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# The Impact of Government Budget shifts to Regional Disparities in Indonesia: Before and After Decentralisation\*

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*Since its independence, Indonesia has experience a rapid and uneven economic growth. The financial crisis in 1998 has led Indonesia to decentralisation with a new political and government budget order in 2001. Researches found that the local government's main expenditure are on routine spending, such as wage and asset maintenance, not on the development spending.*

*Using macroeconomic data from 1993 to 2005, this paper aims to overview the inequality in Indonesia regions before and after the decentralisation. The paper deploy a set of data on inter government fiscal transfer, expenditure rate, and the level of revenue as a proxy variables to understand the effect to inequality. In this paper we will overview the level of disparities by using various methods and also the shifts of regional inequality over time. It is suggested that inequality level is still severe and convergence rate has decrease throughout the decentralisation era. Impacts from inequality can be detected although weak and fluctuated over time.*

*Key words:* Indonesia Decentralisation Government Budget Disparities Local Revenue

## **1 Introduction**

Since the 1970s there has been strong wave towards decentralisation among countries, both developing and developed economics. Besides political and administration shift, fiscal decentralisation is seen as a tool to achieve efficient resources allocation and promote development objectives (Seymour *et al*, 2002). Furthermore, fiscal decentralisation is considered to 'escape the traps of inefficient governance, macroeconomic instability, and inadequate economic growth in which they have become mired in recent years' (Seymour *et al*, 2002). Other supporters argues that fiscal decentralisation enables local governments in a better position to understand and provide better public services and goods that merit local needs. In addition, with decentralisation, local government are more closely to its people so they may have greater drive to practice better fiscal responsibilities in terms of general public service (Lin *et al*, 2000). Globally, decentralisation has been seen as a new insight with numerous studies on intergovernmental fiscal. Following its politic era shifts in 1998, Indonesia begins decentralisation era with two important Law of decentralisation, Law 22/1999 and Law 25/1999. Law 22/1999 contains the administration of decentralisation arrangement between the central, provincial, municipality/regency, and village government. Meanwhile Law 25/1999 details the fiscal decentralisation between government levels.

However, in Indonesia administration as well as fiscal decentralisation has been critique that it may increase disparities that has been occurred in Indonesia since years. Looking at the fiscal share, the central government continues to dominate Indonesia's public finance through its domination in income tax, oil and gas tax and value added tax. Despite many empirical studies have been conducted on the both Law, there has been lack of studies on the association between fiscal decentralisation and regional disparities for developing countries in general and Indonesia in particular. This research overviews the relationship between fiscal allocation between central and provincial governments, and its effects to disparities in Indonesia during 1993-2005. Although this research follows many previous studies in the field, the research are based on Indonesia fiscal decentralisation, which are uniquely and

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distinguished from other countries practice. In addition, it also should be noted that since Indonesia decentralisation is at the municipality/regency level, this study should be a first stage to understand the fiscal decentralisation effect to the disparities among regions in Indonesia.

The paper will proceed as follows. Section 2 we will overview decentralisation and fiscal reforms in Indonesia, and a brief theory on convergence and disparity. Section 3 discusses will test the impact of fiscal decentralisation to inequalities among provincial development using panel data and section 4 report the conclusion of this study.

## **2 Indonesian Decentralisation**

### *2.1 Indonesia Decentralisation*

After financial crisis took effect in 1997, Indonesian politics changes from stable authoritarian regime to constantly under attack from many sectors of societies, which eventually pushed democratic reform (Seymour *et al*, 2002). The movement caused violent and peaked with the end of the “New Order” regime. Following the financial crisis and political changes, Indonesia begins its decentralisation era. The “Reform” regime starts with region autonomy through the Law No 22/1999 concerning decentralisation, granting regional autonomy and Law No 25/1999 concerning fiscal administration between centre and regional governments.

According to the literature, there are two types of decentralisation, the de-concentration and devolution administration (Rondinelli, 1990). De-concentration is known as the division of power central government to its local organization. It can be viewed, that in association with organizing principles, de-concentration is a bureaucratic and administrative decentralisation. This type of decentralisation forms in field and regional administrative offices and usually in a specific government function. On the other hand, decentralisation is a process of democratic and political decentralisation, administrative by local and regional governments. It is also know as the devolution of power. It can be seen that, while de-concentration only delegates power of administration from central government to local authority, devolution transfers the administrative and political power to local governments (autonomous regions).

Decentralisation are divided into four types, which are (i) de-concentration in which only administrative that are given to the region, but political decision and law are produced by the central government. Until 1997, Indonesia applied to this type of decentralisation. (ii) delegation to autonomous organization in which central government delegate power to organization on a particular subject, then (iii) central government transfers power to the non-governmental organization, which are in a particular time period and on a specific case. Last, (iv), devolution in which was form to strengthen independent level of region government to manage its region with no overlapping function, that if combine with central government will form total government administration.

In Indonesia, decentralisation is formed in three levels, provincial, municipality/regency, and village. Municipality and regency are at the same government administration level, a level between the provincial government and village administrator. The difference between the two is that municipality is dominated with urban activities, including manufacturing, trade, service, and hospitality, meanwhile regency economic activities are driven by more rural-based sectors, such as agriculture and agro-business (Nurcholis, 2005).

According to the decentralisation Law 22/1999, decentralisation at the provincial level is in the de-concentration and devolution form, on the other hand, municipality/regency and village operates in the devolution form. While provincial decentralisation is considered as “the extended arm” of Central government, municipalities/regencies administration are in complete control of their region. In other words, provincial government are both de-concentration and devolution, while municipality/regency governments are in devolution form. Decentralisation excludes several sensitive sectors as central government’s responsibility (Chandra, 2008). 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. The law also stated that regions could form cooperation with other organisation in a foreign country, both public and private owned. Regional governments through domestic and international cooperation should utilize these opportunities.

Islam (1999) argued that the result of the level of decentralisation is a significance disparity, both among provinces and municipality/regency. In his example, effective and decent administration within a region will lead a region to earn large share of provincial fund and left other regions to compete for the remaining fund. Furthermore, he claims that the law may also encourage inefficient development, with two or more neighbouring regions could develop the same infrastructure. Not only overlapping services, this decentralisation may also limits people from one region to lose public service from another region (Islam, 1999). While may not too emerge in the provincial level, in municipal/regency level the increasing “region-ego” with favouring “putra daerah”/native people to work in local government and run political positions seems to be more visible.

According to Law 22/1999, decentralisation government leaders are elected through political election, and at the provincial level it is govern by a governor and at the municipal/regency level is mayor/head of regency. The municipal/regency government are also responsible to decide political decision such as government acts, regulations, and responsible in implementation. The functional office is an autonomous and under the municipal/regency government. While the provincial government besides administrate its own provincial governments, it also coordinates the central government’s agencies in the province, such as in the field of administration office in education, religion, transport administration, etc.

## *2.2 Fiscal Decentralisation*

This section will discuss briefly on central government role before decentralisation. Indonesia central government spending has two categories, routine spending and development spending. Routine budgets are consisted of expenditures on wage and asset maintenance, meanwhile development budget compromise of government spending on development related expenditures such as construction of infrastructure and other capital expenditures. Despite its significant role as a direct influence on present and future level of public service and important role in economic activities, development budget shares only 20% of total central government budget and 35% of sub-national expenditure. Before the decentralisation, Indonesia had the highest government expenditure in 1980/1981 at 24% of the GDP, due to the high revenue from the oil export. The condition change when Indonesia was hit by the oil price shock that effect the government to borrow foreign fund and aid. It leads to non-oil manufacturing reform tax in the 1980s. Eventually, Indonesia had rapid revenue increase form the non-oil industries sectors. In just five years, revenue ratio of non oil sectors to GDP rise from 10% in 1989 to 14% in 1995 while the revenue from oil continue to decrease to 26% in 1999.

At the peak of the second oil shock, I 1980/1981, total government expenditure around 24% of GDP, which was the highest percentage in Indonesian history (Booth 2005). The expenditure shares of GDP decline in the end of 1980s to 8% and increase again up to 16% in 1990s. Moreover, during 1980-2000, private investment share grew from 50% to 73%. The figure fell to 12 % in 1983 and 8% in 1989. This fall has increases the national debt to foreign charge to 7% of GDP in 1988/1989 from foreign aid and borrowing, although it fell after 1990. During the crisis, Indonesia GDP growth decline from 13.1% in 1998 to 4.9% in 2000. Almost 50% of government expenditure was allocated for interest payments, especially for petroleum subsidies and bailout of system (Kuncoro, 2007). This increased the foreign debt banking, and liability and development expenditure drop to under 3% in 2000, compared 5.5% in 1994 (Tambunan, 2006).

After the financial crisis, Indonesia expenditure varies, both in government scale and classification. In 2001, education and culture has the highest share in central spending at US\$ 9.914 million and at the sub-national level is dominated by trade and transport with 25.5% share of total. In the same year, overall central government spending shares 41% in regions and increase up to 72% in 2005. In the sub-national level, trade and transport sector share

one-third of total development spending by both district and provinces. In addition, district level government focuses on regional development and environment with almost 20%, while province spends 25 % of its budget for state apparatus and control. This shows the difference of main focus of each sub-national level in accordance to the decentralisation law. Based on public spending equity, the uneven of total amount spent in province level is the highest, followed by district and national level in 2001. This could also be one of the evidence that supports decentralisation should be at the district than at the province. Table 1 describes government's expenditure classification.

Indonesia has been a highly decentralised country only in three years since the law implemented (Table 2) (Brodjonegoro, 2003). In Law 25/1999 and its revised comparison summary (Table 3), it can be seen that the decentralisation has offer more proportional share. The proportional share between the governments (central, province, and municipalities/regency) is based on each region's revenue they generate and also allow them to generate their own revenue (Seymour, 2002). In the first law, 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 decentralisation 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, decentralisation will cause disparities between rich and poor regions more significant.

Disparities in Indonesia have been severe compared with other countries, especially since the financial crisis in 1997. The decentralisation of regional government itself recently has been viewed to increased the disparities, rather than decrease it (Aritenang, 2008). In order to improve that, a new decentralisation Law in 2004, which replace the decentralisation act 1999, states that 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 attracts debates since on one hand, it is acceptable due to the fact that the region has to develop its area based on local resources, and on the other hand, with higher revenue share, prosperous regions will have faster economic growth. In addition, not only increases disparities between municipalities/regencies, larger revenue share will allows provincial government to build infrastructure cross municipality/regency, that will benefit the municipality/regency within the province and rise disparities with other provinces.

**Table 1**  
**Government Expenditure Sector Classification**

No	Sector
1	Primary
2	Secondary
3	Trade and Transportation
4	Education and Culture
5	Health and Welfare
6	Regional Development and Environment
7	State Apparatus and Control

Source: Brodjonegoro, 2003, BPS, Author's calculation

**Table 2**  
**Local Expenditure in Indonesia, 2001-2005**

	2001	2002	2003	2004	2005
Local Expenditure/ Central Expenditure	35.8	47.19	37.73	42.34	41.93
Local Expenditure/GDP	6.14	7.07	4.93	7.82	8.6
Local Development Budget / Central Development Budget	72.28	19.36	10.02	14.25	5.22

Source: Brodjonegoro, 2003, BPS, Author's calculation

**Table 3**  
**Comparison Balance Fund: Level of 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		
	Local Government proportion within Province (%)	Central Government proportion (%)	Provincial Government (%)	Municipality/Regency Government (%)	Other Municipality/Regency in the same Province (%)	Central Government proportion (%)
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	-
Acquisition of land and building rights	20	80	20	16	64	-

Source: Brodjonegoro, 2003, BPS, Author's calculation

### 2.3 Critiques for Indonesian Devolution

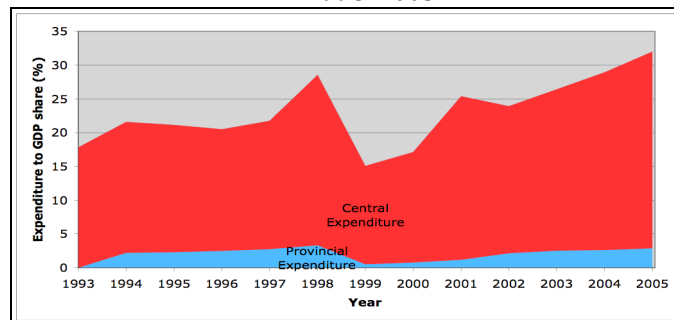
This subsection will introduce a brief critiques and discussion that may shed light furthermore on Indonesia devolution. The first critique is the level of autonomy is at the municipality/regency level, rather than the provincial level. The critique were on the fact that the provincial should have more capacities on human capital, administration capabilities and other resources than the lower level government. But the decision become understandable if we consider this was to prevent province, with its large size and resource, to be too powerful in terms of political and financial power, which then may jeopardize Indonesian unity. This also to prevents the possibility of excessive control by the provincial government over some strategic industries and natural resources. The official reason is that to be able the municipality/regency government be closer to their voters and people (Seymour *et al*, 2002). Islam (1999) argues that this devolution will be controllable for the central government to handle small and numerous municipalities/regencies than a few large provinces. He also analyzed that devolution will cause greater disparities, because efficient provinces and municipalities/regencies will earn larger share than others. In addition, it will lead to inefficient development with cases that municipalities/regencies will build their own facilities and hence oversupply of infrastructure may become one of the effects of the devolution.

Second critique, related with the human capital capacities, numerous papers argues that municipalities/regencies officers are not ready for the devolution (Seymour *et al*, 2002). The authors are supported by SMERU research, in which stress that level of education and management capabilities, at both executive (government) and representative assembly (local parliament) are weak and has not function as an accountable and transparent bodies (Seymour *et al*, 2002). Third, it is also critiqued that the type of the intergovernmental transfer in a form of DAU (CAF) are still favoured regions with rich natural resources, as can be seen form the balance funding sharing scheme. The specific regulation of DAU that ensure regions fiscal transfer will not decrease on the following years, will also worsen the situation. The policy on CAF that is "hold harmless" that ensures regions CAF allocation for current year may not be less, in nominal terms, than the previous year, has made inequality further. Beside that, revenue of own source revenue (OSR) is also uneven with a comparison of the highest and lowest achiever at 510 between districts and 47 between provinces in 2002. This will impact further disparities, with rich regions are more funded and poor regions share become lessen.

## 2.4 Fiscal Status

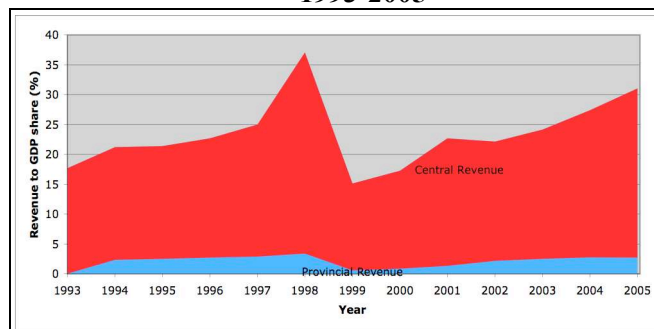
Government spending in Indonesia can be divided into two types: routine expenditure and development expenditure. Figure 1 shows budgetary spending for both central and provincial government to GDP. The figure shows the changes budgetary expenditure between 1993 and 2005, in which government expenditure rose from 17.8% to 31.9%. Continually, government expenditure ratio to GDP always increased except for the sharp declined during the financial crisis. The ratio during the crisis fell from 28.5% in 1998 to 15.1% in 1999, before it increased steadily again. Currently, there is an upward trend on the ratio indicating that government expenditure is peaked.

**Figure 1**  
**Expenditure Share to GDP (%)**  
**1993-2005**



Source: BPS, Author's calculation

**Figure 2**  
**Revenue Share to GDP (%)**  
**1993-2005**



Source: BPS, Author's calculation

## 2.5 Relative between central and provincial fiscal (800)

Literature in this field suggested that fiscal decentralisation is measured as a ratio of local government's spending and revenue to central government's spending and revenue collection (Zhang *et al*, 1998). However, this is not the case for Indonesia fiscal arrangement before the financial decentralisation. Before 2001, local government collected revenue locally, but it was not spent locally rather it was levied by central government. After the decentralisation, local government was able to collect locally and only a certain amount was remit to the central government. As can be seen from Figure 4, provincial expenditure only accounted for between 0.2% to 3.3% on the ratio between total government spending and GDP. Moreover, the share also decreases during the financial crisis from 3.3% in 1998 to 0.5% in 1999. The present ratio increase also occurs in the provincial share, although it has not peaked the rate in 1998.

In addition, provincial government spending was 2.02% of GDP and account for 10.2% of total government expenditure in 1993. These shares become 2.8% and 8.9% in 2005, respectively. These do not indicate significant progress in the fiscal decentralisation during

the study time range. However, if it is analyze after the decentralisation Law, it has a rapid fiscal devolution with 3.4% in 1999 and increase to 9.5% in 2003.

### 2.6 Convergence Concept

Convergence concept is a concept that explores to define economic performance cross countries/regions, in order to view whether economic convergence has occurred. The first method is the  $\alpha$  convergence and second is the  $\beta$  convergence. First,  $\alpha$  convergence refers as a decline in variation of income per capita within a country/region over time, which  $\alpha_{t+1} < \alpha_t$ , where  $\alpha$  is the standard deviation of income per capita. On the other hand,  $\beta$  convergence relates with the sign in which a relationship between growth income per capita and its initial level. If negative relationship occurs, then it can be explain that poor regions experience faster growth than rich economic regions and hence, there are convergence over time within the country (Barro *et al*, 1995).

The basic equation for a region N with annual data that are available for per capita income is approximated by:

$$\ln(Y_{it}) = \alpha + (1 - \beta)\ln(Y_{it-1}) + \varepsilon_i \quad (1)$$

Dependent variable is the  $Y_{it}$ , the GDP per capita growth, as the net log of per capita income,  $\alpha$  and  $\beta$  are constant, with  $0 < \beta < 1$  and  $\varepsilon$  is the disturbance term. The term  $\beta > 0$  refers that  $\beta$  convergence because annual rate is inversely related to  $(Y_{it-1})$  and higher value of  $\beta$  shows higher degree of convergence. Theoretically,  $\beta$  convergence is a necessary condition for  $\alpha$  convergence to exist, but it is not sufficient to ensure the occurrence of  $\alpha$  convergence. This is because it may rise of fall towards steady state depending on the initial value.

## 3 Empirical Estimation

### 3.1 Variables and estimation

The data are mainly gathered from Indonesia Bureau of Statistics (BPS) and Ministry of Finance (MOF). Data from the BPS are available through the Annual Statistical year book and other unpublished resources, meanwhile the data on fiscal decentralisation are obtain from the MOF website in the national and regional budget history data. This research uses the provincial data for 26 provinces for its analysis convenient – after disintegration of East Timor in 1998 and before decentralisation in 1999- and due to data availability, this research are studied in the period 1993-2005, in Indonesian Rupiah currency.

This research will use the panel data analysis to estimate the impact of independent variables to the dependent variable and utilize the econometric regression in fixed-effect to control individual differences between provinces that do not varies across period (Jennifer, 2008). As been described, all disparity level is measured using the convergence concept by Barro and Sala-I-Martin (1991). The absolute convergence equation (2) implies that the economic growth, denoted by GDP per capita  $\Delta Y_{it}$ , is determined by  $\alpha$  convergence and  $\beta$  convergence.

Meanwhile, the conditional convergence is absolute convergence added with explanatory variables. In this study, the explanatory variables consist of three types data, which are  $I_{it}$  is vector of time-varying control variables,  $Z_{it}$  a vector of fiscal decentralisation variables, and  $D_{it}$  is a vector of distance variables.

$$\Delta Y_{it} = \alpha - \beta Y_{it-1} \quad (2)$$

$$\Delta Y_{it} = \alpha - \beta Y_{it-1} + \alpha_2 \Delta I_{it} + \alpha_3 \Delta Z_{it} + \alpha_4 \Delta D_{it} + \varepsilon \quad (3)$$

The dependent variable is the natural logarithm of income per capita growth in each province for the period, using per capita GDP. The determinant of disparity index is noted as the initial GDP per capita, as LAG. This variable sign indicates the occurrence of



convergence development among provinces. The negative sign explains that convergence economic growth is taking place in the economy. This research uses inequality variable ( $I_{it}$ ) in a form of physical capital as in Rivas (2007), an approximate for this variable is using the value of approved foreign direct investment in each province, CAPITAL. This data shows the total foreign capital and the impacts it has on the provincial growth. This variable is expected to have a positive significant sign indicating high level of capital in a certain province will increase economic growth.

Additional variable included in this research is the logged population growth, POPGROW, used to control large population between provinces (Logan, 2008). In addition, educational rates, HC, are included to overview the difference of human capacities between provinces. The data are collected as the ratio of high school students to total population within the province. This approach is used because high school graduates could be regarded as a high skill worker, considering the nation's minimum compulsion education is junior high school. This variable is expected to have a positive relationship with economic growth.

The fiscal decentralisation ( $Z_{it}$ ) variable data are can be located from the MoF website in the budget history section. The first variable is the growth of ratio between local revenue and CAF revenue, FISCAP. Low ratio means that the province is heavily dependent on central government transfer fund. This variable is expected to have a positive sign because higher ratio explains that provinces are autonomous and self-sufficient, leading to higher economic development across provinces. Other fiscal decentralisation variables are the ratio of provincial fiscal to central revenue and expenditure, referred as REVDES and EXPDES.

To gain more specific explanation, this paper uses the ratio of routine and development expenditures to GDP in each province, these variables are considered to increase during the decentralisation compared before, ADMIN and DVLP respectively. I used the ratio to get the expenditure value relative to provincial GDP, rather than expenditure *per se*. Using this ratio we can view the effect of the expenditure to economic growth, regardless its nominal value. The routine expenditure includes expenditure on government officer wages and training, and government service expense. Another fiscal decentralisation is the ratio of provincial and central share in revenue from oil and gas industry, OILGAS. This variable indicates the effect of changes in revenue sharing between provincial and central government. Unfortunately, there are no data on tax revenue included in the fiscal decentralisation besides natural resources tax revenue (income, company and land tax) for each provincial as in Table 3. The data are included in the individual provincial whole revenue data as above. This limits the capacity of this paper to explain the impact of changes in fiscal decentralisation to disparities among Indonesian provinces.

The last explanation variable is the distance variable ( $D_{it}$ ) that constructs interaction term to estimate location effect in different time period. The distance is calculate in kilometre, km, from each province capital city to the Indonesia's capital city, Jakarta, as where the central for government and economic activities. This distance is gathered from website [www.mapcrow.info](http://www.mapcrow.info), which use each city's spatial information on latitude and longitude measurement as a reference to calculate the distance between cities. Afterwards, the study uses interaction term between the distance and variable on the ratio between local revenue and intergovernmental transfer (CAF), as DIST. This interaction term inform possible correlation between distance and fiscal decentralisation to economic growth. The author expects to observe positive and significant link between a provinces distance to the capital city due to larger economic spillovers and intergovernmental relationship.

## 3.2 Regression result

### 3.2.1 Absolute Convergence

The first analysis is the absolute convergence to overview the general convergence process among Indonesia provinces. The result is reported at table 3 for several analyses. Column (1) in Table 3 implies that there are a significant convergence in Indonesia provinces during 1993 – 2005 at a rate of 0.32 explaining that with 99 per cent of confidence, it is argued that poor provinces growth rate is higher than provinces with higher initial GDP level at a rate of 32% annually. However, if we look based on time-event, the convergence among

province before the financial crisis in 1993-1998 had a significant and higher speed rate at 68 per cent annually. As for after the financial crisis between 1998 – 2005, negative sign showing that converging is still progress with a rate at 9.6 per cent and insignificant. In addition, column 4 shows that since the implementation of decentralisation in 2001, the convergence rate has slightly increase to 11 per cent.

The regression could only explain by 5.3% of variance of economic growth with 338 observations through 13 years sample period. In addition, the regression could explain more variance in the years before decentralisation between 1993-1998 than after the implementation of devolution at 12%. This shows that after decentralisation, provincial economic growth is determined by more factors beside its initial GDP per capita. This is a prove that policy and law changes during the decentralisation has impacted provincial growth, such policies that may took place are decentralisation and fiscal decentralisation, Indonesia's commitment to numerous free trade agreements, and social characteristics such as human capital and population growth.

**Table 4**  
**Absolute Convergence in Various Periods**

	(1)	(2)	(3)	(4)
	1993 – 2005	1993 – 1998	1998 – 2001	2002 – 2005
Yit-1	-0.3174*** (-4.45)	-0.683*** (-3.88)	-0.103 (-1.23)	-0.117 (-1.25)
Adj R <sup>2</sup>	0.0528	0.1199	0.005	0.0055
Obs	338	230	104	104

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

### 3.2.2 Base Case

Our base regression uses the inequality variable and the decentralisation variable as conditional convergence regression. As can be seen in Table 5, during the whole study period convergence consistently occurs but with different speed rate based on the specific event that follows, with higher convergence rate compared with the absolute regression. The results in the table suggest an interesting finding because it reports different impact of fiscal decentralisation sector and time-event effects to disparities. Furthermore, this subsection aims to analysis the effect of financial decentralisation, also its Law revision in 2002, to provincial disparities.

Results in table 5 are divided into four time frame, which are the whole period analysis, before the financial crisis, after decentralisation and after the revision of the decentralisation politically and fiscal regulation. This division is applied to overview the impact of variables on throughout the period. In the entire period analysis, Indonesia provinces are experiencing economic convergence and economic growth, despite financial crisis that occurs more than a decade ago. This convergence growth explains that there are tendencies that poor provinces have higher growth rate than advance provinces.

As shown in column (1), throughout the study period, the base regression variables are mainly significant at 1 % and the finding explains almost 27% of the sample variance. But this analysis is not accurate because during the period, there was an important event, causes by financial crisis 1997, which lead Indonesia to political and fiscal devolution in 1999. For the entire period, population growth is a significant burden to discourage economic growth economic growth, shown with negative sign. An increase of 1 % in population growth will decrease economic growth 7.508 % before decentralisation and more than 8 % after decentralisation. In other words, population growth effect does not vary before and during the decentralisation.

**Table 5**  
**Basic Conditional Convergence in Various Periods**

	(1)	(2)	(3)	(4)
	1993-2005	1993-1998	1999-2005	2001-2005
LAG	-0.74*** (-6.20)	-0.922*** (-5.83)	-0.0201** (-3.00)	-0.133 (-1.64)
POPGROW	-10.21*** (-7.50)	-7.508 ** (-2.92)	-8.54 *** (-5.84)	-7.57*** (-4.99)
OILGAS	15.42*** (3.91)	1.77** (3.22)	0.5708* (2.53)	0.181 (-0.66)
CAPITAL	-12.5*** (-3.55)	-129.1** (-3.75)	-18.89*** (-3.72)	-12.11* (-2.23)
EXPDES	1.12*** (4.28)	8.008 (0.37)	14.46*** (-5.30)	11.96 (1.64)
REVDES	-31.34*** (-4.42)	0.450 (0.05)	15.51*** (4.84)	-12.38 (-1.6)
Adj R2	0.2696	0.3384	0.2570	0.1819
Obs	338	130	208	130

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

We start the temporal analysis with column (2) that explains results for development before decentralisation. With higher R square at 34%, the findings in this period explains more than in other period. Before decentralisation, the amount of fixed capital within the province and oil and gas revenue share determines economic growth, holding other variables constant. Column (3) confirms that this is not the case for after decentralisation, besides capital and oil and gas revenue share, both provincial expenditure and revenue share has significant influence on economic growth, denoted with EXPDES and REVDES. It can be seen from the comparison between columns (3) and (4) that fiscal share is important during the decentralisation. It is expected that provinces with higher share in expenditure and revenue will gain higher economic growth after 1999.

Column (4) shows the findings for regression after the implementation of the new fiscal Law. This regression finding does not explain the period variation as in the previous regression because it has lower R square. In this last regression, the fiscal decentralisation variables do not have significant effect to economic growth and even, the share provincial revenue may discourage economic growth.

### 3.2.3 *Alternative Measurement*

Table 6 reports the result of the conditional convergence using both ordinary least square (OLS) and panel data analysis fixed effect (FE) to estimate equation (1) in column (1) and (2). Following Resosudarmo and Vidyattama (2006), for the panel data analysis we use random effects to avoid inconsistency. The method also uses Hausman test to demonstrate that there is significance difference in fixed effect estimation with OLS and random effects. The results shows that panel data with fixed-effect analysis the initial GDP per capita has higher effect than with the OLS regression. A 1% increase on initial GDP per capita level only effect convergence rate at 0.88% while in the panel regression the convergence increase between 3.13% and 4.7%. This finding also confirms the previous section that initial GDP per capita influence more to economic growth before the decentralisation than after.

**Table 6**  
**Alternative Conditional Convergence in Various Periods**

	(1)	(2)	(3)	(4)
	OLS	FE	FE	FE
	1993-2005	1993-2005	1993 – 1998	1999 - 2005
LAG	-0.876 *** (-8.18)	-3.35*** (-24.26)	-4.7*** (-21.37)	-3.13*** (-8.07)
POPGROW	-0.188 ** (-3.3)	-0.04 (-1.04)	-0.87 (-0.86)	-0.075* (-2.61)
OILGAS	1.77*** (5.6)	5.84*** (6.97)	9.91*** (3.72)	4.11*** (4.37)
CAPITAL	--42.31 (-1.89)	-45.3** (-1.04)	-74.3 (-0.7)	-7.27 (-0.72)
HC	-27.79 *** (-5.00)	--34.5*** (-8.69)	-45.78 (0.91)	-36.1*** (-14.75)
DIST	0.00013 (1.32)	0.00042*** (3.79)	0.002*** (3.44)	0.000267** (2.85)
FISCAP	0.207** (2.96)	0.069 (0.97)	0.013 (0.04)	0.02 (0.35)
REVDES	25.29 (1.57)	6.15 (0.6)	-6,07 (0.12)	12.59 (1.79)
EXPDES	18.46 (1.02)	40.05** (2.78)	121.709* (2.49)	-1.48 (-0.1)
ADMIN	4.2 (1.59)	4.803** (2.78)	-53.5** (-2.67)	9.31*** (5.35)
DVLP	13.02 (0.57)	5.37 (0.36)	-136.9 (-1.38)	-6.0001 (-0.6)
Adj R2	0.3211	0.16	0.3101	0.3101
Obs	338	338	146	182

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

A similar result was also found in the oil and gas revenue share. As results for all time period are positive and highly significant, the share from natural resources revenue has more impact before the implementation of the decentralisation law. Before decentralisation law in 1999, holds other variable constant, an increase on oil and gas revenue share of 1 % may increase the economic growth to 9.91% and it decrease to only 4.11% after the decentralisation era. This result is evidence that the decentralisation on oil and gas would promote disparities between provinces. Another interesting finding is the sign and significance of the human capital variable. In all column, human capital coefficient are negative and this could be interpreted that high school graduates tend to be a liable for the economic growth due to their low job rate employment. This suggest that Indonesia needs to established high schools that prepares specific skills for those who will not go for further education, such as vocational school in Europe. Human capital is significant as a determinant of economic growth during the decentralisation than before. This could be interpreted that, to achieve higher economic growth, the quality of human resources in Indonesia are more important now than ever and we should have more ratio of population in the higher education

than high school. Further more, this variable also shows that larger difference rate on human capital annually will increase inequality between provinces, in terms of the disparity between regions.

The DIST variable result indicate that the distance from capital city, Jakarta, may influence the impact of FISCAP variable to the provincial disparities. The variable occurs to be positive and significant for all regression, shows that, *ceteris paribus*, the further the distance from the capital city, Jakarta, the higher the effect of FISCAP variable to increase economic growth. In other words, FISCAP variable may not have significant impact to increase economic growth in provinces near Jakarta. The result shows that the interaction term had more effect before the decentralisation than after the new law implemented. In all regression, the ratio of local revenue and intergovernmental-transfer, FISCAP, remains not significant and has a very low impact on economic growth. This result proofs that central government's role on providing the accurate intergovernmental-transfer amount has more effect during the devolution than before.

The whole period analysis shows that the expenditure and revenue share of provincial government has different effect between the periods. Provincial expenditure has negative effect before decentralisation and supports economic growth afterwards. On the other hand, provincial revenue is highly significant encourages economic growth during the new regime and it become a burden during decentralisation era. On the other hand, the share of administration expenditure, ADMIN, has become highly significant to enhance economic growth in the decentralisation era than in the new regime. We can see this in reality as skilful bureaucrats and efficient public service will create effective local government. This is also assisted by Indonesia government's commitment to establish clean government and corruption free administration.

#### *3.2.4 Impact of financial decentralisation variables*

The last analyses set is the impact of fiscal decentralisation variables alone to the economic growth in Table 7. It can be analyze that decentralisation promote convergence in Indonesia province development as all LAG variable are negative and significant. The column (1) describes the effect if all decentralisation variables are included. All variable are significant, except the EXPDES variable. The result in column (1) suggested that the share of revenue in natural resources and local revenue growth determines the economic growth significantly at a confidence of 99%. Moreover, the share of provincial revenue to central revenue and provincial expenditure will influence the economic growth at different direction. Higher provincial revenue will create more capital for province to develop, thus the variable has a significant positive effect to economic growth. In addition, an unexpected result is found in the impact of provincial development budget ratio to GDP. This could be explain that with higher development expenditure may increase development for a certain provinces and eventually this will encourage disparities between provinces. This condition will be a problem for the whole national economic growth.

Column (2) in Table 7 sets to omit fiscal expenditure sectors. The result is that the convergence speed has been depressed from 3.2% to 3.12%. This shows the significant influence of the variable to economic growth. In addition, provincial revenue share and fiscal capacity effect has decrease with the exclusion of these variables. On the other hand, the impact of provincial oil and gas revenue share increase in 1% will increase the economic growth by 6.2%, if there were no expenditure on administration and development. Column (3) explores the regression if the provincial expenditure ratio to central expenditure is excluded. In the two previous regressions, the EXPDES remain insignificant with different signs, however this variable is important since omitting this variable the regression could only explain variance in the sample by 11.61% compared with 13.07% when EXPDES is included. Furthermore, excluding this variable also decreased the effect shares of oil and gas, provincial revenue, and fiscal capacity.

Overall, this last regression shows that financial decentralisation has a significant role to promote convergence development in Indonesia. The oil and gas revenue share, fiscal capacities and provincial revenue are among the significant variables to sustain economic

growth in Indonesia. Together with strengthening human capital in the ADMIN variable, provincial government should raise the above revenues to ensure sustainable economic growth and discourage disparities among provinces.

**Table 7**  
**Financial Decentralisation Variables**

	(1)	(2)	(3)
LAG	-3.2 *** (-22.4)	-3.12 *** (-21.78)	-3.12 *** (-21.83)
OILGAS	5.67*** (6.04)	6.2*** (6.46)	5.63*** (5.88)
FISCAP	0.23*** (3.85)	0.23*** (3.82)	0.15 *** (2.63)
ADMIN	3.77 * (2.42)		4.64 ** (2.95)
DVLP	-23.38*** (-3.90)		-18.2** (-3.07)
EXPDES	-0.52 (-0.05)	47.63 (0.55)	
REVDES	56.48*** (3.61)	47.442** (3.09)	23.65* (2.48)
Adj R2	0.139	0.1307	0.1161
Obs	338	338	338

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

#### 4 Conclusion

In this paper we have viewed several variables that determine economic growth and development convergence among provinces in Indonesia. Indonesia decentralisation law in 1999 has changed the fiscal arrangement between central and local government completely, with local government has autonomous responsibilities to organize its expenditure based on new revenue sharing scheme. Although the full decentralisation is on the municipality/regency level, nevertheless this paper could give brief insight on the current situation of a fiscal decentralisation and how it effect development convergence in Indonesia.

From the findings we can sum up that Indonesia development are still heading convergence growth, with poor province have more rapid economic growth than rich countries. However, the speed of convergence has been depressed by the financial crisis in 1997 and it has not shift during the decentralisation. The fiscal decentralisation variables are significant attribute to gain economic growth and convergence. All our fiscal decentralisation variables positively effect, except the DVLP variable. The OILGAS, FISCAP, and ADMIN variables are the most influential variables to achieve effective growth.

On the other hand, provincial expenditure on development is regarded unnecessary, as it is more for municipality/regencies expenditure. In addition, other determinant of growth includes variables such as revenue shares from population growth and human capitals are crucial local based characteristics that determine provincial growth. This is especially during decentralisation era, in which local government are responsible to develop territorial autonomously and manage these local resources to sustain and enhance its provincial economic growth. Hence, higher expenditure on public administration, including local government wage, training, and improving public service, should be considered to provide effective governance in the sub-national level government.

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## References

- Akita, T., and Lukman, R.A., 1995, Interregional Inequalities in Indonesia: A Sectoral Decomposition Analysis for 1975-92, *Bulletin of Indonesian Economic Studies* 31 (2), pp. 61-81
- Aritenang, A.F., 2008, A Study on Indonesia Regions Disparity: Post Decentralisation, N-AERUS Workshop: Edinburgh, United Kingdom
- Barro, R.J. & Sala-i-Martin, X., 1991. Convergence across States and Regions. *Brookings Papers on Economic Activity*, 22(1991-1), 107-182.
- Barro, R.J., and Sala-I-Martin, X., 1995, *Economic Growth*, McGraw-Hill, New York.
- Booth, Anne (2005) 'The Evolving Role of the Central Government in Economic Planning and Policy Making in Indonesia.' *Bulletin of Indonesian Economic Studies*, 41 (2). pp. 197-219.
- Brodjonegoro, B., 2003, The Indonesian Decentralisation after law revision: Toward a better future?, Department of Economics, University of Indonesia.
- Chandra, A.C., 2008, *Indonesia and the ASEAN Free Trade Agreement: Nationalist and Regional Integration Strategy*, Plymouth: Lexington Books.
- Indonesia Ministry of Finance, [www.depkeu.go.id](http://www.depkeu.go.id), access March 1<sup>st</sup> 2009.
- Islam, I., 1999, Regional Decentralisation in Indonesia, Towards a social Accord, Working paper 99/01. Jakarta: United Nations Support Facility for Indonesia Recovery.
- Indonesia Statistic Bureau, 2005, *Statistical Year Book of Indonesia*, Jakarta
- Kuncoro, M., 2007, *Ekonomika Industri Indonesia: Menuju Negara Industri Baru 2030?* , Jakarta: ANDI Publication
- Lin, J.Y, and Liu, Z., 2000, Fiscal decentralisation and economic growth in China, *Economic Development and Cultural Change* 49(1): 1-22.
- Logan, J., 2008, Belted by NAFTA? A Look at Trade's Effect on the US Manufacturing Belt, *Regional Studies*, 42:5, 676-687
- Nurcholis, H., 2005, *Teori dan Praktek Pemerintahan dan Otonomi Daerah*, Jakarta: PT. Grasindo
- Resosudarmo B.P., and Vidyattama, Regional Income Disparity in Indonesia: A Panel Data Analysis, *ASEAN Economic Bulletin* 23 No 1 (2006), 31-44
- Rivas, M. G., 2007, The Effect of trade openness on regional inequality in Mexico, *The Annals of Regional Science* 41: 545-561
- Rondinelli, D., 1990, Decentralisation, Teritorial Power and the State: A Critical Response, *Development and Change* 21, 491-500.
- Seymour, R., and Turner, S., 2002, Otonomi Daerah: Indonesia's Decentralisation Experiment, *New Zealand Journal of Asian Studies* 4 (2), pp. 33-51
- Tambunan, T., 2006 *Perekonomian Indonesia sejak Orde Lama hingga Pacsa Krisis*, Jakarta: Pustaka Quantum
- Zhang, T, and Zou, H., 1998, Fiscal decentralisation, public spending, and economic growth in China, *Journal of Public Economics* 67: 221-240.