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A Study on Indonesia Regions Disparity: Post Decentralization*

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Since its independence, Indonesia has developed fluctuated and uneven. The financial crisis and political changes has lead to decentralization in 1999, which has entitled local governments (province and regency/municipality) to develop its region autonomously. Surprisingly, it was concern that the decentralization will increase the disparities, rather than decrease it. This research uses Indonesia disparities in the province level. Using regression analysis we will overview Indonesian provinces disparities and poverty rate to overview the economic growth after decentralization. Overall, this research aims to shows the economic performance of Indonesia regions and highlight determinant factors that impacts poverty rate. This research lays in the Poverty reduction theory and ideology within a context of globalization sub-theme because it studies on the approach that Indonesia government took to solve disparities and encourages poor regions to advance its development.

Keyword: decentralization, disparity, economic growth

1. Introduction

For years regions has asked for more equal development since the severe disparities between the western regions with the centre and east regions in Indonesia. Poorer regions had expressed their disappointment with the centre government's development policy, and demand larger income transfers and more authority to administrate their region. Following financial crisis 1997 and the fall of the New Order regime, Indonesia enters the new political order with decentralization as it core. The autonomy system, with economic and cultural reasons, leads regions to separate and expanded the number of regions. Before the decentralization, Indonesia had 27 provinces and in 2006 it increased to 33 provinces with some 300 municipalities/regency.

The study of disparities has studies has been conducted variously regarded Indonesia regions. In Resosudarmo and Viddyattama (2006), it was found that disparities is still severe and the were also evidence that the disparities were between regions and within regions (Akira and Alisyahbana,; 2002). In addition, studies of other countries show that industrial types (Fan, 2003), and main economy sector and political order (Shankar and Shah; 2003), effects the level of disparities between and within countries. Consequently, theories and econometric analysis on regional inequality and convergence also has been develop in the last two decades such as Quah (1992), Martin and Sunley (1998), and Barro and Sala-I-Martin (2004),. .

This study has three empirical studies aim. First this study will show the effect of globalization to poverty growth in Indonesia regions. To achieve this goal, the paper will present income evolution on provincial data using several inequality methods. Second, to examine whether poverty reduction and economic growth are in progress, this paper will use the general growth model (convergence theory) as written by Barro (1991) based on panel data technique. Last, with decentralization taking place since 2001, we will see to what extend devolution in the provinces level has change through these years. Each empirical study will examine how it affected disparities and inequality among Indonesia regions. The originality

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of this paper is that the research links the impact of decentralization to Indonesia province economic performance.

The second section will be on the impact of globalization to poverty, followed by a brief description of decentralization system in Indonesia in section three. In the fourth section, we will conduct the economic analysis on regional growth and inequality after decentralization. The last section will conclude the paper.

2. Globalization and Poverty

The disparity and inequality literature was driven by growth theory in the neoclassic model, as developed by Ramsey (1928), Solow (1956), Swan (1956), Cass (1965), and Koopmans (1965) (Barro, 1997). The literature continues as in the 1980s, reviving the classic growth theory, the economist broadened the neoclassical model with more depth analysis on government policies, accumulation of human capital, and technology spillovers effects (Romer 1986). In addition, literature on convergence related with growth theory and welfare gap in this globalization era also expanded in the last two decades (Barro; 1991, Quah; 1993, Esteban; 1994, Pose and Gill; 2004, Petrakos and Pose; 2005).

Globalisation effects poverty in many ways and usually indirectly. A paper by Nissanke (2007) argues that globalization have a non-linear relationship with poverty in many aspects. The paper shows the nexus relation as globalization-economic growth-income distribution-poverty.

Globalization consists of a set of policies to openness in trade for each country globally. The trade liberalization are expected to increase FDI that will amplify the flow of goods and capital, that in turn, will contribute to economic growth. The new political theories claim that not all countries or regions gain the benefits of trade liberalization (Nissanke, 2007). This fact causes income inequality and disparities that will leads to greater disparities in social and morality. These means lower education, health budget and infrastructure developments. The outputs are low human capital, lower worker productivity and lower long terms growths.

The main issue is not whether to integrate to global economy but how to integrate with a fine foundation and sustainable growth. It should be noted that old fashion trade protection policies and patron-client relation between government and private agents could not be used. Considering current fact that China and India as the world leaders in manufacturing, the challenge is how to improve skill workers, in particular IT related job, so to compete national policies has to support education and training. This will be a crucial policy because with the two countries has dominate in the labours-intensive industries sectors, the wage structure and returns in the industries has been suppressed.

In addition, while arguing that the Stolper-Samuelson (SS) theorem are “worse than wrong, it is dangerous”, Davis and Mishra claims that trade liberalization may only be good if a country uses import goods as substitute of domestic product or if comparative advantage occurs (Harrison, 2007). In other words, globalization and trade liberalization may only benefits the poor if the country’s abundant factor, that is the poor products, does not have to compete the first order effect of trade will be the rise real income of the poor.

Moreover, globalization is good in a way that it increased economic growth and reduced poverty. It is assert that the effect to poverty will depend on how the growth pattern impacts the income distribution. The growth pattern should not be treat as growth *per se*, but should be observe as sustainable economic growth and development, so it can have a significant effect.

Because growth is distribution-neutral, government-intervention policies should be implemented for the benefit of the poor. With this pro-poor growth distribution, globalization

and economic growth may decrease inequality and poverty.

In this for Indonesia, poverty has decline rapidly from 40.1% in 1976 to 11.3% in 1996, before the financial crisis. The most significance poverty reduction occurs during the 1970s-1980s period with a fall of 13% annually. The poverty rate increase after financial crisis peaked at 23.5 % in 1999 and decline to 16.6% in 2004. Compared with other Asian countries, Indonesia has a fast poverty reduction between 1990 and 2000 with an average - 8.8%. While China, Philipines, Thailand, and Bangladesh are at -5.4%, -1.3%, -2.1%, and - 2.3%, respectively (Tambunan, 2006).

To achieve this figure, various attempts have been done to overcome the poverty growth. Before decentralization, central government effort was focus on the people, with specific development program such as block grants for regions with the underdeveloped regions instruction (URI) and urban poverty reduction program (UPRP). After the decentralization, the attempt were much more to strengthen local governments such as financial empowerment for small and medium enterprise, support program for bank and local government officers, and institution improvement to run the local government (Kuncoro, 2004).

3. Indonesia Decentralization

Following financial crisis in 1997, Indonesian politics shifts from stable centralize regime to constantly under attack from many sectors of societies, which pushes democratic reform (Seymour, 2002). The movement causes violent and peaked with the end of the “New Order” regime. The “Reform” regime starts with region autonomy through the Law No 22/1999 concerning decentralization, granting regional autonomy and Law No 25/1999 concerning fiscal administration between centre and regional governments (Sadli, 2000).

Decentralisation is formed in three levels, provincial, municipality/regency, and village. Municipality and regency are at the same government administration level, a level below the provincial government. According to the decentralisation Law No 22/1999, decentralisation at the provincial level is in the de-concentration and devolution form, and, municipality/regency and village works in the devolution form. Decentralization includes several sensitive sectors as central government’s responsibility. Such sensitive sectors are foreign policies, national security and defence, national finance, law, religion, macro economy policies and macro politic policy. Regions are permitted to all local government function such as transportation, health, local economics, and other local region specific sectors (Nurcholis, 2005). The law also stated that regions could form cooperation with other organization in a foreign country, both public and private owned. These opportunities should to be utilized by region governments to develop their local through domestic and international cooperation agreements.

Decentralization government leaders are elected through political election, at the provincial level the administrator is a governor and at the municipal/regency level is mayor/head of regency. The provincial government, besides administrate its own provincial government office, it also coordinates the central government’s agencies within the province such as field administration office of education, religion, and port administration. The municipal/regency government are responsible to decide political decision such as government laws, regulations, and responsible in implementation. The functional office is an autonomous and under the municipal/regency government.

There are two main concerns for the decentralization implementation, the political and fiscal issue. The political issue relates with the citizen confidence that the decentralization will give improve the social and economic level of the nation, meanwhile the fiscal issue relates with the heavily dependence of local government to central government’s fund transfers. For the

political problem, government has revised the Law 22/99 and introduced direct election, both local executive and legislative. It is assumed that direct election will create more accountable and responsive local government. In addition, it is also expected to form a more reliable parliament.

From the fiscal issue, it should be noted that there are two main inter-government transfer, the general purpose grant (DAU) that gives the full autonomy to local governments in spending and managing the grant and the special purpose grant (DAK) the local government will own the projects or programs but they will be under the monitoring and evaluation from respective central ministries and central ministries will still have the decision on the types of programs or projects to be financed. The current issue is that DAU is the main source for the local revenue. Comparison between annual growth rate of local own revenue during 1994-1996 period and 2001-2002 period indicated that prior decentralization growth (20%) is much higher than decentralization growth (5%). This should not be viewed as the incompetent local government to raise tax, but other consideration should also be taken account. The reason is that, local tax such as income and company tax might hurt the local economy activities. Beside that, Law 25/1999 and Law 34/2000 does not give significant local taxing power because Indonesian decentralization was formed as expenditure-led decentralization financed by transfer and the central government limited the local governments tax power. Since the execution of Law 25/1999, Indonesia has been a highly decentralized country only in three years (Table 1). It is shown that in 2002, the local development values are as much as the expenditure value that the central government budget for national development (Brodjonegoro, 2003).

Table 1
Local Expenditure Proportion to Central Government Budget in Indonesia, 2002-2005
(%)

	2002	2003	2004	2005
Local Expenditure/ Central Expenditure	47.19	37.73	42.34	41.93
Local Expenditure/GDP	7.07	4.93	7.82	8.6
Local Development Budget / Central Development Budget	19.36	10.02	14.25	5.22

Source: BPS, Author's calculation

Disparities in Indonesia have been severe compared with other countries, especially since the financial crisis in 1997. The decentralization of regional government in 1999 itself recently has been viewed to increased the disparities, rather than decrease it. Based on the decentralization act 2004, which replace the decentralization act 1999, municipal/regency where the natural resources located, earn higher revenue share compared with the province government and other municipalities/regencies in the same province.

This obviously is not surprising since the region has to develop its area based on local resources. On the contrary, with higher revenue share, the prosperous regions will experience faster economic growth and lead to larger inequality between regions. In addition, higher revenue share will permit province government to build infrastructure cross municipality/regency, that will benefit the municipality/regency within the province.

From the Law 25/1999 and its revised comparison summary (Table 2), it can be seen that the decentralization has offer more proportional share. The share between the governments (centre, province, and municipalities/regency) is based on each regions revenue they generate

and also allow them to generate their own revenue (Seymour, 2002). In the Law 25/1999, Provinces and Municipalities endowed with natural resources gain more revenue than other regions (70-80%) and the share increases 0.5% in the revised law. In addition, in the decentralization law, revenue proportion also occurs in economic activities. The larger economic activity regions gains more revenue compared with others, but this tax remains the same in the revised law. It can be seen that in the long term, decentralization will cause disparities between rich and poor regions more significant.

Table 2

Comparison Balance Fund: Level of proportion transfer of fund between Central and Regional Governments under Law 25/1999 and its revised in 2002 (%)

Revenue Source	Law 25/1999		Revised Law 2002			
	C	M/R	C	P	M/R	OM/R
Natural Resources	20	80	20	16	32	32
Oil mining	85	15	84.5	3.1	6.2	6.2
Gas	70	30	69.5	6.1	12.2	12.2
Income Tax	80	20	80	8	12	-
Company Tax	100	0	100	0	0	0
Land and property tax	10	90	10	16.2	64.8	-

Source: Brodjonegoro, 2003

C = Central Government proportion

P = Provincial Government proportion

M/R = Municipality/Regency Government proportion

OM/R = Other Municipality/Regency Government proportion, within the same Province where the Municipality/Regency are located.

4. Regional Inequality, Decentralization and Poverty

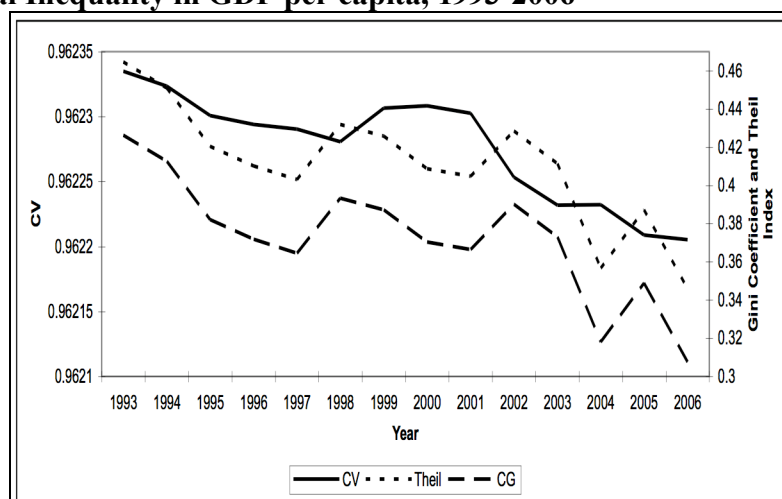
In the last two decades, the literature on measurement of disparities has been enormously published, both in Indonesia (Akira and Alisjahbana 2002; Akira and Lukman 1995; Resosudarmo and Vidyattama 2006) and international (Fan and Sun 2008; Pose and Gill 2004; and Azzoni 2001). With different properties and distinct social welfare functions, it is accepted that to measure regional inequality uses variety of methods and compares the result (Fan, 2008). There are several methods for disparities calculation: dispersion index, lorentz curve, and entropy. In this research, coefficient variation (CV) is the dispersion index that are used for its straightforward and ability to describe the variation of the population. To deploy the Lorentz curve method, this research use Gini Coefficient calculation. This method calculates the distance of the Lorentz curve from the 45° line, the further the Lorentz curve, the higher the disparities. Because of the structure, we can use the theil index as entropy analysis to decompose analysis to between and within regions. In this paper we use regions as Indonesia's main islands and within regions consist of the provinces located in the island. The result of these analysis is given in Figure 1.

The data that are used in this research are panel data from 26 provinces between 1993-2005, gathered from various sources, such as Indonesian Central Statistics Agency (BPS). Despite one province has been disintegrate, Timor Timur, and seven new province has been formed, this research use the data of 26 province (excluding Timor Timur) and the new province data after it was formed are join with the province before it was separated. The first aim of this paper is to show the evolution of inequality and disparities between provinces in Indonesia during the period.

The inequality between provinces as given in CV, Theil Index, and Gini Coefficient shows similar fluctuation during the period. Following the rapid development in Indonesia in new

order regime (1966-1997), between 1975 to 19993 GDP per capita grew 5.5 % annually and GDP per capita dispersion (in terms of standard deviation of log GDP per capita) decline from 0.39 to 0.28 (Garcia and Soelistianingsih, 1998). Later, the decline of disparities shifts to disparity increase during the financial crisis in 1997, before it decline again after 2002. The Theil index and Gini Coefficient has the relative same fluctuation pace meanwhile the CV index residual pace is 1-2 years.

Figure 1
Inter-provincial Inequality in GDP per capita, 1993-2006



For the empirical model, this paper we use two econometric modeling; (1) to estimate the existence of convergence between provinces, and (2) to overview the impacts of decentralization to poverty growth. The characteristics of variables used in this research are given in Table 3.

Table 3
Statistics of Variables

<i>Variables</i>	<i>Mean</i>	<i>Standard Deviation</i>	<i>Min</i>	<i>Max</i>
<i>y_{it}</i>	15.54074	.6871616	14.06937	18.06403
<i>hc_{it}</i>	-5.940364	.3133587	-6.600906	-5.311089
<i>n_{it}</i>	-4.187129	.8259493	-9.926922	-1.060191
<i>hl_{it}</i>	-9.927128	.4441054	-12.72818	-8.402621
<i>cp_{it}</i>	25.37371	.9885576	22.06587	28.46907
<i>oilgas</i>	.1265231	.1900772	0	.7628344
<i>rev</i>	.0295855	.1000843	.0011474	1.756391
<i>fdi</i>	.1161357	.3465964	0	4.543831
<i>ln rev_{it}</i>	27.09117	2.377208	22.94497	40.42202
<i>decen_hl_{it}</i>	-4.589217	4.971624	-10.57929	0
<i>decen_cp_{it}</i>	11.79662	12.78722	0	28.46907
<i>decen_lnrev_{it}</i>	12.87623	14.03509	0	40.42202
<i>decen_lnhc_{it}</i>	-2.716732	2.944762	-6.448086	0

Convergence model (β convergence) are used to observe economic growth rate between

regions. If we found β convergence has a negative sign, it can be claim that poorer regions has more rapid growth than rich regions, which explains that economic convergence is in progress. While the β convergence has a positive sign shows that the divergence and polarization are occurring between regions economics.

For the β convergence, the empirical model is as suggested by Resosudarmo and Vidyatamma (2006):

$$\frac{(y_{it} - y_{it-1})}{y_{it-1}} = \gamma_1 + \gamma_2 \ln y_{it-1} + X'_{it} \gamma_x + Z'_{it} \gamma_z + D'_t \gamma_d + \eta_i + u_{it} \quad (1)$$

where the i the province, t is the index of time, y_{it} is GDP per capita, and D_t is a vector of year dummy. Following Resosudarmo and Vidyatamma (2006), the model needs the individual effect, η_i , to capture all the determinants of growth for various regions in panel data analysis. The u_{it} is the random disturbance not to be correlated when the time or region is not the same and assume u_{it}^2 is constant.

Meanwhile, the X'_{it} are the vector of variables that are used to understand growth regression. The variables is written as $X'_{it} = \gamma_3 \ln hc_{it} + \gamma_4 \ln nit + \gamma_5 \ln hlit + \gamma_6 \ln cpit$; the rate of output invested in human capital, the population growth, output invested in health centre, and the output invested in physical capital, respectively. In addition, we also include variables of interest that are assumed has been shift since the implementation of decentralization in 2001, Z'_{it} , including (1) regional revenue, (2) role of revenue share oil and gas as the main natural resources, which have main interest in the decentralization law, and (3) foreign investment, as a means for spillovers, both technology and human skills. It should be noted that the trade variable, which is a common variable in disparities analysis, is not included in the explanatory variables because there is no significant difference in trade policies in Indonesia. As been described above, if the γ_2 are found to be negative, we can assert that there is conditional β convergence exist and there is evidence that poorer province has higher growth rate than advance province.

The definition of each variable is given below:

Provincial income per capita (y_{it}): this is a provincial gross domestic product (GDP) at 1993 price per capita. Provincial human capital index (hc_{it}): This variable shows the rate of human capital in each province. The variable is obtained as the ratio of the number of teacher in the secondary school multiply by average raga in the province, divided with the total worker multiplied with the same average wage.

Provincial population growth rate (nit): This data is gathered from BPS and describes the population growth annually. Provincial rate of health centers ($hlit$): This data is a proxy data to show the annual growth of investment in health care per province. Provincial capital investment ($cpit$): Following Resosudarmo and Vidyattamma (2006), this data is used as a proxy for government capital investment. The data is the ratio fixed capital investment to gross domestic product.

Contribution of oil and gas ($oilgas$): Describes the role of oil and gas sector to the whole provincial economy and it is the ratio of the sector to the total provincial economy value.

Revenue (rev): the ratio of total revenue that each province achieved with the total GDP in the same year. It is assumed that after decentralization, provinces with higher endowment will receive higher revenue, which may lead to inequality. Foreign Direct Investment (fdi): The variable enables us to overview the impact of foreign capitals to the development of provinces. It is the ratio of annual approved foreign investment with the province's GDP.

Table 4
Results of OLS and Fixed Effect Estimation

	<i>OLS</i>		<i>Fixed Effect</i>	
	<i>Coef</i>	<i>t-stat</i>	<i>Coef</i>	<i>t-stat</i>
y_{it-1}	-0.02908851**	-2.8	-0.26629366***	-8.05
$\ln hc_{it}$	-0.00155222	-0.09	-0.04775173	-1.1
$\ln n_{it}$	-.02603414***	-4.34	-0.01332539*	-2.03
$\ln hl_{it}$	-0.0070554	-0.59	0.04683392	1.82
$\ln cp_{it}$	0.00725169	1.03	0.00834423	0.94
oilgas	0.10474925***	3.33	0.51340816***	3.76
rev	-0.47188331***	-9.88	-0.06022982	-0.87
fdi	-0.00742167	-0.56	0.00373476	0.3
y1994dummy	-0.04978784*	-2.24	-0.01882718	-0.92
y1995dummy	-.07601149***	-3.41	-0.0283877	-1.35
y1996dummy	-0.06386057**	-2.84	-0.00589906	-0.27
y1997dummy	-0.18821833***	-8.42	-0.00669604	-0.29
y1998dummy	-0.08216582***	-3.58	-0.11021727***	-4.81
y1999dummy	-0.13732984***	-6.06	-0.7729948***	-3.4
y2000dummy	-0.0938203***	-4.12	-0.04237424	-1.86
y2001dummy	-0.09665096***	-4.27	-.04441425*	-1.98
y2002dummy	-0.08347756***	-3.69	-0.02851448	-1.26
y2003dummy	-0.08173801***	-3.4	-0.02359576	-0.96
y2004dummy	-0.10214897***	-4.4	-0.02967231	-1.18
y2005dummy	-0.04399579	-1.85	0.03280214	1.31
constant	0.18929752	0.97	4.043768***	5.41
R-squared	0.4845		0.5471	
Adj R-squared	0.4492			

*, **, and *** are 10 per cent, 5 per cent, and 1 per cent significance, respectively

The dependent variable is $\frac{(y_{it} - y_{it-1})}{y_{it-1}}$

This paper use ordinary least square (OLS) and panel data analysis fixed effect (FE) to estimate equation (1). To avoid inconsistency of OLS, fixed effect and random effect in panel data analysis is deployed. In addition, Hausman test demonstrate that there is significance different in fixed effect estimation with OLS and random effect, thus FE is more preferable for its consistency (Resosudarmo and Vidyattama, 2006).

The result (Table 4) from the fixed effect shows the estimation of β convergence is -0.266, accepted at a 1 per cent significance level. This explains that with a 99 per cent of confidence, we argue that there poor provinces growth rate is higher than province with higher initial GDP level. The estimation is controlling for the role of oil and gas revenue rate, overall amount of provincial revenue, foreign direct investments, provincial fixed capital investment, health centre developments, and annual changes of national macroeconomics condition. The human capital and population growth rate also influenced the convergence in a negative effect.

To understand the link between economic growth and poverty, we regress poverty growth with several independent variables that are claim contributed. Moreover, to view the effect of decentralization, we use the interaction index between the decentralization dummy variable with the previous explanatory variables. The following is the equation for poverty growth:

$$\ln \text{povertygrowth} = \gamma_1 + \gamma_2 \ln hl_{it} + \gamma_3 \ln cp_{it} + \gamma_4 \ln rev_{it} + \gamma_5 \ln hc_{it} + \gamma_6 \ln n_{it} + u_{it} \quad (2)$$

Table 5
Results of Poverty Regression (OLS)

	(1)		(2)		(3)	
	<i>Coef</i>	<i>t-stat</i>	<i>Coef</i>	<i>t-stat</i>	<i>Coef</i>	<i>t-stat</i>
$\ln hl_{it}$	0.27231399**	2.75			0.21135753	1.88
$\ln cp_{it}$	-0.10694999*	-2.2			-0.13597262	-1.77
$\ln rev_{it}$	0.05493073*	2.44			.05827954*	2.23
$\ln hc_{it}$	-0.62875341***	-4.17			-.57267566**	-3.31
$\ln n_{it}$	0.02134491	0.45	0.0494233		0.036421	0.76
<i>decen_hl_{it}</i>			0.42534596*	1.01	0.22782894	1.04
<i>decen_cp_{it}</i>			-0.05755932	2.17	0.07616824	0.78
<i>decen_lnrev_{it}</i>			0.0183183	-0.85	-0.04481299	-0.71
<i>decen_lnhc_{it}</i>			-.90453299**	0.32	-0.29314501	-0.95
constant	2.9998406	1.96	2.8880646***	-3.36	3.3859656	1.88
R-squared	0.2091		0.1059	0.213	0.2424	
Adj R-squared	0.175		0.0673		0.1816	
Obs	338		338		338	

*, **, and *** are 10 per cent, 5 per cent, and 1 per cent significance, respectively

Equation (2) attempt to explain variables that effect poverty rate in Indonesia and the OLS regression is deployed with three sets of data. The first model (Table 5), regress the poverty rate with control variables for the whole period, shows that all explanatory variable is significance, although the sign of the improvement in the number of health centre is as not expected. The second model regress the poverty rate with the interaction of explanatory variable with decentralization dummy variable. The result shows that decentralization has a significant impact to the poverty level with the increasing number of health centre and human capital. However, there is no significance evidence that the rise of revenue share, in which province gain more revenue share in natural resources and local tax, have an impact to reduce poverty in the decentralization era. In all model, the explanatory variables only explain up to 18.2 % of the variety of the poverty rate level.

5. Conclusion

To sum up, there are several conclusions that can be drawn from this research. First, this paper shows that disparity between provinces in Indonesia is still severe in all calculation. The disparities did increase before the financial but then it decline after 2002. Second, the convergence analysis explains that poor province has higher GDP per capita growth and grows faster than rich province, with the level of revenue proportion of oil and gas and the population growth as the significance determinant. Third, the paper confirms that the level of human capital, capital fixed investment, and revenue proportion influences poverty rates. In later regression, it was also found that revenue proportion shifts after decentralization did not have significance effect, despite the shift of revenue share is the fundamental of decentralization law.

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