Jejak Vol 16 (1) (2023): 28-45 DOI: https://doi.org/10.15294/ jejak.v16i1.38850

JEJAK
Journal of Economics and Policy
http://journal.unnes.ac.id/nju/index.php/jejak

Measuring Inequality Using J-Bonet Index: What Can We Learn from Regional Data?

Jihad Lukis Panjawa[1], Danur Condro Guritno[2], Rr Retno Sugiharti[3]✉, Mahrus Lutfi Adi Kurniawan[4], Sekar Ayu Damayanti[5]

[1,3,5]Tidar University
[2]National Dong Hwa University
[4]Ahmad Dahlan University

Permalink/DOI: https://doi.org/10.15294/jejak.v16i1.38850

Received: November 2022; Accepted: January 2023; Published: March 2023

Abstract

This paper aims to analyze Inequality Using J-Bonet Index Distribution based on regions dimension and its determinant factors. This study uses a quantitative research approach with Quantile Regression (QR) analysis. The results showed that overall, there was no noticeable difference in income inequality among regions. However, according to the status of regions and regions, the expansion area in eastern Indonesia is twice as high as regional income inequality in the parent area in the same region. Other findings, economic growth and poverty cause high-income inequality in eastern Indonesia, while in the western region of Indonesia has no significant effect. In western Indonesia, fiscal decentralization is the cause of high-income inequality between regions, while in eastern Indonesia has no significant effect. Human development has no real impact on income inequality. It is a preliminary study of inequality using J-Bonet and its determinants in Indonesia based on regions dimension with Quantile Regression (QR) as an analysis tool. It can add empirical evidence about the inequality and region dimension.

Key words : Inequality, regions dimension, development indicators, quantile regression

How to Cite: Panjawa, J., Guritno, D., Sugiharti, R., Kurniawan, M., & Damayanti, S. (2023). Measuring Inequality Using J-Bonet Index: What Can We Learn from Regional Data?. JEJAK, 16(1). doi:https://doi.org/10.15294/ jejak.v16i1.38850

✉ Corresponding author: Rr Retno Sugiharti
Address: Jl. Kapten Suparman 39 Potrobangsan, Magelang Utara, Jawa Tengah 56116
E-mail: retno.sugiharti@untidar.ac.id

p-ISSN 1979-715X
e-ISSN 2460-5123

INTRODUCTION

Income inequality makes the economy and social phenomena worse (Zhang, 2021). Economic Inequality is not just about income but also about overlapping features that contribute to quality of life and social welfare (Cahyono, Subroto, & Anwar, 2017; Postoiu & Bușega, 2015). Investigating inequality is a continuing concern within the development goals of developing countries, such as Indo nesia. One of the particular concerns and major problems in sustainable development goals is income inequality. Inequality is the main factor limiting sustainable development. The develop-ment of different industries and the resulting

distribution of income is the main reason for income inequality (Piketty & Saez, 2003). Income inequality makes the economy and social phenomena worse. Income distribution in Indonesia often indicates that income inequality is relatively low due to the 'pro-poor' policies taken by the government (Leigh & van der Eng, 2009). However, data shows that income inequality still exists in Indonesia (see figure 1). Much uncertainty still exists about the measurement and determinants of Inequality based on empirical and evidence studies in Indonesia.

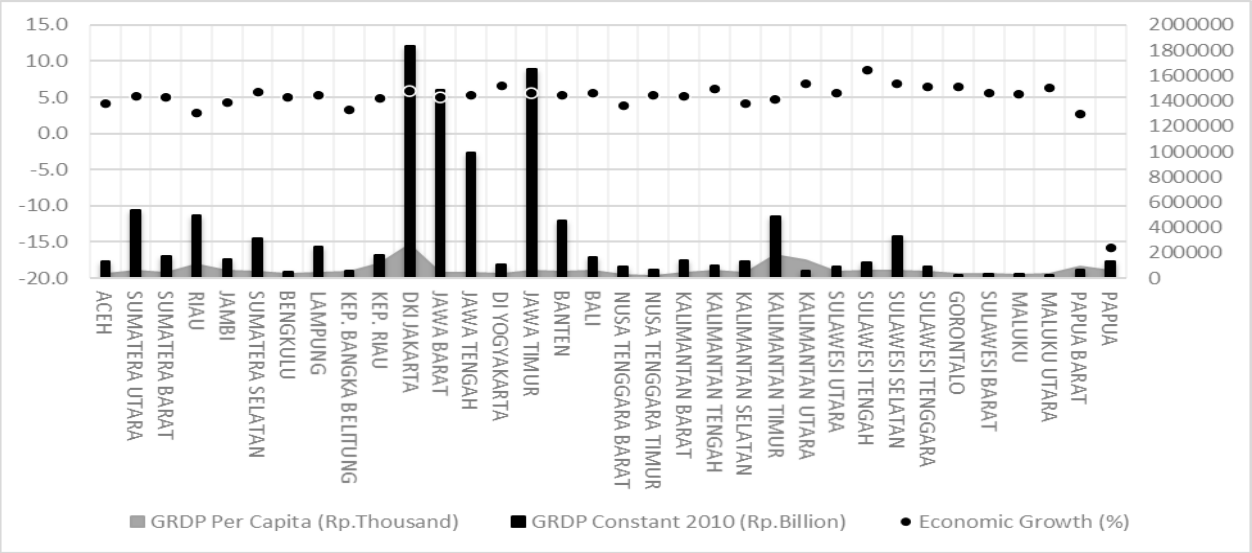

Figure 1. The Condition of Province-based Economy in Indonesia in 2019
Source: Statistic Indonesia, various years (processed)

Figure 1. is managed using the data derived from statistics Indonesia in 2019. The lines represent economic growth, and the columns contain the Gross Regional Domestic Product (GRDP) over the constant basic price in 2010, per capita, and areas representing the per capita GRDP. This graph presents the growth interestingly since each province's GRDP and per-capita GRDP differ. The next important point is the economic condition that is centralized on Java island, particularly DKI Jakarta, West Java, Central Java, and East Java. It is indicated by the highest value of GRDP and per-capita GRDP compared to other provinces among islands or areas in Indonesia. Interestingly, it is found in the figure 1 that several provinces with small GRDP and per capita GRDP experience larger GRDP growth compared to other provinces with higher GRDP, such as DI. Yogyakarta, Bali, Central Kalimantan, North Kalimantan, Central Sulawesi, South Sulawesi, Southeast Sulawesi, Gorontalo and North Maluku. Therefore, the above explanation reveals the existence of a development gap, in terms of income, among regions in Indonesia. It might be triggered by different resources, demographic factors, development fund allocation or area's financial condition, and concentration of economic activities. However, the gap is considered a severe problem for Indonesian development. It is crucial to deal with the designated issue immediately because inequality limits sustainable development in Indonesia.

Several studies analyzed the income inequality based on the area's dimension in Indonesia, such as research conducted by Indra et al (2018), Nugraha & Prayitno (2020), and Farida et al (2021). First, Indra et al. (2018) analyzed the gap and expenses polarization in Indonesia, in terms of regional dimension. The regional dimension is classified into city and village, western and

eastern areas, and provinces with lots of resources and lack of resources. The findings demonstrate the gap and polarization in Indonesia move unidirectional with the inclining trend. In the area context, a high increase in the initial inequality and low polarization of expenses is detected.

The trend in each regional dimension indicates a convergence pattern. Second, Nugraha & Prayitno (2020) stated that in terms of area in Indonesia, western Indonesia suffers a higher income inequality than eastern areas. Third, Farida et al., (2021) analyzed the determining factors for a gap, measured with the Williamson index. (Farida et al., 2021) solely studied eastern Indonesia empirically at the province level. At the same time, Nugraha & Prayitno (2020) analyzed the determining factors of the income gap, both in the eastern and western areas of Indonesia, using the data panel regression for province-level observation. So as Indra et al. (2018) conducted the study on certain regional dimensions, such as village and city, western and eastern areas, as well as the area with lots of resources and lack of resources, at a province level. Both studies exclude the area dimension based on new autonomy regions and parent regions.

This research contributes to two aspects. First, the research gap associated with income inequality and its determinants that cover the entire regencies and cities in Indonesia is reviewed based on the area's status. The area's status is referred to the current autonomy and parent areas, as well as the classification of areas, which are the western and eastern Indonesia. All this time, the studies on a negative aspect of expenses distribution in Indonesia are mostly dominated by the gap issues by employing the standard measurement, such as Gini index, Williamson index, and Theil index. This research offers another proxy in the gap measurement from the income perspective, using the J-Bonet index, first developed by Bonet (2006). Second, the quantile regression technique is used to ensure the effects of the independent variable over the dependent variable, based on the data distribution structure. Then, this research aims to analyze the income inequality and its determinant among regions based on the area status in Indonesia.

Various efforts are performed to reduce the income inequality among regions. The factors that influence inequality have been explored in several studies (Chotia & Rao, 2014; Ngozi et al., 2020; Rodriguez-Pose & Ezcurra, 2010; Shahzad & Yasmin, 2016). In Indonesia, over the past decades, several studies regarding determining factors of inequality have been carried out by Amrullah, Wahyudi, & Ekawaty, (2020); Aritenang, (2014); Farida et al., (2021); Indra et al., (2018); Kuncoro & Murbarani, (2016); Nugraha & Prayitno (2020).

Previous research analyzed the correlation between human development and inequality, which revealed a negative relationship conducted by Farida et al (2021); Kuncoro & Murbarani (2016); Lessmann & Seidel (2017); Li & Westlund (2013). As a development indicator, human capital plays an important role in equitable development (Lessmann & Seidel, 2017; Li & Westlund, 2013). The human development index as the proxy of human development quality gives a real impact on equitable development (Farida et al., 2021). By referring to the endogenous growth theory, human capital is considered the critical factor and the main source of economic growth; hence a high level of human development could boost the economic growth to diminish the gap in development (Kuncoro & Murbarani, 2016). The correlation between the two variables is more considerable considering the different empirical results. The findings from Amrullah et al (2020) signified that human development enhancement leads to an increase in inequality.

The existing studies acknowledge the government's important role related to regional autonomy or decentralization. Regional autono-

my is closely related to fiscal decentralization. Several studies indicate that fiscal decentralization influences inequality negatively. A study carried out by (Aritenang, 2014) showed the spatial effect of fiscal decentralization could lessen the inequality among regions measured by using Theil index and convergence coefficient. Moreover Rodriuez-Pose & Ezcurra (2010) discovered the decreasing inequality due to the decentralization policy in high-income areas or countries.

Based on several other empirical studies, different findings are exposed. Fiscal decentralization increases the interregions inequality (Liu, Martinez-Vazquez, & Wu, 2017; Rodriguez-Pose & Ezcurra, 2010; Shahzad & Yasmin, 2016). Decentralization positively influences inequality that only happens in lower-middle-income countries or areas (Rodriguez-Pose & Ezcurra, 2010). Furthermore, Shahzad & Yasmin (2016) explained that fiscal decentralization leads to the improvement of income inequality. Yet, the presence of appropriate institutions altogether with fiscal decentralization could reduce the negative consequence of fiscal decentralization towards inequality of income. Besides Liu et al (2017) suggested the existence of fiscal equities that could expand the detrimental impact of fiscal decentralization on the interregions gap.

Previously, the relationship between economic growth and inequality has already been observed in the hypothesis of Kuznets. An empirical study by Kuncoro & Murbarani, (2016) indicated that the Kuznets hypothesis occurred in Indonesia. Furthermore, that study also revealed that Gross Regional Domestic Product (GRDP) influences the increase of inequality positively and significantly. At the same time, the variable of squared GRDP influences the decrease of inter-provinces inequality in Indonesia. A positive correlation between percapita GRDP and income inequality is caused by the improvement of people's uneven per capita incomes, in another word, the increase in per capita income tends to be concentrated only in certain regions. In most developed countries, capital utilization is more emphasized, so only those with access to capital can relish the economic benefits. It is aligned with the Neo-Classic hypothesis that in early development, the gap tends to increase and later decrease at the following stage. At a particular point, the gap will re-increase to be finally re-decrease, recreating the event.

A study by Hindun et al (2019) suggested the higher poverty, the worse the inequality level. Therefore, a policy or development strategy is required to accelerate equitable development. Likewise, Hassan et al (2015) demonstrated a positive correlation between poverty with short-term and long-term inequality. The positive correlation is stated in terms of development level and government policy. The low Gross Domestic Product (GDP) level in developing countries leads to higher income inequality and increases the poverty gap. Therefore, a positive correlation is detected between income equality and poverty. Developed countries with high GDP have low inequality in income, limit the poverty gap, and push economic growth. Therefore, in the economic chain, it gives a negative correlation between income inequality and poverty. On the other side, in terms of government policy, if it is targeted at lower-income people, basic education, and agriculture, this effort will increase the level of the poor's basic income through job opportunities. Consequently, the enhancement in poverty level leads to an increase in income inequality and vice versa. Another result from Chotia & Rao (2014) showed the absence of a correlation between poverty and income inequality.

METHOD

This study uses a quantitative approach to analyze income inequality between regions in Indonesia and its determinants. The data used is secondary data with cross-sectional type with research locus in 508 regencies and cities of Indonesia, excluding the administrative area of the DKI Jakarta province as the capital of the country because the region is the centre of economic activity which has high logical consequences as the nation's capital, and consider aspects of the completeness of the data for each variable. Data for this research was retreived from the Indonesian Central Bureau of Statistics.

The standard of inequality is based on the concept of relative per capita GDP. To meet the perfect equality or the ideal equality condition, unit per capita GDP (regency/city) must be equal with the average of reference (province) for all regions at a certain year. Then, the inequality can be formulated as the distance of the relative part to the same and perfect part. The bigger the absolute distance, the higher inequality of regional incomes. Overall data are sourced from Statistics Indonesia and Region's financial report.

Koenker and Bassett (1978) introduced the quantile regression to test how far the economic factors or a variable in the economy depends on other factors/ variables to examine the designated "dependency' structure. The advantage of having a dataset in the form of a cross-section is the variability and irregularity since each cross-section has its own intercept value. Lee and Li (2012) confirmed that a quantile regression panel could be employed to observe further one variable's "dependency" with other variables in the form of a cross-section. The equation is formulated as follows:

$$Q_{yi}(\tau|X) = \alpha_{(\tau)} + X_i'\beta_{\tau.i}$$

In which τ represents the quantile in the structure of $0 < \tau < 1$, $Q_{\_yi}(\tau|X_i, \alpha)$. Notation of τ represents the quantile condition of Yi, β_τ is the parameter value of an equation, and X is the independent variable that is assumed to be influenced by the dependent variable in a structure of quantile regression condition. This research employs the following equation:

$$Q_{Ii}(\tau|X) = \beta_0(\tau) + \beta_1(\tau)IPM_i + \beta_2(\tau)DFPAD_i + \beta_3(\tau)EG_i + \beta_4(\tau)POVR_i$$

It is determined as an inequality index that is measured using the J-Bonet index approach, IPM is defined as human development index, DFPAD as fiscal decentralization, EG is economic growth, POVR represents the poverty level, and τ is quantile condition. The difference in the equation of quantile regression and OLS illustrated as follows:

$$I_i = \beta_0 + \beta_1 IPM_i + \beta_2 DFPAD_i + \beta_3 EG_i + \beta_4 POVR_i + \varepsilon_i$$

The difference between OLS and QR formula is an error term in OLS.

RESULTS AND DISCUSSION

Region expansion (new autonomous regions) after the enactment of Law number 22 of 1999 concerning regional government, reflecting regional autonomy, has occurred a lot in Eastern Indonesia. A total of 127 new autonomous regions were formed in the Eastern Region of Indonesia, while in the western region of Indonesia, there were 65 new autonomous regions. Creating a new autonomous region shows regional euphoria to carry out proliferation in accelerating the achievement of development goals. On average, there are regional differences in income inequality between regions according to the region and regional status in Indonesia. The highest inequality occurs in the expansion areas in eastern Indonesia, which is equal to 0.547 and the lowest in the parent regions in the same region. However, if we look at each region

and the status of the regions, it shows significant inter-regional income inequality. In the parent regions in the western region of Indonesia, income inequality occurs, shown in varying values between regions with the lowest inequality of 0.001 and the highest of 6.535. In the eastern region of Indonesia, the divisional regions show varying income inequality, with the lowest inequality of 0.004 and the highest of 5.688. At the same time, the parent regions in the same region also experience inequality but not as severe as in the divisional regions. Based on this phenomenon, it can be concluded that income inequality between regions according to the region and regional status still occurs in Indonesia. Differences in the potential of resources and the ability to manage potential owned by the regions cause the high-income inequality between regions. Income inequality as a result of calculating the J-Bonet Index in Indonesia by Region and Regional Status is shown in table 1.

Tabel 1. J-Bonet Income inequality Index in Indonesia by Region and Regional Status

Region (Eastern Areas & Parent)		**Region (Eastern Areas & Expansion)**		**Region Western Areas & Parent Areas)**		**Region (Western Area & Expansion)**	
Kupang City	2.018	Morowali	5.688	Kediri City	6.535	Kepulauan Anambas	2.428
Makassar City	1.148	Teluk Bintuni	5.092	Kota Cilegon City	3.807	Nias Selatan	0.644
Jayapura CIty	0.915	Wakatobi	4.660	Tasikmalaya	3.588	Empat Lawang	0.627
Jayapura	0.903	Mimika	4.219	Surabaya City	2.414	Lingga	0.606
Tabalong	0.863	Sumbawa Barat	3.647	Kudus	1.943	Ogan Komering Ulu Timur	0.602
Muna	0.785	Balangan	1.280	Kota Semarang City	1.705	NiasBarat	0.594
Konawe	0.765	Buton Utara	1.101	Bandung City	1.583	Nagan Raya	0.587
Manado City	0.662	Kutai Timur	0.945	Surakarta City	1.388	Ogan Komering Ulu Selatan	0.576
Kota Baru	0.642	Pegunungan Arfak	0.930	Natuna	1.368	Pagar Alam	0.568
Kolaka Utara	0.610	Konawe Kepulauan	0.873	Yogyakarta City	1.357	BatuBara	0.555
Samarinda City	0.602	Lanny Jaya	0.837	Banda Aceh City	1.282	NiasUtara	0.544
Tana Tidung	0.565	Tambrauw	0.833	Karawang	1.280	Ogan Ilir	0.531
Hulu Sungai Utara	0.554	Konawe Selatan	0.832	Tanjab Barat	1.238	PakpakBharat	0.530
Mataram City	0.533	Maybrat	0.823	Bekasi	1.190	Lubuk Linggau	0.499
Gowa	0.517	Puncak	0.817	Cilacap	1.033	LabuhanbatuSelatan	0.493
Jeneponto	0.510	Tolikara	0.810	TanjabTimur	0.985	Kota Padangsidimpuan	0.482
Sorong	0.495	Puncak Jaya	0.804	Bengkalis	0.875	HumbangHasundutan	0.412
Tana Toraja	0.485	Nduga	0.799	Gresik	0.858	Kabupaten Bangka Barat	0.411
Sumba Barat Daya	0.474	Yahukimo	0.799	Medan City	0.856	Lhokseumawe City	0.396
Barito Utara	0.472	Buru	0.772	Magelang City	0.855	Bandung Barat	0.395
Bulukumba	0.454	Dogiyai	0.771	Musi Banyuasin	0.852	Banyuasin	0.372
Jayawijaya	0.453	Mamuju Utara	0.761	Muara Enim	0.757	Batu City	0.367
Bitung City	0.437	Bontang City	0.739	Salatiga City	0.743	Pangandaran	0.364
Biak Numfor	0.435	Manggarai Timur	0.722	Cirebon City	0.726	Seluma	0.363
Hulu Sungai Tengah	0.429	Deiyai	0.714	Bengkulu City	0.712	Gunungsitoli City	0.350
Pontianak City	0.418	Yalimo	0.696	Pamekasan	0.688	Pidie Jaya	0.343
Toli-Toli	0.417	Penajam Paser Utara	0.679	Palembang	0.678	Samosir	0.337
Enrekang	0.415	Manokwari Selatan	0.626	Sampang	0.656	Pali	0.333
Barito Kuala	0.409	Buton Selatan	0.625	Ponorogo	0.605	Pringsewu	0.331
Takalar	0.402	Intan Jaya	0.612	Ngawi	0.603	Subulussalam City	0.321
Poso	0.401	Mamberamo Tengah	0.609	Nganjuk	0.582	Pesisir Barat	0.308
Manokwari	0.389	Asmat	0.608	Bondowoso	0.577	Pariaman City	0.282
Bolaang Mongondow	0.381	Paniai	0.572	Purwakarta	0.575	LabuhanbatuUtara	0.280
Pangkajene Dan Kepulauan	0.372	Sorong Selatan	0.570	Tegal City	0.569	Solok Selatan	0.265

Region (Eastern Areas & Parent)		Region (Eastern Areas & Expansion)		Region Western Areas & Parent Areas)		Region (Western Area & Expansion)	
Hulu Sungai Selatan	0.369	Mappi	0.542	Trenggalek	0.558	Mukomuko	0.263
Kepulauan Sangihe	0.354	Kaimana	0.537	Pasuruan	0.557	PadangLawas	0.236
Banjar	0.352	Pegunungan Bintang	0.533	Kediri	0.554	Sungai Penuh City	0.232
Lombok Timur	0.351	Teluk Wondama	0.519	Bangkalan	0.548	Prabumulih	0.231
Donggala	0.327	Kepulauan Talaud	0.511	Lebak	0.547	Musi Rawas Utara	0.223
Kutai Kartanegara	0.324	Morowali Utara	0.495	Pandeglang	0.540	Tasikmalaya City	0.222
Fakfak	0.304	Mahakam Ulu	0.488	Madiun	0.536	Cimahi City	0.219
Luwu Utara	0.300	Kota Ternate	0.477	Cianjur	0.536	Lebong	0.217
Manggarai	0.299	Kota Kotamobagu	0.475	Siak	0.532	Mesuji	0.210
Ketapang	0.298	Banggai Laut	0.469	Pacitan	0.522	Kaur	0.198
Lombok Tengah	0.293	Banggai Kepulauan	0.459	Situbondo	0.521	Kabupaten Bangka Selatan	0.188
Luwu	0.286	Luwu Timur	0.453	Padang Panjang City	0.519	Aceh Barat Daya	0.188
Kepulauan Yapen	0.281	Kolaka	0.443	Probolinggo	0.518	Pasaman Barat	0.187
Kepulauan Selayar	0.268	Bolaang Mongondow Selatan	0.433	Nias	0.517	PadangLawasUtara	0.186
Pontianak/Kab. Mempawah	0.267	Parigi Moutong	0.433	Garut	0.511	Tanjungpinang	0.179
Barru	0.264	Buol	0.420	Karimun	0.511	Aceh Tamiang	0.175
Kota Ambon	0.261	Mamasa	0.419	Pemalang	0.509	Kabupaten Bangka Tengah	0.172
Nabire	0.246	Toraja Utara	0.413	Sidoarjo	0.503	Kabupaten Belitung Timur	0.172
Sidenreng Rappang	0.245	Bolaang Mongondow Utara	0.411	Grobogan	0.500	Gayo Lues	0.170
Banjar Baru City	0.244	Tojo Una-Una	0.402	Cirebon	0.497	SerdangBedagai	0.151
Sumbawa	0.236	Melawi	0.399	Tapanuli Tengah	0.497	Aceh Jaya	0.127
Banggai	0.236	Halmahera Barat	0.391	Magetan	0.494	Kepahiang	0.122
Alor	0.232	Konawe Utara	0.385	Rokan Hulu	0.490	Pesawaran	0.113
Kendari City	0.226	Tanah Bumbu	0.381	Kuningan	0.489	Kota Langsa	0.113
Buton	0.225	Sigi	0.378	Bukittinggi City	0.486	Bengkulu Tengah	0.082
Sinjai	0.222	Kepulauan Aru	0.377	Badung	0.485	Kota Serang	0.062
Bone	0.217	Kolaka Timur	0.366	TapanuliUtara	0.484	Kepulauan Meranti	0.042
Sumba Timur	0.217	Sabu Raijua	0.364	Lumajang	0.479	Dharmasraya	0.035
Bantaeng	0.200	Sorong City	0.363	Padang City	0.477	Tangerang Selatan City	0.026
Timor Tengah Selatan	0.198	Lembata	0.359	Sumenep	0.474	Tulang Bawang Barat	0.007
Mamuju	0.196	Manggarai Barat	0.357	Blitar	0.471	Bener Meriah	0.004
Ende	0.186	Seram Bagian Barat	0.334	Jember	0.468		
Soppeng	0.184	Siau Tagulandang Biaro	0.324	Jombang	0.463		
Sikka	0.182	Murung Raya	0.314	Bangli	0.462		
Kapuas	0.177	Landak	0.313	Malang City	0.446		
Bengkayang	0.173	Mamuju Tengah	0.298	Demak	0.446		
Sintang	0.154	Minahasa Utara	0.295	Madiun City	0.444		
Lombok Barat	0.153	Halmahera Tengah	0.291	Lamongan	0.439		
Wajo	0.147	Pulang Pisau	0.278	Mandailing Natal	0.434		
Maluku Tenggara	0.147	Pulau Morotai	0.273	Aceh Singkil	0.433		
Merauke	0.138	Bolaang Mongondow Timur	0.269	Lampung Barat	0.431		
Majene	0.137	Nagekeo	0.261	Kota Banjar	0.423		
Barito Selatan	0.136	Raja Ampat	0.261	Banjarnegara	0.422		
Kotawaringin Barat	0.113	Kepulauan Sula	0.246	Kebumen	0.421		
Ngada	0.113	Malaka	0.238	Majalengka	0.414		
Polewali Mandar	0.109	Lamandau	0.226	Sawahlunto City	0.413		
Kapuas Hulu	0.103	Sekadau	0.213	Subang	0.412		
Timor Tengah Utara	0.103	Gunung Mas	0.210	Jepara	0.405		

Region (Eastern Areas & Parent)		Region (Eastern Areas & Expansion)		Region Western Areas & Parent Areas)		Region (Western Area & Expansion)
Pinrang	0.096	Pohuwato	0.209	Tangerang City	0.404	
Bima	0.090	Seruyan	0.206	Ciamis	0.397	
Maluku Tengah	0.088	Waropen	0.202	Tegal	0.396	
Kota Pare-Pare	0.086	Kota Palopo	0.199	Wonosobo	0.389	
Dompu	0.083	Sukamara	0.198	Merangin	0.388	
Tapin	0.074	Boven Digoel	0.193	Sukabumi	0.379	
Flores Timur	0.074	Gorontalo City	0.190	Dairi	0.376	
Kotawaringin Timur	0.071	Sumba Tengah	0.190	Tanggamus	0.372	
Berau	0.069	Katingan	0.187	Magelang	0.369	
Sambas	0.059	Buru Selatan	0.182	Malang	0.369	
Kupang	0.059	Minahasa Selatan	0.182	Tulungagung	0.368	
Belu	0.056	Bone Bolango	0.172	Brebes	0.365	
Pasir	0.045	Kayong Utara	0.168	Pekalongan	0.362	
Maros	0.042	Kota Tomohon	0.167	Kerinci	0.356	
Tanah Laut	0.040	Kubu Raya	0.165	Aceh Tenggara	0.353	
Sanggau	0.034	Maluku Barat Daya	0.154	Tebing Tinggi City	0.351	
Minahasa	0.026	Tual City	0.153	Purworejo	0.349	
Balikpapan City	0.023	Lombok Utara	0.148	Purbalingga	0.348	
Palu City	0.012	Gorontalo Utara	0.145	Pesisir Selatan	0.348	
Bulungan	0.011	Halmahera Timur	0.145	Bojonegoro	0.348	
Tarakan City	0.010	Sarmi	0.137	Ogan Komering Ilir	0.347	
Palangka Raya City	0.010	Barito Timur	0.136	Aceh Barat	0.346	
Banjarmasin City	0.005	Maluku Tenggara Barat	0.134	Depok City	0.332	
		Kota Singkawang	0.132	Sabang City	0.327	
		Sumba Barat	0.126	Gunung Kidul	0.326	
		Keerom	0.124	Sumedang	0.319	
		Rote Ndao	0.119	Temanggung	0.310	
		Pulau Taliabu	0.115	Bantul	0.308	
		Boalemo	0.112	Batang	0.307	
		Bau-Bau City	0.109	Pasaman	0.306	
		Kutai Barat	0.098	Tebo	0.303	
		Nunukan	0.088	Simeulue	0.302	
		Halmahera Utara	0.081	Bandar Lampung	0.295	
		Supiori	0.077	Lampung Tengah	0.291	
		Bombana	0.076	Pidie	0.289	
		Tidore Kepulauan City	0.059	Karangasem	0.288	
		Mamberamo Raya	0.057	Bandung	0.285	
		Bima City	0.054	Pasuruan City	0.284	
		Malinau	0.050	Solok City	0.280	
		Minahasa Tenggara	0.041	Ogan Komering Ulu	0.279	
		Seram Bagian Timur	0.019	Bengkulu Utara	0.278	
		Halmahera Selatan	0.019	Tangerang	0.277	
		Buton Tengah	0.009	Aceh Selatan	0.275	
		Gorontalo	0.009	Labuhanbatu	0.269	
		Muna Barat	0.004	Way Kanan	0.265	
				Blora	0.259	
				Mojokerto	0.259	
				Rembang	0.253	
				Kulon Progo	0.250	
				Bekasi City	0.243	

Region (Eastern Areas & Parent)	Region (Eastern Areas & Expansion)	Region Western Areas & Parent Areas)		Region (Western Area & Expansion)
		Aceh Timur	0.240	
		Wonogiri	0.239	
		Langkat	0.233	
		Jambi City	0.214	
		Tulang Bawang	0.213	
		Kota Binjai	0.206	
		Boyolali	0.194	
		Toba	0.191	
		Bungo	0.186	
		Lahat	0.185	
		Semarang	0.184	
		Blitar City	0.180	
		Banyumas	0.178	
		Pangkalpinang City	0.177	
		Kabupaten Bangka	0.177	
		Banyuwangi	0.176	
		Klaten	0.172	
		Kampar	0.162	
		Solok	0.162	
		Probolinggo City	0.154	
		Indragiri Hilir	0.149	
		Simalungun	0.149	
		Pekalongan City	0.148	
		Pati	0.141	
		Indramayu	0.141	
		Bogor	0.138	
		Sukabumi City	0.136	
		Sarolangun	0.134	
		Dumai	0.132	
		Bireuen	0.132	
		Tanah Datar	0.121	
		Aceh Tengah	0.117	
		Deli Serdang	0.116	
		Muaro Jambi	0.115	
		Kendal	0.114	
		Pekanbaru	0.112	
		Metro	0.109	
		Klungkung	0.108	
		Tanjungbalai City	0.108	
		Aceh Utara	0.107	
		Sijunjung	0.101	
		Sibolga City	0.100	
		Jembrana	0.097	
		Bintan	0.096	
		Musi Rawas	0.091	
		Rokan Hilir	0.086	
		Lima Puluh Kota	0.076	
		Lampung Utara	0.075	
		Tapanuli Selatan	0.073	
		Mojokerto City	0.070	
		Tuban	0.069	
		Karo	0.067	
		Sleman	0.064	

Region (Eastern Areas & Parent)		Region (Eastern Areas & Expansion)		Region Western Areas & Parent Areas)		Region (Western Area & Expansion)	
				Sukoharjo	0.063		
				Agam	0.060		
				Tabanan	0.056		
				Sragen	0.055		
				Kabupaten Belitung	0.055		
				Buleleng	0.055		
				Karanganyar	0.052		
				Bogor City	0.049		
				Indragiri Hulu	0.049		
				Batam	0.048		
				Payakumbuh City	0.046		
				Aceh Besar	0.046		
				Batang Hari	0.042		
				Lampung Selatan	0.035		
				Kepulauan Mentawai	0.034		
				Asahan	0.029		
				Lampung Timur	0.020		
				Serang	0.020		
				Bengkulu Selatan	0.019		
				Denpasar City	0.018		
				Pematangsiantar City	0.016		
				Kuantan Singingi	0.015		
				Padang Pariaman	0.014		
				Gianyar	0.009		
				Rejang Lebong	0.001		
				Pelalawan	0.001		
Average	0.307	**Average**	0.547	**Average**	0.442	**Average**	0.336
min	0.005	**min**	0.004	**min**	0.001	**min**	0.004
max	2.018	**max**	5.688	**max**	6.535	**max**	2.428
Count	105	**Count**	127	**Count**	211	**Count**	65

Source: Source: Statistic Indonesia, various years (processed)

Based on the data gathered from Statistics Indonesia in 2019, there are 508 regencies and cities classified into 276 regencies and cities located in western Indonesia (excluding 5 cities and 1 administrative regency of Jakarta Province) and 232 regencies and cities situated in eastern Indonesia. The measurement of income inequality for regions in Indonesia employs J-Bonet index and its determinants, referring to the human development index, fiscal decentralization, economic growth, and poverty level. It also refers to the perspective of the area's status in the dummy variable designated for the expansion and parent areas, as well as the western and eastern areas of Indonesia. All variables are descriptively shown in Table 2.

Table 2 demonstrates the descriptive statistics of variables used to analyze the inequality determinants in Indonesia's regional income. The table simulates the average inequality for regional income in Indonesia of 0.4268 with a minimum value of 0.0013 and a maximum value of 6.5354. J-Bonet index indicates that inequality of inter-regions income is not too high, even though the index utilization is considered flexible without categorization. Human development index and fiscal decentralization are recorded with an average of 69.4112, ranging from 30.7500 to 86.6500 and 10.6258 ranging from 0,2223 to 80.3914, respectively. The average economic growth and poverty level are found to be 5.3174 with a minimum value of 0.13% to 38.52% and 12.0551 ranging from 1.68% to 43.65%,

respectively. At the same time, it can be verified that 37.79% are included in the expansion area in Indonesia, and the remaining 54.33% are located in the western Indonesia. The analysis for inequality model, conducted in two steps, first was OLS estimation and second was Quantile regression. Decomposition method was used both in OLS estimation and quantile regression. The estimation result for inequality model exposes in Table 3 and 4.

Table 2. Statistics Descriptive

Var	Obs	Mean	Std. Dev.	Min	Max
I	508	0.4267	0.6325	.0012	6.5353
IPM	508	69.4112	6.4777	30.75	86.65
DFPAD	508	10.6257	9.6076	0.2223	80.3914
EG	508	5.3174	2.1314	0.13	38.52
POVR	508	12.0551	7.7547	1.68	43.65
D1	508	0.3779528	0.4853	0	1
D2	508	0.5433	0.4986	0	1

Source: Data processed

Table 3. Ordinary Least Square (OLS) Estimation Result

	OLS					
Variables	model 1	model 2	model 3 KBI	Mode4 KBI	model 5 KTI	model 6 KTI
IPM	0.00617	0.00710	0.00426	0.00402	0.0140	0.0172*
	(0.353)	(0.291)	(0.656)	(0.674)	(0.138)	(0.0686)
DFPAD	0.00591*	0.00653*	0.00750*	0.00708*	0.000200	0.00258
	(0.0828)	(0.0639)	(0.0657)	(0.0897)	(0.979)	(0.735)
EG	0.0723***	0.0716***	-0.0394	-0.0394	0.0977***	0.0940***
	(2.62e-08)	(6.68e-08)	(0.181)	(0.182)	(2.80e-10)	(1.10e-09)
POVR	0.0133***	0.0130***	-0.00293	-0.00279	0.0212***	0.0205***
	(0.00757)	(0.00938)	(0.742)	(0.754)	(0.00114)	(0.00148)
D1		0.0907		-0.0431		0.196**
		(0.149)		(0.616)		(0.0292)
D2		0.0342				
		(0.574)				
Constant	-0.609	-0.726	0.239	0.270	-1.357**	-1.670**
	(0.213)	(0.143)	(0.730)	(0.698)	(0.0479)	(0.0165)
Observations	508	508	276	276	232	232
R-squared	0.080	0.084	0.030	0.031	0.192	0.209
F-Stat	10.90	7.63	2.13	1.75	13.47	11.92
	(0.0000)	(0.0837)	(0.0776)	0.1239	(0.0000)	(0.0000)
			Diagnostic Test			
White's Heteroskedasticity test	39.11 (0.0004) ***	48.80 (0.0030) ***	4.22 (0.9940)	5.25 (0.9992)	48.30 (0.0000) ***	55.49 (0.0000) ***
Jarque-bera Normality test	3.5e+04 (0.0000)***	3.4e+04 (0.0000) ***	3.4e+04 (0.0000) ***	3.4e+04 (0.0000) ***	9128 (0.0000)***	8433 (0.000)***
Ramsey Reset Linearity test	27.10 (0.0000) ***	26.52 (0.0000) ***	1.35 (0.2583)	1.58 (0.1940)	26.97 (0.0000) ***	26.52 (0.0000) ***

Source: Data processed

P-value in parentheses; *** p<0.01; ** p<0.05; * p<0.1 as significantly; D1 = 0 parent area and 1 expansion area, D2 = 0 Eastern Area of Indonesia and 1 Western Area of Indonesia; Model 1-6 comprises 508 regencies and

cities in Indonesia, excluding the administrative area of the DKI Jakarta province as the capital of the country. Model 1 includes all regencies and cities in Indonesia. Model 2 covers modified model 1 by adding the dummy variable as areas' status. Model 3 includes only regencies and cities located in the western area of Indonesia. Model 4 covers model 1 by adding a dummy variable for the parent and expansion area. Model 5 includes only regencies and cities situated in the eastern area of Indonesia. Model 6 includes model 1 with the addition of a dummy variable addressed for the parent and expansion area.

A robustness check is employed to solve the problem of spurious regression. In addition, the option "robust" in STATA was used to produce robust standard errors in both models. The results confirm that the models are robust and the estimation coefficient is consistent, as shown in Tables 3 and 4. Table 4 illustrates the estimation result of the determinant model parameter on income inequality in 2019 in Indonesia by using the double linear regression with robustness. The estimation result signifies that parameter estimators of several independent variables are significant in the significance level of 1% up to 5%. By referring to inequality using J-Bonet index, it resulted in the absence of income inequality among regions in Indonesia, whether parent area, expansion area, or status of an area. J-Bonet index is employed as an inequality measurement that applies the absolute value of shared per capita income of regency/ city towards the province's per capita income in a certain area. The consistency should be considered compared to other inequality proxies.

Table 4. Robustness's Ordinary Least Square (OLS) Estimation Result

	Robustness's OLS					
Variables	model 1	model 2	model 3	Model 4	model 5	model 6
IPM	0.00617	0.00710	0.00426	0.00402	0.0140	0.0172*
	(0.389)	(0.348)	(0.722)	(0.736)	(0.171)	(0.120)
DFPAD	0.00591ǂ	0.00653*	0.00750*	0.00708*	0.000200	0.00258
	(0.125)	(0.0955)	(0.115)	(0.151)	(0.978)	(0.743)
EG	0.0723**	0.0716**	-0.0394	-0.0394	0.0977***	0.0940***
	(0.0398)	(0.0420)	(0.187)	(0.191)	(0.00379)	(0.00437)
POVR	0.0133**	0.0130**	-0.00293	-0.00279	0.0212***	0.0205***
	(0.0232)	(0.0214)	(0.669)	(0.684)	(0.00753)	(0.00823)
D1		0.0907*		-0.0431		0.196**
		(0.0923)		(0.455)		(0.0220)
D2		0.0342				
		(0.466)				
Constant	-0.609	-0.726	0.239	0.270	-1.357*	-1.670**
	(0.265)	(0.203)	(0.779)	(0.750)	(0.0601)	(0.0397)
Observations	508	508	276	276	232	232
R-squared	0.080	0.084	0.030	0.031	0.192	0.209

Source: Data processed

Robust probability value in parentheses; *** p<0.01; ** p<0.05; * p<0.1; The regression coefficient shows a significantly different conclusion from the OLS coefficient at a significance level of 10%, when the OLS coefficient is in robustness; D1 = 0 parent area and 1 expansion area, D2 = 0 The Eastern Area of Indonesia and 1 the Western Area of Indonesia; Model 1-6 include 508 regencies and cities in, excluding the administrative area of the DKI Jakarta province as the capital of the country. Model 1 includes all regencies and cities in Indonesia. Model 2 covers modified model 1 by adding the dummy variable as areas' status. Model 3 includes only regencies and cities located in the western area of Indonesia. Model 4 covers model 1 by adding a dummy variable for the parent and expansion area. Model 5 includes only regencies and cities situated in the eastern area of Indonesia. Model 6 includes model 1 with the addition of a dummy variable addressed for the parent and expansion area.

Table 5. Quantile Estimation Result

Variables	Quantile	Quantile Regression model 1			model 2			Model 3		
		0.25	0.50	0.75	0.25	0.50	0.75	0.25	0.50	0.75
IPM	$\alpha_{(\tau)}$	-0.0098	-0.0063	-0.0027	-0.0099	-0.0082	-0.0040	-0.0099	-0.0074	-0.0011
	t-stat	-3.24***	-1.82*	-0.64	-3.45***	-2.42**	-0.88	-2.31**	-1.28	-0.15
DFPAD	$\alpha_{(\tau)}$	0.0027	0.0048	0.0099	0.0024	0.0048	0.0099	0.0014	0.0043	0.0148
	t-stat	1.75*	2.68***	4.55***	1.60	2.71***	4.17***	0.73	-1.77*	4.48***
EG	$\alpha_{(\tau)}$	0.0092	0.0110	0.0254	0.0140	0.0154	0.0229	0.0129	0.0238	-0.0370
	t-stat	1.58	1.63	3.11***	2.51**	2.35**	2.57**	0.97	1.35	-1.55
POVR	$\alpha_{(\tau)}$	0.0017	0.0083	0.1153	0.0016	0.0073	0.0098	0.0024	0.0062	0.0070
	t-stat	0.73	3.19***	3.62***	0.74	2.94***	2.88***	0.59	1.18	0.97
D1	$\alpha_{(\tau)}$				0.0358	0.0230	0.0308			
	t-stat				1.34	0.73	0.78			
D2	$\alpha_{(\tau)}$				0.0461	0.0490	0.0397			
	t-stat				0.0259*	1.61	0.74			
Constant	$\alpha_{(\tau)}$	0.7373	0.5373	0.3122	0.6857	0.6140	0.3974	0.7598	0.5898	0.5148
	t-stat	3.32***	2.09**	1.00	3.25***	2.47**	1.18	2.42**	1.42	0.91

Variables	Quantile	Quantile Regression model 4			model 5			Model 6		
		0.25	0.50	0.75	0.25	0.50	0.75	0.25	0.50	0.75
IPM	$\alpha_{(\tau)}$	-0.0088	-0.0075	-0.0047	-0.0103	-0.0045	0.0007	-0.0103	-0.0016	-0.0003
	t-stat	-1.98**	-1.32	-0.60	-2.69***	-0.87	0.08	-2.42**	-0.33	-0.03
DFPAD	$\alpha_{(\tau)}$	0.0014	0.0041	0.0170	0.0029	-0.0013	0.0060	0.0026	-0.0021	0.0081
	t-stat	0.73	1.68*	0.000***	0.97	-0.32	0.83	0.78	-0.53	1.11
EG	$\alpha_{(\tau)}$	0.0141	0.0181	-0.0324	0.0088	0.0259	0.0663	0.0117	0.0252	0.0557
	t-stat	1.03	1.04	-1.33	1.46	3.18***	4.71***	1.77*	3.23***	3.93***
POVR	$\alpha_{(\tau)}$	0.0015	0.0052	0.0039	0.0015	0.0101	0.0150	0.0015	0.0099	0.0129
	t-stat	0.37	0.99	0.53	0.58	2.86***	2.45**	0.54	2.94***	2.12**
D1	$\alpha_{(\tau)}$	0.0273	-0.0362	0.0345				0.0390	0.0926	0.0890
	t-stat	0.69	-0.71	0.49				0.97	1.96*	2.04
D2	$\alpha_{(\tau)}$									
	t-stat									
Constant	$\alpha_{(\tau)}$	0.6672	0.6509	0.7469	0.7562	0.3219	-0.1399	0.7213	0.1036	-0.0628
	t-stat	2.07**	1.57	1.30	2.73	0.86	-0.22	2.32**	0.28	-0.09

Source: data proceed

*** p<0.01; ** p<0.05; * p<0.1; D1 = 0 parent area and 1 expansion area, D2 = 0 Eastern Area of Indonesia and 1 Western Area of Indonesia; Model 1-6 comprises 508 regencies and cities in Indonesia, excluding the administrative area of the DKI Jakarta province as the capital of the country. Model 1 includes all regencies and cities in Indonesia. Model 2 covers modified model 1 by adding the dummy variable as areas' status. Model 3 includes only regencies and cities located in the western area of Indonesia. Model 4 covers model 1 by adding a dummy variable for the parent and expansion area. Model 5 includes only regencies and cities situated in the eastern area of Indonesia. Model 6 includes model 1 with the addition of a dummy variable addressed for the parent and expansion area.

Post estimation for Quantile regression can be seen from QR coefficient plots. Here QR coefficient plots for Model 2, since the model 2 estimated all regressor variables.

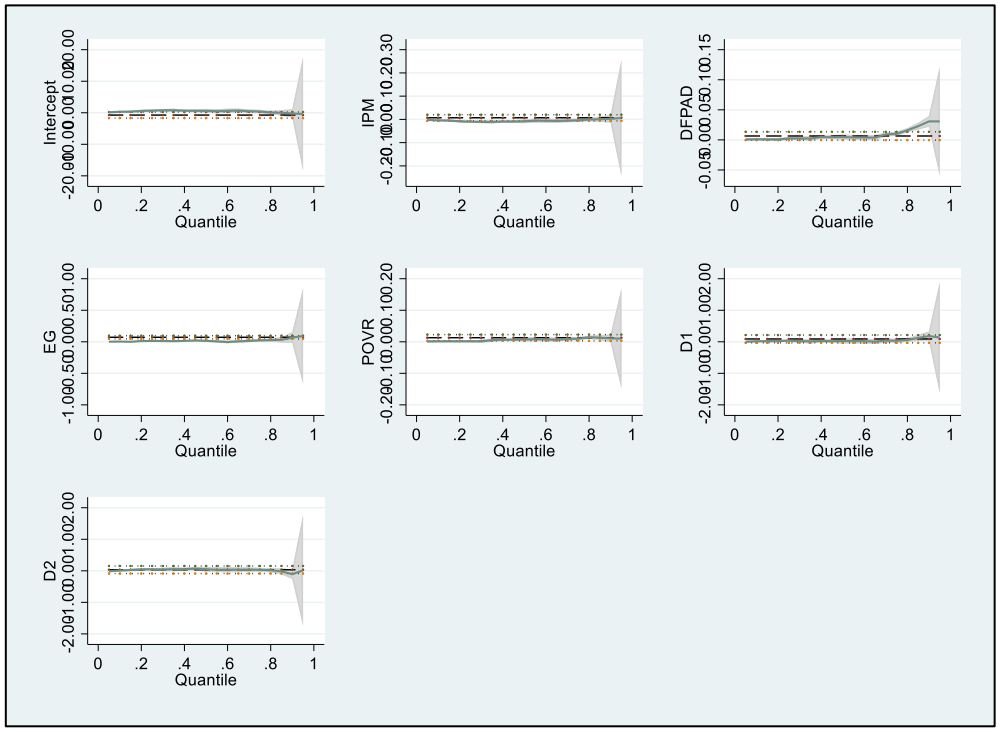

Figure 2. Quantile regression coefficients of Model 2
Source: data processed

From Figure 2, The quantiles of the dependent variable are on the horizontal axis, and the coefficients are on the vertical axis. The regression coefficients of the quantiles are plotted as lines that vary across quantiles with confidence intervals around them. Overall, the quantile regression coefficient graph can be explained as follows: The quantile coefficient for HDI for inequality differs significantly between quantiles (the line that passes through the confidence interval plot) with a negative effect (negative coefficient or below 0). The quantile regression plot shows that HDI decreases in areas with higher inequality or HDI has a significant impact in areas with lower inequality. The quantile coefficients of fiscal decentralization, economic growth and poverty rates on inequality differ between quantiles with a positive effect. The effect of fiscal decentralization, economic growth and poverty rates increased in areas with higher inequality. The actual effects of decentralization, growth and poverty rates occur in regions with higher inequality even though the effect will exacerbate inequality between regions.

Table 3 and 4 describe that, averagely, the human development index and fiscal decentralization has no significant influence on inter-regions income inequality in Indonesia. Uneven human development is still insignificant to overcoming such income inequality in Indonesia. The improvement in human resource quality is still unable to boost the equity of people's per capita income. It requires the appropriate policy and strategy to improve the quality of resources to be better and evenly distributed. The development and equal access to proper and adequate facilities and infrastructure should be enhanced, particularly in education and health. Not only in terms of physical/ asset capital but also in terms of human resources' competence. The outermost or suburban area must be put as one of the considerations related to health and educational access, while for developing and developed areas, the capacity must be considered. Regarding people's expenses, the stimulus must be accommodated to enhance the purchasing power. The government, private sector, and people can

contribute to each portion in improving the quality of human resources.

The role of fiscal decentralization is expected to improve the convergence of regions' development in Indonesia, in which the underdeveloped and developing regions will run faster in catching up with the economic lag. Yet, this research shows the opposite result and is consistent with Fadli (2016), who suggested that fiscal decentralization (Regional Original Revenue) has no direct impact on income inequality. The research conducted by Fadli (2016) used the proxy of Williamson index, while this research applies J-Bonet index.

Fiscal decentralization proxied with the ratio of Regional Original Revenue towards total revenue has no real impact on the decrease of income inequality among regions in Indonesia. Generally, regional original revenue in several regions in Indonesia is still relatively low. It influences the regional expenses in fulfilling the internal needs. This condition indicates the lack of local resource utilization. It takes the optimization and the deeper searching of existing potencies and local resources to increase the revenue. Hence the dependency of the region on the central government could be reduced. The local government could enhance the collaboration with the private sector and public in managing the local resources to promote the people's income and welfare based on sustainability. A region with a lack of resources cannot be abandoned since it will become stagnant or left behind, while a region with lots of resources keeps on developing. This condition worsens the development gap among regions.

Moreover, the regional original revenue can be optimized for development equity and for promoting local people's welfare through the provision of public goods. Fiscal decentralization can enhance the economic performance and welfare level since local government is considered more efficient in producing or accommodating the people with the public goods. The provision of public goods for the region is not necessarily the same as what people needs. Through local government, output and outcome from public goods, which are prepared as needed, will bring more benefits and satisfaction to local people. The appropriateness between necessities with something earned makes an effective government budget.

Although the inequality measurement turns out differently, this research result aligns with a study by Kuncoro & Murbarani (2016) demonstrated that economic growth intensifies inequality. Economic growth positively and significantly influences income equality among regions in eastern Indonesia but not western Indonesia. Besides, this research only observes 1 short-term period, 1 year to be exact, and applies to all regencies and cities in Indonesia, except for regencies and city of province DKI Jakarta. Based on the hypothesis of Kuznets, at the early time of development, the inequality increased, which is caused by economic growth. It is due to distinguished resource potencies owned by regions located in eastern Indonesia that lead to the development gap. The regions that originated with rich resources could exploit them to promote local people's welfare. While the regions with limited resources or not yet explored optimally, it takes time for processing that impacts people's welfare.

Poverty has a positive and significant influence on income inequality among regions that only happens in the Eastern area of Indonesia. In contrast, in western Indonesia, poverty has an insignificant influence. Poverty without proper handling will become a barrier to development that refers to limitations and an individual's lack of productivity. The poor have lower skills, narrowing the job opportunity and resulting in less income and poor work quality. It also impacts the region with low economic performance compared to areas with low poverty levels and high productivity. A small value of the

poverty level leads to the enhancement of the region's economic performance.

The discussion further explains that quantile regression provides a more comprehensive view of the relationship by estimating the conditional quantile of the dependent variable, namely inequality, and is not constant across the distribution of the inequality variable. By using quantile regression, it is possible to analyze the determinants of inequality at different points in the distribution and provide insight into the heterogeneity of the relationship. The findings of this study, which show an increase in the quality of human development, show a real impact on reducing income inequality between regions which is only consistent at the 0.25 quantile level for the Western Region of Indonesia and the Eastern Region of Indonesia. This finding does not occur at high inter-regional income inequality at the 0.5 and 0.75 quintile levels. The success of human development through improving education and health and increasing expenditure in areas with a quantile level of 0.25 can even out development at that quantile level.

Another interesting finding is that fiscal decentralization and poverty will exacerbate income inequality at the 0.5 and 0.75 quantile levels in Western Indonesia and not at the 0.25 quantile level. In Eastern Indonesia, fiscal decentralization has had no significant impact at various quintile levels. Economic growth in the western region of Indonesia will exacerbate income inequality between regions at various quintile levels. In the western region of Indonesia, economic growth causes income inequality between regions to increase at the 0.5 and 0.75 quintile levels.

CONCLUSION

J-Bonet index, which was first developed by Bonet (2006), is one of the powerful indicators to capture the income inequality among regions. Nevertheless, head-to-head comparison with other inequality indicators is crucial for future research. Based on the result of estimation on the developed model, consistency of insignificancy of the Human Development Index (IPM) and fiscal decentralization on income inequality is clearly proven by 6 models modification and supported by the result of quantile estimation. It verifies that IPM significantly influences inequality in the first quartile of the data. It means that 75% of observations reject the zero hypothesis. The inequality condition in the two categories of the area is also similar. Implicitly, it implies that the expansion area still adopts the parent's area order. Therefore, it can be concluded that the success of an expansion area in terms of development highly depends on the condition of its parent area. This research is still limited to the static model; developing a dynamic model in further research is highly recommended to capture the regional interaction dynamics. It is also suggested for the next research to consider the existence of spatial dependency and influenced factors from other regions.

REFERENCES

Amrullah, M., Wahyudi, S. T., & Ekawaty, M. (2020). Apakah Indeks Pembangunan Manusia Dan Hotel Mempengaruhi Disparitas Pendapatan? *Jurnal Ekonomi Kuantitatif Terapan*, *13*(2), 307–316. https://doi.org/10.24843/jekt.2020.v13.i02.p07

Aritenang, A. F. (2014). The spatial effect of fiscal decentralisation on regional disparities : the case from Indonesia. *Indonesian Journal of Geography*, *4*(1), 1–11.

Bonet, J. (2006). Fiscal decentralization and regional income disparities: Evidence from the Colombian experience. *Annals of Regional Science*, *40*(3), 661–676.

Cahyono, H., Subroto, W. T., & Anwar, K. (2017). Income Disparity in Gerbangkertosusila Area of East Java Indonesia. *International Journal of Economics and Financial Issues*, *7*(1), 14–18.

Chotia, V., & Rao, N. V. . (2014). Investigating The Interlinkages between Infrastructure Development, Poverty, and Rural-Urban Income Inequality: Evidance from BRICS Nations. *Studies in Economics and Finance*, *34*(4), 466–484.

Fadli, F. (2016). Analysis of Direct and Indirect Effects of Fiscal Decentralization on Regional Disparity (Case Study of Provinces in Eastren and Westren of Indonesia, 2006-2015. *Journal of Indonesia Applied Economics*, *6*(2), 208–228.

Farida, N., Agus, S., & Sakti, R. K. (2021). Fiscal Decentralization, Economic Growth and Regional Development Inequality in Eastern Indonesia. *Journal of Indonesia Applied Economics*, *9*(2).

Hassan, S. A., Zaman, K., & Gul, S. (2015). The Relationship between Growth-Inequality-Poverty Triangle and Environmental Degradation: Unveil-ing the Reality. *Arab Economic and Business Journal*, *10*(1), 57–71. https://doi.org/10.1016/j.aebj.2014.05.007

Hindun, H., Soejoto, A., & Hariyati, H. (2019). *Pengaruh Pendidikan, Pengangguran, dan Kemiskinan terhadap Ketimpangan Pendapatan di Indonesia*. *Jurnal Ekonomi Bisnis Dan Kewirausahaan*, *8*(3), 250. https://doi. org/10.26418/jebik.v8i3.34721

Indra, I., Nazara, S., Hartono, D., & Sumarto, S. (2018). Expenditure inequality and polarization in Indonesia, 2002-2012. *International Journal of Social Economics*, *45*(10), 1469–1486. https://doi.org/10.1108/ IJSE-02-2017-0051

Kuncoro, M., & Murbarani, N. (2016). Regional inequality in indonesia. *The Business and Management Review*, *8*(1), 38–52.

Leigh, A., & van der Eng, P. (2009). Inequality in Indonesia: What can we learn from top incomes? *Journal of Public Economics*, *93*(1–2), 209–212. https://doi.org/10.1016/j.jpubeco.2008.09.005

Lessmann, C., & Seidel, A. (2017). Regional inequality, convergence, and its determinants – A view from outer space. *European Economic Review*, *92*. https://doi.org/10.1016/j.euroecorev.2016.11.009

Li, Y., & Westlund, H. (2013). Interpreting overall inequality in China: The roles of physical capital, human capital and social capital. *Regional Science Inquiry*, *5*(2), 145–150.

Liu, Y., Martinez-Vazquez, J., & Wu, A. M. (2017). Fiscal decentralization, equalization, and intra-provincial inequality in China. *International Tax and Public Finance*, *24*(2), 248–281. https://doi.org/10.1007/ s10797-016-9416-1

Ngozi, B., Gershon, O., Ogundipe, A., Owolabi, O., Ogunrinola, I., & Adediran, O. (2020). Comparative investigation of the growth-poverty-inequality trilemma in Sub-Saharan Africa and Latin American and Caribbean Countries. *Heliyon*, *6*, 1–11. https://doi.org/10.1016/j.heliyon.2020.e05631

Nugraha, A. T., & Prayitno, G. (2020). Regional Disparity in Western and Eastern Indonesia. *International Journal of Economics and Business Administration*, *VIII* (4), 101–110. https://doi.org/10. 35808/ijeba/572

Postoiu, C., & Bușega, I. (2015). Inter-Regional Disparities In The European Union. *Romanian Review of Regional Studies*, *XI* (1), 15–17.

Rodriguez-Pose, A., & Ezcurra, R. (2010). Does decentralization matter for regional disparities ? A cross-country analysis. *Journal of Economic Geography*, *10*(September 2009), 619–644. https:// doi.org/10.1093/jeg/lbp049

Shahzad, S., & Yasmin, B. (2016). Does fiscal decentralisation matter for poverty and income inequality in Pakistan? *Pakistan Development Review*, 55(4).

Zhang, J. (2021). The effects of tourism on income inequality: A meta-analysis of econometrics studies. *Journal of Hospitality and Tourism Management*, *48*(26), 312–321. https://doi.org/10.1016/j.jhtm.2021.07.009