adopted in the study.

Section 4 discusses the findings and implications of the study, and finally Section 5 concludes the paper. II. LITERATURE REVIEW A. Income per capita Per capita income is the amount of the average income of residents in a country. Per capita income is obtained from the distribution of a country's national income in a given year with the country's population in that year.

Per capita income has its own function, which is to describe the level of prosperity in various countries. In the context it is assumed that the level of prosperity of a country is reflected by the average income received by its population.

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Development Disparity Development ideally creates fair and equitable economic growth and community prosperity. As explained by Smith (2003), development requires sustainable growth; if the increase in economic growth is only carried out by a handful of rich people then the increase in yield is likely to benefit only the rich. If this occurs then the progress of efforts to combat poverty will move slowly, while inequality will worsen.

As stated by Safrijal (2012), economic inequality will emerge in regions if it exist differences in natural resource content, differences in demographic conditions, and lack of mobility of goods and services. C. Poverty Poverty is a condition of the community has not participated in the process of change because it does not have the sufficient ability, both the ability to own the factors of production and the quality of production factors so that they do not get the benefits of development results (Subandi, 2016). D.

Poverty- Economic Development Disparity Relation Poverty is a lack of income to fulfil the needs of life, both basic and supporting needs. Poverty can cause economic development inequality it also can be caused by limited available job this will create many unemployed. Unemployment can cause economic development to be hampered by low level of education, high level of poverty (Retno, 2014).

If poverty increases then economic growth remains high, implying that the high rate of poverty will not affect the rate of economic growth. E. Per capita Income-Economic Development Inequality Relation According to Todaro (2004) high economic growth rates do not always worsen income distribution. Economic growth is shown by the increase of the per capita gross domestic product (GDP) regardless of whether the increase in GDP is smaller or greater than population growth (Arsyad, 2014).

Following the Neo-Classic Hypothesis, thus the per capita income could be used as an independent variable in this study, which indicates the level of development of a country (Sjafrizal, 2008). Economic growth in a region reflects the progress of a region. But what becomes a challenge for an area in carrying out its economic development is whether its economic development can be an equitable economic development in all levels of society. Expectations of a high economic growth will increase per capita income from the community.

When per capita income increases and is evenly distributed, public welfare will be created and inequality will diminish. In short, an increasing per capita income in one region can affect regional economic development. Subsequently, the per capita income can also have an impact on inequality of the population in the region. III. METHOD This

study uses a mixed approach.

Descriptive approach is employed as analytical tools in the form of Klassen Typology matrix, Williamson Index, and Theil Entropy Index to measure the level of income disparity across 23 regencies in Aceh, Indonesia over the period 2012-2016. All 23 regencies are Simeulue, Aceh Singkil, Aceh Selatan, Aceh Tenggara, Aceh Timur, Aceh Tengah, Aceh Barat, Aceh Besar, Pidie, Bireuen, Aceh Utara, Aceh Barat Daya, Gayo Lues, Aceh Tamiang, Nagan Raya, Aceh Jaya, Bener Meuriah, Pidie Jaya, Banda Aceh, Sabang, Langsa, Lhokseumawe, and Subulussalam.

Meanwhile the quantitative approach of a panel multiple regression analysis is used to examine the effect of per capita income and poverty on inequality of economic development. A. Klassen Typology Analysis To measure the development and progress of economic development in 23 regencies in Aceh, the following Klassen Typology matrix illustrated in Table I is used. TABLE I.

KLASSEN TYPOLOGY MATRIX Quadrant I Developed and Fast Growing Region $g_i > g$ dan $g_{ki} > g_k$ _Quadrant II Developed But Depressed Region $g_i < g$ dan $g_{ki} > g_k$ _Quadrant III Fast Growing Region $g_i > g$ dan $g_{ki} < g_k$ _Quadrant IV Underdeveloped Region $g_i < g$ dan $g_{ki} < g_k$ _Source: (Sjafrizal, 2008) where g_i is the rate of economic growth in district i, g_{ki} is the per capita district revenue i, g is the provincial economic growth rate, and g_k is the average provincial per capita income.

Williamson Index Next, the study also uses the following Williamson Index to find out how much the level of inequality exists in the region (Saputra, 2016): where IW is the Williamson Index, y_i is the regency i per capita income; y is the provincial average per capita income, f is the number of residents in regencies i , and n is the provincial population. C. Theil Index Finally, the study uses Theil Index as a common approach to measuring development inequality between regions.

The advantage of using this index is that it can measure the strengths in the regions and between regions at once. The degree of inequality using the Theil Index is measured using the following formula (Hero, 2014): $lintra = (y_i/Y) \cdot \log[(y_i/Y)/(n_i/N)]$ Where $lintra$ is the Theil intra region Entropy Index, y_i is the per capita income in regency i , Y is the provincial per capita income, n_i is the total population in regency i , and N is the number of provincial population. D.

Panel Multiple Regression Analysis This study uses the following panel regression analysis to examine the effect of poverty and per capita income on the imbalance of economic development across 23 regencies in Aceh Province: $Inequalit = \beta_0 + \beta_1POV_{it} + \beta_2PINC_{it} + e_{it}$ Where $Inequal$ is the inequality of economic development, POV is the poverty level, $PINC$ is the per capita income, β_i is the coefficient estimated variables, e is the error term, and it is the regency i at time t .

Three models of panel regression analyses could be used in this study, namely: Common Effect, Fixed Effect, and Random Effect. To test which model is the best suited for our analysis, the F-statistics is conducted to test whether the Common Effect model or the Fixed Effect model is the best. Then, the Hausman test is employed to test whether the Fixed Effect Model or the Random Effect model is the suitable model to be adopted in this study. IV.

RESULTS AND DISCUSSION Before the study measure the income inequality and its determinants, the classical assumption tests of multicollinearity and heteroscedascity will be conducted first. TABLE II. MULTICOLLINEARITY TEST RESULTS _POV _PINC _POV _1.0000 _- _PINC _-0.0075 _1.0000 _- As observed from Table II the study found no relationship between independent variables of poverty and per capita income, indicating that there was no multicollinearity exists between variables. Table III shows the heteroscedasticity test finding. Table III shows the probability value of Obs*R-Squared (3.997) is greater than 0.05, indicating the variables are homoscedasticity. TABLE III. HETEROSCEDASTICITY TEST F-statistic _764.7089 _Prob. F(2,1) _0.0256 _Obs*R-squared _3.9974 _Prob.

Chi-Square(2) _0.1355 _ _Scaled explained SS _0.0815 _Prob. Chi-Square(2) _0.9601 _ _ A.
Inequality of Economic Development Table IV reports the Klassen Typology Matrix of
the inequality of economic development across 23 regencies in Aceh over the period
2012-2016. 679

KLASSEN TYPOLOGY MATRIX No_Regencies_Year_2013_2014_2015_2016_1
 _Simeulue_III_III_III_III_2_Aceh Singkil_III_IV_IV_III_3_Aceh Selatan_III_III_IV_III
 _4_Aceh Tenggara_III_III_IV_III_5_Aceh Timur_III_IV_III_III_6_Aceh Tengah_I_I
 _II_I_7_Aceh Barat_II_II_II_II_8_Aceh Besar_II_I_II_II_9_Pidie_IV_III_III_IV_
 _10_Bireuen_IV_IV_IV_III_11_Aceh Utara_II_I_I_II_12_Aceh Barat Daya_IV_IV
 _IV_IV_13_Gayo Lues_IV_III_IV_III_14_Aceh Tamiang_III_IV_IV_IV_15_Nagan
 Raya_II_II_II_I_16_Aceh Jaya_IV_IV_IV_IV_17_Bener Meuriah_III_III_I_I_18
 _Pidie Jaya_III_IV_III_II_19_Banda Aceh_I_I_I_I_20_Sabang_II_I_I_I_21
 _Langsa_III_III_III_III_22_Lhokseumawe_II_I_I_II_23_Subulussalam_III_III_III_III_
 _As reported in Table IV, the regencies in Aceh could be categorized into four
 conditions based on the Klassen typology matrix. There are several districts that are in
 first quadrant, second quadrant, third quadrant, and fourth quadrant.

The regencies in the first quadrant include Aceh Tengah and Banda Aceh. These
 regencies are fast-developing and fast-growing regencies, where its economic growth
 and per capita income are higher than the average economic growth and per capita
 income of Aceh Province. Next, the regencies in the second quadrant include Aceh
 Barat.

This means that the district is an area or region that is developed but depressed, where
 its economic growth is lower than the province, and per capita income is higher than the
 province. This could be due to several factors supporting its economic development,
 namely high unemployment and high poverty. The district has the potential to advance,
 but is still depressed by the socio-economic problems.

Meanwhile, the regencies in the quadrant comprise Simeulue, Langsa, and
 Subulussalam. In this quadrant, the regencies are in a region that is growing rapidly and
 very potential to move from a rapidly developing region towards an advanced region.
 Finally, the regencies in the fourth quadrant include Aceh Tenggara and Aceh Jaya.

These districts have economic growth rate lower than the provincial economic growth,
 and their per capita income are lower than the provincial average per capita income.
 This means that the area or region is relatively underdeveloped. Table V shows the value
 of the inequality index in Aceh Province over the period 2013 and 2016 is at a high level
 where the value is more than 0.35, based on the Williamson Index. This means that the
 economic development disparity exists across the regencies in Aceh Province, Indonesia.
 TABLE V.

THE WILLIAMSON INDEX Year _Williamson Index _2013 _0.44 _2014 _0.41 _2015
_0.37 _2016 _0.38 _ _ Finally, the inequality level of regencies in Aceh is reported in
Table VI based on the Theil Index. The inequality across 23 regencies in the province of
during the 2013-2016 has a value of Theil Index below 0.15, indicating many people in
the regencies living inequality level of income between layers of society, indicating the
existence of imbalances between regions in Aceh Province 680

THE THEIL INDEX OF THE REGENCIES IN ACEH		No	Regencies/City	Year	2013
					2014
					2015
					2016
		1	Simeulue	0.007	0.007
				0.008	0.008
		2	Aceh Singkil	0.002	0.002
				0.002	0.002
		3	Aceh Selatan	0.005	0.005
				0.005	0.005
		4	Aceh Tenggara	0.004	0.004
				0.004	0.003
		5	Aceh Timur	0.039	0.031
				0.017	0.015
		6	Aceh Tengah	0.002	0.008
				0.009	0.009
		7	Aceh Barat	0.012	0.012
				0.013	0.013
		8	Aceh Besar	0.005	0.005
				0.006	0.006
		9	Pidie	0.006	0.006
				0.007	0.006
		10	Bireuen	0.011	0.011
				0.011	0.110
		11	Aceh Utara	0.013	0.013
				0.013	0.013
		12	Aceh Barat Daya	0.014	0.013
				0.014	0.014
		13	Gayo Lues	0.017	0.017
				0.019	0.019
		14	Aceh Tamiang	0.004	0.003
				0.004	0.004
		15	Nagan Raya	0.014	0.014
				0.015	0.015
		16	Aceh Jaya	0.009	0.009
				0.008	0.008
		17	Bener Meuriah	0.020	0.019
				0.020	0.020
		18	Pidie Jaya	0.013	0.012
				0.014	0.014
		19	Banda Aceh	0.009	0.009
				0.009	0.009
		20	Sabang	0.000	0.000
				0.000	0.000
		21	Langsa	0.028	0.025
				0.030	0.031
		22	Lhokseumawe	0.047	0.047
				0.051	0.052
		23	Subulussalam	0.002	0.002
				0.003	0.004
					B.

Findings from Panel Regression Analysis In this study, the panel data used is a combination of 4-year time series and 23 cross-section regencies in Aceh, Indonesia. This study uses the panel data regression model of Random Effect. Table VII reports the findings of relationship between poverty and per capita income on the inequality of economic development across the regencies. TABLE VII.

FINDINGS FROM THE RANDOM EFFECT MODEL Variable _Coefficient _Std. Error _t-Statistic _Prob. _Constant -7.9227 1.6551 -4.7867 0.0000 _POV -0.0086 0.0968 -0.0892 0.9291 _PINC 0.3355 0.1357 2.4729 0.0154 _F-Stats = 2.9409; P-value = 0.0582 _ As observed from Table VII, the level of poverty is found to be insignificant in affecting economic development inequality, while the per capita income positively affected the imbalance of economic development in the province of Aceh.

The insignificance of poverty- inequality relation in Aceh Province could be due to no different level of poverty of citizens across regencies. As for the per capita income-inequality relationship, the study found that per capita income positively affected the inequality of economic development in Aceh Province. This means that the higher the per capita income of the population, the higher the level of income imbalances across 23 regencies in Aceh Province.

This further implies that the per capita income has been not equally distributed. Some citizens enjoyed more benefits from economic development, while some other enjoyed less benefits from the economic development. Inclusive economic development has not

been materialized in the Province of Aceh, Indonesia.

This could be due to lacking of job opportunities that cause higher levels of unemployment and poverty. The agenda of economic development in Aceh failed to promote the just welfare of the community. The findings of this study provide important policy ramifications for ensuring the equal distribution of income across the regencies.

To provide equal benefits of development for all citizens, it is suggested that the focus on the development should be emphasized on the lower-middle income groups. Development programs should promote their welfare thus reduces the imbalances of economic development. Specific program of elimination of imbalances across the regencies should focus more on the regencies, which record relative higher of income inequality by designing a proper inequality reduction agenda such as providing more working capital for the micro, small and medium enterprises and training for the entrepreneurs.

To ensure the benefits of economic development to be enjoyed equally by the citizens, the imbalances of development across the regencies should be part and parcel of economic development target by designing a proper strategies focusing on lower-middle group income group in the 23 regencies in Aceh, Indonesia. 681

CONCLUSION This study empirically explores the influences of poverty and per capita income on inequality of economic development across 23 regencies in Aceh Indonesia over the period 2012-2016. To measure the inequality of economic development, the classical typology method of Williamson Index and Theil Index are adopted. Meanwhile, the panel multiple regression model is used to investigate the influences of poverty and per capita income on inequality of economic development in the region.

Based on the Klassen typology analysis, the found that majority of the regencies are categorized as less developed, while only 2 regencies , namely Aceh Tengah and Banda Aceh are categorized as the fast-developing regencies. The existences of inequality of income across the regencies over the 2012-2016 period are further confirmed by the Williamson Index.

However, the inequality of economic development in Aceh Province was found to be relative lower from one to another regency based on the Theil Index analysis. As for the determinant of inequality of economic development, the study documented that the level of poverty did not affect the imbalance of economic development, while the per capita income positively impacted the inequality of economic development.

This finding implied that to further reduce imbalance of economic development across the regencies, the government should distribute a just income so that all citizens could equally enjoy it. To provide a comprehensive causes of inequality of economic development, more determinants covering individual citizens' characteristics, socio-demographic, and macroeconomic variables over a longer period of study and including more the regencies nationwide should be included in further studies.

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