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JDEP

Jurnal Dinamika Ekonomi Pembangunan

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PRO-POOR CURVES AND PRO-POOR GROWTH INDEX: CASE STUDY IN SOUTH KALIMANTAN PROVINCE

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Abstract

This paper aims to analyze the nature of the growth in the South Kalimantan province of Indonesia. Different definitions of pro-poor growth, as well as the methods for pro-poor growth classification, have encouraged this paper to use the partial (Growth Incidence Curve and Pro-Poor Growth Curve) and full approaches (Pro-Poor Growth Index). After examining the data spanning from 2010 to 2020, this paper arrives at conclusions. In general, the growth in South Kalimantan is pro-poor but in the period from 2010 to 2016 most benefits of the growth are absorbed by the richer people. In contrast, the growth is pro-poor from the period from 2016 to 2020 and the benefits of the growth are received more by poor people. Also, this paper underlines the importance of detailed examinations for all approaches to avoid a mixed result within the period of examination.

Keywords: *Pro-poor, Growth, Poverty, Inequality, South Kalimantan*

JEL Classification: *I31, I32, I38, O40*

INTRODUCTION

The Sustainable Development Goals (SDGs) aims for 17 targets set by The United Nations (UN). Three of those goals are No Poverty (goal number 1), Decent Work and Economic Growth (goal number 8), and Reduced Inequalities (goal number 10). Those three goals are a group of popular topics in the economic development area. Poverty, growth, and inequality are commonly examined either together or independently in empirical studies. Indonesia has been experiencing a declining trend of the poverty rate in the last decade. However, inequality is probably another concern that usually comes along with poverty reduction due to economic growth (Kakwani, 2000).

Achieving the SDGs' goals number 1, 8, and 10 simultaneously is a challenge, because those goals are dynamically connected. The growth is supposed to reduce poverty by minimizing inequality. But, in reality, economic growth can increase poverty when the adverse impact of inequality is higher than the beneficial impact of the growth (Kakwani & Pernia, 2000). Thus, the concept of pro-poor and pro-rich growth is introduced in this particular topic to identify the impact of the growth on poverty and inequality.

In a general context, pro-poor growth is translated as enabling the poor to participate and to get the benefit of the economic activity (inclusive growth). Pro-poor growth is when the poor people absorb the benefits proportionally more than the wealthier/richer people. Because of the disadvantages from poor people to absorb the benefits from the growth, the wealthier people proportionally get a higher portion than

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the poor. As a result, pro-poor growth is harder to be materialized. Often, the government of a country is worsening the inequality by applying pro-rich policies (either intentionally or unintentionally). So, to realize pro-poor growth, the government policies should be pro-poor oriented that could reduce the inequality (Kakwani & Pernia, 2000).

To assess the pro-poorness of the growth, researchers employ many approaches. Three of the methods are the Pro-poor Growth Index (Kakwani & Pernia, 2000), Growth Incidence Curve (Ravallion & Chen, 2003), and Poverty Growth Curve (Son, 2004). With the simplicity and easiness of the methods, those approaches are commonly used in pro-poor growth studies. This paper is no exception, the Pro-Poor Growth Index (PPGI), Growth Incidence Curve (GIC), and Poverty Growth Curve (PGC) will be utilized in examining the pro-poorness of the growth in Indonesia by choosing South Kalimantan province as a focused study. This paper is distinctive from the other research with properties as follows: (1) The examination of the pro-poorness of the growth at a provincial level is very limited. (2) This paper will assess the comparison among PPGI, GIC, and PGC approaches which has not been done in the provincial case of Indonesia. The structure of this paper is Introduction, Literature Review, Methodology, Result and Discussion, and Conclusion.

LITERATURE REVIEW

The concept of pro-poor growth is defined in two different perspectives. On one hand, pro-poor growth is the condition when any distributional shifts happen with economic growth favoring the poor. Based on this definition, poverty declines deeper than it would have if all incomes growths increase at the same rate. So, the pro-poor growth defined by this concept requires the income of the poor to grow more than the non-poor. Hence, the growth makes poverty decline disproportionately. This concept, however, has a concern for the period of economic contraction and economic expansion (Ravallion, 2004).[1]

On the other hand, the other concept aims to overcome the concern in the above-mentioned definition by examining poverty. The growth should reduce the poverty. Specifically, the growth is addressed as pro-poor if and only if the poor people get the benefit in absolute terms, which can be seen in the measurement of poverty (Ravallion, 2004). Sequentially, when discussing income distribution, it means talking about inequality. So, discussing pro-poor growth means talking about growth, poverty, and inequality at the same time as well as their interconnection.

Studies about pro-poor growth have been conducted widely. Wodon (1999) examined the relationship among growth, poverty, and inequality in Bangladesh. He analyzed the elasticity of poverty to growth and the elasticity of poverty to inequality by using regional panel data estimation. It was found that the growth in Bangladesh could reduce the poverty in the long run when the consumption as a GDP portion

[1] During the economic contraction, the distribution can change in a pro-poor manner but with no absolute gain to the poor; whilst during the economic expansion, the distributional shift can be pro-rich but a large number of gains go to the poor.

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increases. Furthermore, to reduce inequality, a pro-rural program should also be applied.

Kakwani et al. (2000) discussed the relationship between growth and inequality showing empirically that growth does not lead to inequality. The authors also overviewed some papers to show some aspects of the pro-poor growth studies. It was concluded that pro-poor growth policies will make poverty decrease faster than relying on the trickle-down effect. Initial inequalities and assets also determined poverty reduction.

The study conducted by Ravallion & Chen in 2003 highlighted the utilization of the Watts index of poverty normalized by headcount index to examine the rate of pro-poor growth in 1990s China. Also, the Growth Incident Curve (GIC) was utilized to examine the pro-poor growth visually. The research found that the rate of pro-poorness is higher in the sub-period of 1993 to 1996 whilst for other periods of examination were indicated lower than the mean of annual growth rate.

Son (2004) introduced the Poverty Growth Curve (PGC) as an alternative to GIC to analyze the pro-poor growth in Thailand from 1988 to 2000. It was argued that PGC is better than GIC in handling errors in survey data. The main difference between PGC and GIC is the dominance condition. GIC is derived from first-order dominance whilst the PGC is obtained from second-order dominance. The result of PGC by utilizing Thailand data shows that PGC could minimize the inconclusive result about the pro-poor growth that could be found in other methods without defining the poverty line and poverty measurement.

Another study to examine the pro-poor growth was done by Klasen (2003). He underlined some requirements to clear the perspective for the pro-poor growth study. First, the differentiation between pro-poor growth and other types of economic growth should be clear. Second, the poor should be benefited from the growth disproportionately more than the non-poor. Third, the assessment should be weighted more on the poor to justify the sensitivity of incomes distribution of the poor. Fourth, the examination should be given to overall economic performance and not only to the poor. One approach that fulfills those requirements is by using the poverty growth rate of the more-weighted poorest quintile with declining weights along the higher quintiles of the income growth rate. The growth is said pro-poor if the poverty-weighted growth rate is higher than the average income growth rate. Klasen (2003) utilized Sub Saharan Africa for the focus study and emphasized the essential aspect of inequality-reducing policies for the realization of pro-poor growth.

Kakwani et al. (2004) highlighted the weak and strong definitions of pro-poor growth. They addressed the pro-poor growth definition theorized by Ravallion (2004) as a trickle-down when the poor absorbed proportionally fewer benefits than the wealthier people (this definition is said to be rather weak). Kakwani et al. (2004) suggested a stronger definition by categorizing pro-poor growth into a relative and absolute terms. It is called relative if growth reduces poverty, it improves relative inequality. In contrast, it is translated as absolute when the poor receive an absolute benefit of growth equal to or more than the absolute benefits absorbed by the wealthier people. In addition, a partial approach defines pro-poor or anti-poor without

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mentioning a poverty line and its measure.[2] A full approach depends on the rate or index, not on the curve. Kakwani et al. (2004) proposed the Poverty Equivalent Growth Rate (PEGR) as a full approach measure for determining the pro-poor growth as the alternative for other full approach which is PPGI.

The pro-poor concepts mentioned previously have been utilized widely in the pro-poor growth studies such as Kakwani & Son (2006), Son (2007), Kakwani & Son (2008), Bibi et al. (2010), and Duclos & Verdier-chouchane (2010). Few studies examined the pro-poor growth in Indonesia such as Sumarto & De Silva (2013), Pukuh & Fadlun Widyasthika (2017), and Permadi (2018). Based on previous studies this paper highlights the importance of comparison between each pro-poor growth definition by utilizing provincial data (which is not deeply analyzed in the previous studies especially in Indonesia). This paper will examine the pro-poor growth in South Kalimantan for the period from 2010 to 2020. This paper elaborates the analysis using GIC, PGC, as well as PPGI to assess the pro-poorness of the growth in South Kalimantan province of Indonesia.[3]

METHODOLOGY

Data

To cover the analysis of pro-poor growth employing partial and full approaches, this paper uses South Kalimantan data from 2010 to 2020. In the partial approach, GIC and PGC also cover the same period of observation (2010 and 2020), but with an additional year of examination which is 2016.[4] The partial approach uses National Socioeconomic Survey (SUSENAS) data for the years 2010, 2016, and 2020. On the other hand, for the full approach, the paper utilizes the macroeconomics data from BPS – Statistics of South Kalimantan Province which is available on its website.

Growth Incidence Curve (GIC)

This approach, as mentioned in the previous section, was introduced by Ravallion & Chen in 2003. The GIC approach emphasizes the visual observation for the distribution of income growth in each percentile. It is defined in the proportional change in expenditures as follows:

$$\gamma^t(p_i) = \frac{y^t(p_i) - y^{t-1}(p_i)}{y^{t-1}(p_i)} \qquad (1)$$

Where:

$\gamma^t(p_i)$: growth of expenditure at time *t* (from initial period to final period) on *i*-th percentile.
$y^t(p_i)$: expenditure at time *t* (final period) on *i*-th percentile.
$y^{t-1}(p_i)$: expenditure at time *t-1* (initial period) on *i*-th percentile.

[2] This definition suits the theory of pro-poor growth introduced by Ravallion & Chen (2003) and Son (2004). It is based on the stochastic dominance curve.
[3] This paper aims to cover partial and full approach.
[4] Not only examining the pro-poor growth from 2010 to 2020, this paper also shows the importance of splitting the year of examination by dividing the period into 2010 to 2016 and 2016 to 2020.

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If the growth of expenditure is positive (more than zero) over $p_i \in [0,1]$, it is called first-order dominance. The pro-poorness of the growth is defined as pro-poor when the growth of poor people's percentile is greater than the wealthier people's percentiles which can be seen on the slope of the GIC (either upward or downward). When the slope is positive, the growth is called anti-pro-poor (pro-rich); otherwise, it is called pro-poor.

Poverty Growth Curve (PGC)

Son (2004) proposed the PGC approach as another approach to examining the growth of expenditure in various percentiles. The approach of PGC is more on the generalized Lorenz curve defined as:

$$L(p) = \frac{1}{\mu}\int_0^x y\, f(y)dy \qquad (2)$$

$$p = \int_0^x f(y)dy \qquad (3)$$

where:

$L(p)$: the Lorenz curve which shows the percentage share of expenditure received by the bottom p of the population.
μ : average expenditure of population.
y : person's expenditure.
$f(y)$: probability density function.

The Lorenz curve is also can be defined as:

$$L(p) = \frac{\mu_p p}{\mu} \qquad (4)$$

Taking log for both sides, then

$$Ln(\mu_p) = Ln(\mu L(p)) - Ln(p) \qquad (5)$$

Taking the first difference in Equation (5), then

$$g(p) = \Delta Ln(\mu L(p)) \qquad (6)$$

$$g(p) = \Delta Ln(\mu_p) \qquad (7)$$

$$g(p) = g + \Delta Ln(L(p)) \qquad (8)$$

and

$$g = \Delta Ln(\mu)$$

$g(p)$ is the PGC, the growth rate of average expenditure of the bottom p percent in a condition that all individuals are ranked based on their per capita expenditure, and g is the growth rate of average expenditure of people. If $g(p) > g$ for all $p < 100$, the growth is pro-poor. If $0 < g(p) < g$ for all $p < 100$, the growth is called trickle-down growth (the growth decreases poverty but the poor gets fewer benefits than the non-poor). Lastly, if $g(p) < 0$ and $g > 0$ for all $p < 100$, the growth is called immiserizing growth (the growth increases poverty). The calculation of the partial

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approach will be equipped with the Distributive Analysis Stata Package (Araar & Duclos, 2007).

Pro-Poor Growth Index

This paper adopted the model introduced by Wodon (1999) with additional calculation provided by Kakwani and Pernia (2000) that examines the relationship between growth, poverty, and inequality. Specifically, this model identifies the relationship between growth and inequality; and growth, inequality, and poverty. The models' specifications are defined as the following log-log panel regression models to obtain elasticities:

$$lgini_{it} = \alpha + \beta lgdp_{it} + \alpha_k + \varepsilon_{it} \qquad (9)$$

$$lpov_{it} = \tau + \gamma lgdp_{it} + \delta lgini_{it} + \tau_k + \varepsilon_{it} \qquad (10)$$

where:

$lgini_{it}$: log of Gini index of regency i time t. The Gini index is defined as a unit-free index.

$lgdp_{it}$: log of per capita gross regional domestic product (GRDP) of regency i time t (constant price). Per capita GRDP is expressed in Million Rupiah units.

$lpov_{it}$: log of the number of poor people of regency i time t. The number of poor people is defined in the people unit.

Then, according to the parameters in Equation (9) and (10), the net elasticity of poverty to the economic growth (λ) can be defined as follows:

$$\lambda = \gamma + (\beta * \delta) \qquad (11)$$

Where

γ : elasticity of poverty to economic growth.
β : elasticity of inequality to economic growth.
δ : elasticity of poverty to inequality.

Thus, the PPGI (Kakwani & Pernia, 2000) is formulated as follows:

$$\phi = \frac{\lambda}{\gamma} \qquad (12)$$

The PPGI can be translated as following classification:

ϕ < 0, antipoor growth;
0 < ϕ ≤ 0.33, weakly pro-poor growth;
0.33 < ϕ ≤ 0.66, moderate pro-poor growth;
0.66 < ϕ < 1.00, pro-poor growth; and
ϕ ≥ 1.00, high pro-poor growth.

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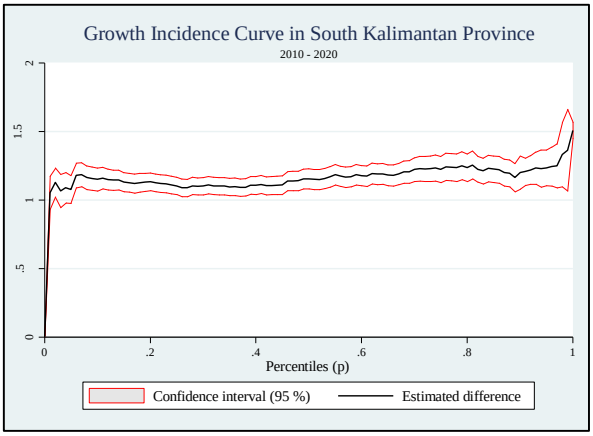
RESULT AND DISCUSSION

Partial Approach

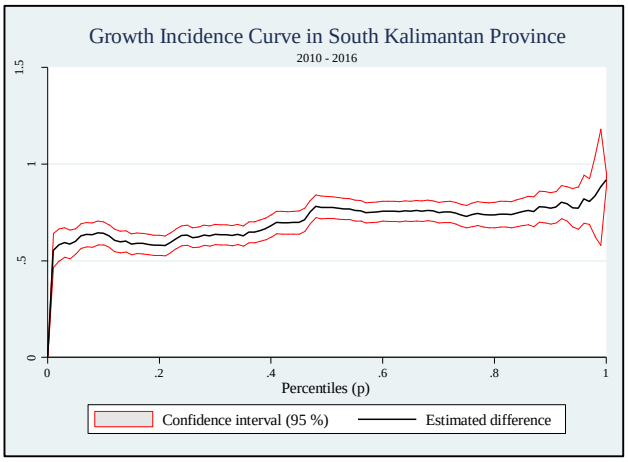
The GIC as the first approach to assess the pro-poorness of the growth in South Kalimantan can be seen from Figure 1. The GIC approach in Figure 1 comprises three panels covering the period of 2010-2020, 2010-2016, and 2016-2020. The separation of the period examined is to justify the conclusion whether in the period 2010-2020 the growth is pro-poor or not.

Figure 1 GIC in South Kalimantan, 2010-2020, 2010-2016, 2016-2020

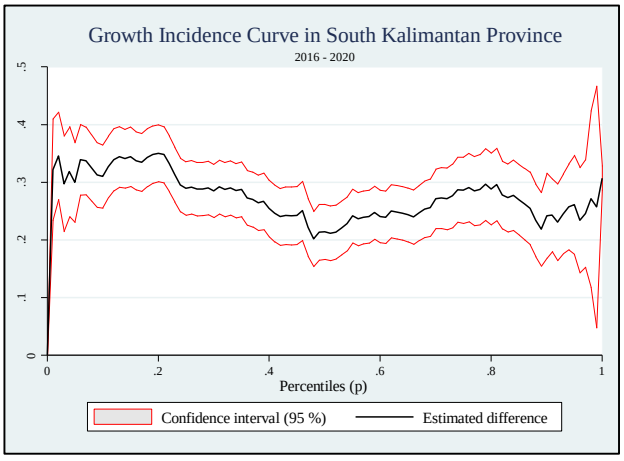
Panel 1



Panel 2



Panel 3



Source: Author's calculation.

Generally, in Figure 1 Panel 1, from 2010 to 2020, there is an increasing slope (positive slope) meaning that the growth of per capita expenditure is increasing along with the higher percentile. This GIC refers to the anti-pro-poor growth because higher percentile people receive benefits more than the lower percentile. However, the

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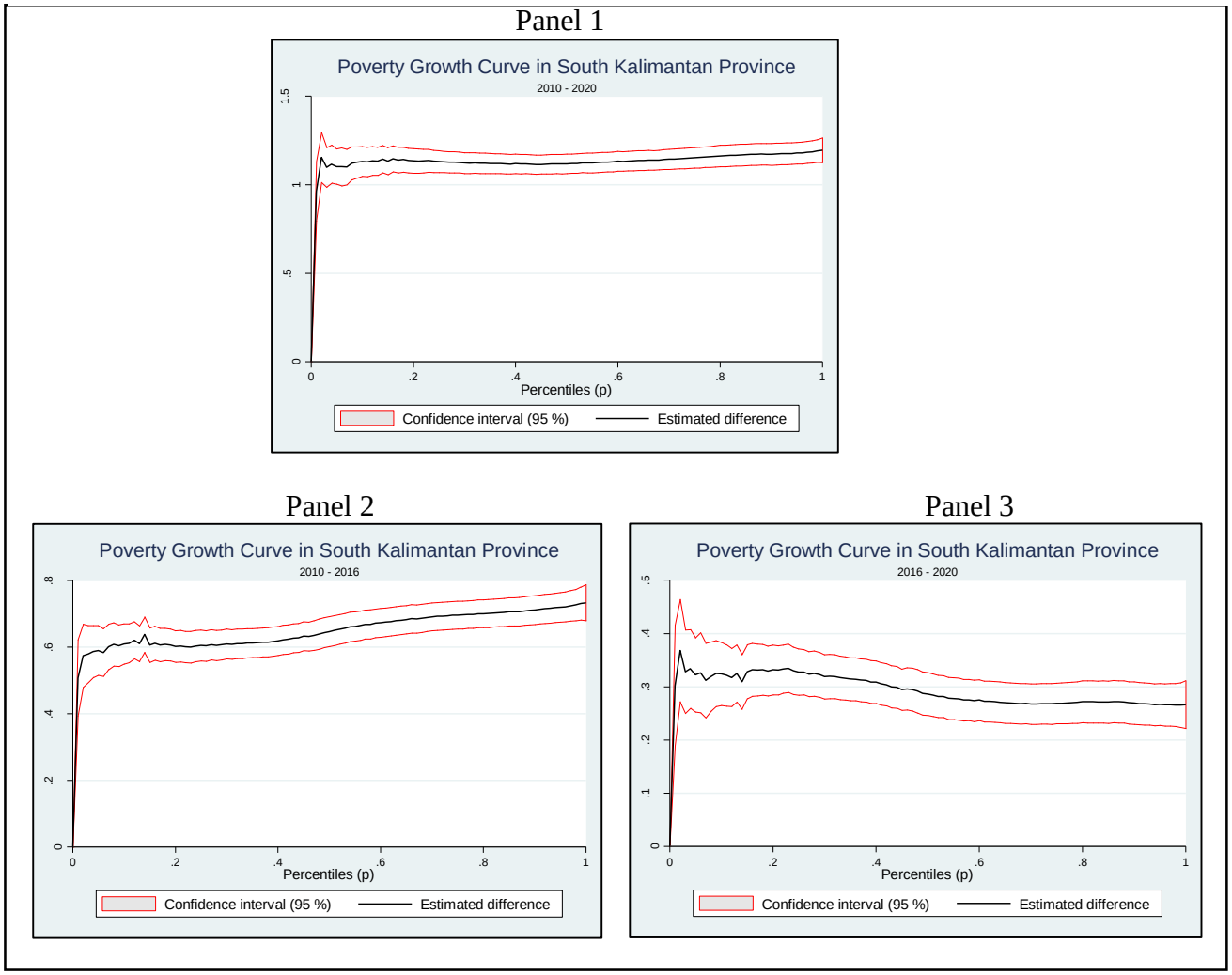
previous study conducted by Ravallion & Chen (2003) and Son (2004) show the practice of splitting the periods to examine the graphs in more detail.

Figure 1 Panel 2 exhibits the GIC from 2010 to 2016, and there is a piece of stronger evidence about the positive slope of the GIC. It can be concluded that from 2010 to 2016, the growth is not pro-poor. On the other hand, in the recent period, as can be seen in Figure 1 Panel 3, the slope more fluctuates but the lower percentile has more magnitude of growth compared to the higher percentile (lower percentile receives more benefits than the higher percentile). Thus, in the period from 2016 to 2020, the growth in South Kalimantan is called pro-poor.

Figure 2 PGC in South Kalimantan, 2010-2020, 2010-2016, 2016-2020



Source: Author's calculation.

A similar result is showed by the PGC approach as can been seen in Figure 2, Panel 1 to 3. Figure 2 Panel 1 has a similar conclusion with the GIC approach since in the period from 2010 to 2020, the graph has an increasing slope. If the examination is divided into two periods, 2010-2016 and 2016-2020, the results show a more

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significant trend. From 2010 to 2016, the PGC moves upward whilst from 2016 to 2020 the downward PGC can be easily identified.

Furthermore, to classify the pro-poor growth, the PGC approach emphasizes the examination of $g(p)$ which is the PGC curve along with the percentile until it reaches $g(p) = g =$ growth rate of average expenditure of all people. The classification of the pro-poor growth for each period can be written as:

- Period of 2010-2020: $0 < g(p) < g$ for all $p < 100$, trickle-down growth.
- Period of 2010-2016: $0 < g(p) < g$ for all $p < 100$, trickle-down growth.
- Period of 2016-2020: $g(p) > g$ for all $p < 100$, the growth is pro-poor.

All in all, based on GIC and PGC approaches, the conclusions are articulated as follows:

- Splitting the period is essential to obtain a more detailed result because in the period from 2010 to 2020 there was a mixed growth characteristic.
- Based on the GIC approach, from 2010 to 2016, the growth is anti-pro-poor. In contrast, the growth is pro-poor from 2016 to 2020.
- Based on the PGC approach, from 2010 to 2016, the growth is identified as trickle-down, the situation where the growth makes the poverty decreasing but more benefits go to the richer. On the other hand, the growth is unambiguously pro-poor from 2016 to 2020.
- From 2010 to 2016, either defined as anti-pro-poor or trickle-down growth, the growth of all percentiles (including the poor percentile) is positive for both GIC and PGC.

Full Approach

In the full approach, this paper utilizes the panel regression approach in form of a log-log model. The Log-log model is used to get the value of elasticity of its variables. In general, there are three forms of the panel regression model namely Pooled OLS (Pooled), Fixed Effect Model (FE), and Random Effect Model (RE). Instead of selecting the best model, this paper aims to compare all models and examine the PPGI altogether.[5] This approach will use the observation spanning from 2010 to 2020. The result of Equation (9) is presented in Table 1.

Table 1 shows the value of β which is the elasticity of inequality to economic growth (i.e., a 1% increase of the per capita GRDP will make the Gini ratio increase by 0.06% based on the RE model). The values of β are 0.0254, 0.1940, and 0.0568 for Pooled, FE, and RE, respectively. Among all models, only RE gives the significant value of β, the coefficient is significant at alpha = 1%. Based on the sign, all models show positive signs which means that the growth will create higher inequality. This positive sign can be translated as the benefits of the growth are absorbed un-proportionally by various income groups; thus, creates higher inequality.

[5] This paper employs the cluster standard error, heteroskedasticity robust option, as well as time fixed effect in its respective model to maintain the robustness of the models (Torres-Reyna, 2007).

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Table 1 Panel Regression Result of The Impact of Growth on Inequality

Variables	Pooled	FE	RE
lgdp	0.0254	0.1940	0.0568***
	(0.0190)	(0.1820)	(0.0188)
2011.year		0.2400***	
		(0.0462)	
2012.year		0.2340***	
		(0.0481)	
2013.year		0.1830***	
		(0.0574)	
2014.year		0.1270*	
		(0.0643)	
2015.year		0.2550***	
		(0.0575)	
2016.year		0.1870***	
		(0.0518)	
2017.year		0.2060***	
		(0.0634)	
2018.year		0.1790**	
		(0.0787)	
2019.year		0.1340*	
		(0.0708)	
2020.year		0.1340*	
		(0.0713)	
Constant	-1.2550***	-1.9730***	-1.3570***
	(0.0632)	(0.5520)	(0.0598)
Observations	143	143	143
R-squared	0.0110	0.4670	
Number of id		13	13

Robust standard errors in parentheses.
**** p<0.01, ** p<0.05, * p<0.1*

The next examination aims to get the value of the elasticity of poverty to economic growth (γ) and the elasticity of poverty to inequality (δ). The panel regression result from Equation (10) can be examined in Table 2.

It can be seen that the Gini ratio has a significant impact on poverty for all models, but the gross impact of the growth on poverty was only significant for Pooled model. However, there is a difference in terms of the sign for the elasticity of δ for the models as the Pooled model gives a positive relationship between inequality and poverty whereas the other two models provide a negative relationship. This mixed results of the sign of δ will influence the interpretation for the inequality-poverty relationship; but not for the PPGI, the index that this paper aimed for.[6] For the gross impact of the per capita GRDP on poverty (γ), all models give the same negative sign.

[6] The interpretation of the coefficients will highly depend on the chosen model. Many works of literature select the model based on the Chow test, Hausman test, and other statistics. This paper sidesteps the selection since the main aim is to compare the PPGI from all models.

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For the FE model, as an example, a 1% increase of per capita GRDP is associated with a 0.35% decrease of poor people. In other words, economic growth makes poverty decrease.

Table 2 Panel Regression Result of The Impact of Growth and Inequality on Poverty

Variables	Pooled	FE	RE
lgini	0.4440*	-0.0960*	-0.0796**
	(0.2670)	(0.0470)	(0.0374)
lgdp	-0.1980***	-0.3530	-0.2040
	(0.0439)	(0.2930)	(0.1310)
2011.year		0.0056	
		(0.0179)	
2012.year		-0.0221	
		(0.0249)	
2013.year		-0.0623	
		(0.0437)	
2014.year		-0.0262	
		(0.0483)	
2015.year		0.0401	
		(0.0529)	
2016.year		0.0335	
		(0.0626)	
2017.year		0.0392	
		(0.0630)	
2018.year		0.0211	
		(0.0647)	
2019.year		0.0435	
		(0.0760)	
2020.year		-0.0021	
		(0.0666)	
Constant	10.71***	10.58***	10.12***
	(0.3590)	(0.9250)	(0.4080)
Observations	143	143	143
R-squared	0.1050	0.3310	
Number of id		13	13

Robust standard errors in parentheses.
**** p<0.01, ** p<0.05, * p<0.1*

Pro-Poor Growth Index (PPGI) in South Kalimantan

The calculation of PPGI based on Equations (9) and (10) is shown in Table 3 with respected models.

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Table 3 The Value of Elasticities ($\beta,\delta,\gamma,\lambda$) and PPGI ($\phi$)

Elasticity	Pooled	FE	RE
β	0.0254	0.1940	0.0568
δ	0.4440	-0.0960	-0.0796
γ	-0.1980	-0.3530	-0.2040
$\lambda = \gamma + (\beta * \delta)$	-0.1870	-0.3720	-0.2090
$\phi = \lambda / \gamma$	0.9444	1.0538	1.0245

Source: Author's calculation.

All three models in Table 3 identifies the growth in South Kalimantan in the observed period (2010-2020) as pro-poor. More specifically, the Pooled OLS model provided the elasticities that lead to a conclusion that the South Kalimantan has a pro-poor growth (ϕ = 0.9444). On the other hand, Fixed Effect and Random Effect models concluded that strong pro-poor growth is obtained by South Kalimantan in the period from 2010 to 2020 (ϕ = 1.0538 and 1.0245 respectively). The difference in the magnitude of ϕ was highly affected by the sign of δ, as can be seen, if the elasticity of poverty to inequality is positive, the value of λ tends to be smaller; thus, ϕ will also be smaller. In addition, the sign of λ is negative, which is the net elasticity of poverty to economics growth (as to be proxied by per capita GRDP), inferring that the growth can reduce poverty (as found in many references such as Windra et al. (2016), Jonaidi (2012), and Murjani (2019) among others.

CONCLUSION

The growth is expected to minimize poverty with narrow inequality. However, the interaction among those macroeconomic variables sometimes creates different outcomes which pull the attention of researchers, especially in the economic development discipline. The question of whether the growth creates a lower poverty rate with its relationship with inequality has brought us to the pro-poor growth definition. Some researchers as mentioned in this paper used different terminologies as well as the requirements for the pro-poor growth condition. Thus, this paper aimed to investigate the pro-poorness of the growth in the South Kalimantan province of Indonesia by using a partial and full approach. This comprehensive approach aimed to reach a narrow conclusion.

This paper concludes as the following: First, the partial approach needs to elaborate the period as precisely as possible. The long period of examination can contain a mixed pro-poorness of the growth. Main references provided by Ravallion

& Chen (2003) and Son (2004) have shown the importance of precise examination by dividing the periods. It is recommended for future studies to apply this strategy. Second, the GIC and PGC showed similar patterns; however, both carried different interpretations for the pro-poorness of the growth. From 2010 to 2016, the GIC confirmed that the growth is not pro-poor whilst the PGC interpreted it as a trickle-down growth (both GIC and PGC had the value > 0 for all percentiles with an increasing trend; thus the benefits are absorbed more by richer percentile). From 2016 to 2020, all curves showed pro-poor growth. Third, the PPGI provided a relatively similar conclusion for South Kalimantan which exhibits pro-poor growth. Fourth, this paper concludes that the growth in South Kalimantan is generally pro-poor with stronger evidence in the period from 2016 to 2020. In the period 2010 to 2016, the growth is rather trickle-down, the growth provides benefits to all income groups but is disproportionately absorbed mostly by richer people. Lastly, the pro-poor growth analysis needs a more uniform consensus among the definitions to avoid a mixed interpretation. For future works, a longer period of examination for the full approach needs to be done as well as splitting the period of the observations.

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