This paper analyzes the financial autonomy impact of the regions in Indonesia on the national economic growth. We applied panel data estimation on 26 provinces during 1990-2011, divided into three intervals of periods: long term 1990-2011, prior decentralization 1990-2000, and post decentralization 2001-2011. The estimation result shows that financial autonomy proxied by fiscal decentralization degree positively affects the growth of the national economy. However, estimation on each region shows that per capita income positively affects the economic growth only in Java and Bali, and is limited to the long period (1990-2011). These findings lead to an inclusive conclusion about the positive impact of fiscal decentralization on economic growth.

Keywords: Unemployment, income distribution, inflation, fiscal policy, investment

JEL Classification: E22, E24, E31, E62

1. Senior researcher on Central Banking Research Department, Bank Indonesia. (emmy@bi.go.id)
2. Researcher on Bank Indonesia Institute, Bank Indonesia (guruh_sr@bi.go.id).

The views on this paper are solely of the authors and not necessarily reflect the views of Bank Indonesia.
I. INTRODUCTION

Implementation of regional autonomy has been done in many countries, including Indonesia. Autonomy or decentralization is meant to provide better public services and a more democratic public decision-making process. The realization of this decentralized of authority from the central government to regional levels of government involves the decentralization of spending, taxes, the formation of an elected council, elect regional heads by the people, and assistance (transfer) from the central government. Decentralization generally includes political, administrative and fiscal aspects (Abhimanyu and Megantara, 2009).

In Indonesia, a serious effort to implement the decentralization was initiated after the financial and economic crisis of 1997/1998. Formally decentralization came into effect January 1, 2001, at which time the legal basis of decentralization was created by a new law, Law No.22 / 1999 on Regional Government and Law No. 25/ 1999 on Financial Balance between Central and Local Government that replaced Law No. 5 /1974. Later these laws were amended by Law Number 32 of 2004 on Regional Government and Law 33 of 2004 on Financial Balance between Central and Regional, respectively, that provides for authority and autonomy to the local government proportionately.

During ten years of the implementation of fiscal decentralization from 2001 to 2011, the regional revenues in Indonesia grew by 321.4%. The revenue increases were significantly large due to increased local revenue source of funds for tax and non-tax (BHPBP) revenues, as well as the General Allocation Fund (GAF). If we examine the revenue source, the largest component to the region is the equalization payments in the form of GAF, BHPBP, and the Special Allocation Fund (SAF), which contributed on average 73% of the total regional revenues, while the original

![Figure 1.]

Composition of Regional Revenues in Indonesia (Million Rp.)
Regional income (PAD) only contributed an average of about 17%. The low proportion of PAD compared with non-optimal fund balance indicates local governments were exploring sources of income. It can generally be said that local government revenues are still dominated by transfers from the central government in the form of GAF and BHPBP (see Figure 1).

On the expenditure side, total expenditure in the regions from 2001 to 2011 experienced significant growth. In total, regional spending grew by 430% during that period. Meanwhile routine expenditure grew 313.8%, while the capital / construction expenditure grew by 263% for the same period. Looking at the composition of their proportional spending, it turns out that local government spending was largely for routine expenses, which reached an average of 59%, and this proportion even continued to grow over time. Meanwhile, the share of development expenditure reached an average 41% (Figure 2).

The purpose of fiscal decentralization aims to meet the aspirations of the region regarding the control over the financial resources of the state, promotion of accountability and transparency of local government, increased participation of society in the process of local development, reduced inequality between regions, ensure public service minimums in each region, and to ultimately improve the well-being of society in general (Simanjuntak, 2002). This argument cannot be separated from the Keynesian argument of development cannot be achieved only through market mechanisms, but requires the role of government through budget policy.

Fiscal decentralization can be an effective tool to improve the efficiency of public spending. This hypothesis indicates that there is potential to achieve economic efficiency in the provision of goods at the local level. There is some empirical research to support the argument for the need for fiscal decentralization, to achieve the efficient allocation of public resources (Oates, 1972), among other things. Fiscal decentralization is expected to increase revenue and improve
efficiency in the public sector and cut the budget deficit and boost economic growth (according to Bird, 1993; Bahl, Linn, 1992; Gramlich, 1993; and Oates, 1993).

Zang and Zou (1998) suggested that the decentralization of expenditures and revenues would in part improve the efficiency of the public sector, cut the budget deficit and promote economic growth. The premise holds that decentralization would improve economic efficiency because local governments would provide appropriate public services according to the needs of society. In the course of time, these efficiencies are expected to lead and accelerate to local economic growth. Brothaler & Getzner (2010) and Faridi (2011) asserted the same argument as Zang and Zou that fiscal decentralization significantly boosts short-term and long-term regional economic growth.

The question is, does the above assertions apply to Indonesia – namely, does fiscal decentralization to the regions provide a positive influence on economic growth in Indonesia? This paper examines this question for 26 provinces in Indonesia for the period 1990-2011.

The following sections of this paper outlines the theory and literature review related to the issues raised. The third section presents the data and processing methods. The fourth section presents the analysis and results, while the fifth section presents the conclusions and recommendations.

II. THEORY

Fiscal policy is generally set on state revenues and expenditures comprised of three principal activities related to, i) government policies regarding the purchases of goods and services; ii) taxation policies; and iii) policy transfer payments (e.g., social security benefits, welfare payments) to households.

For many countries the revenue sources are from taxes, non-tax revenues and foreign loans. Meanwhile expenditures are allocated into expenses that are routine and for development. The development model for government spending is classified into three parts (Mangkoesoebroto, 1997) namely:

1. Government spending, where Rostow and Musgrave (1991) argued that in the development process, the greater the percentage of private investment to GDP, the smaller the percentage of government investment to GDP will be.

2. Wagner’s Law which states that if the per capita income increases, then there would be a relative increase in government spending.

3. The Wisemen and Peacock Theory holds that economic growth (as represented by the GDP) would lead to increased tax collection although tax rates would not be increased

Decentralization is a tool to improve public services and social welfare. Implementation of decentralization mainly consists of the distribution function / task / authority between levels
of government. Fiscal decentralization is usually preceded by the reform of the expenditure side, followed by the revenue side.

The history of regional autonomy in Indonesia had already begun at the time of independence. This history of regional autonomy was stopped with the implementation of a centralized governance to the New Era. Then, the journey continued with growing decentralization during the reform era in Indonesia. However, the unpreparedness of the institutions and people in the face of decentralization has resulted in vertical and horizontal imbalances.

The measure and comparison of the level of fiscal decentralization between countries can be seen by looking at the amount of authority over the revenues held by a region, compared with the amount of authority of expenditures held by a region (see Figure 3).

From Figure 3, it can be seen that the fiscal decentralization in Indonesia places more emphasis on decentralized expenditure. Thus, the implementation of fiscal decentralization gives more priority to funding sources through the transfer to the regions, which is accompanied by broad authority to spend it.

To support and accelerate the achievement of national goals, the macro-economic policies should be done through the harmonization of the direction of the fiscal, monetary, real sector and the balance of payments. To realize this, sound macro policies need to be supported by local fiscal policy in line with national fiscal policies.

In addition to the transfer of funds to the regions, the central government also allocates a large portion of fund expenditures for central priorities in the region and services to the
community, through including among other things, subsidies, deconcentration of funds and assistance, public assistance through the National Program for Community Empowerment (PNPM Mandiri) and the Community Health Insurance Program (Assurance) (Jamkesnas), and grants. When calculated as a whole, the funds flowing into the regions reached about 60% of the state budget. Picture 1 below shows the flow of Central Government spending to regions.

Fiscal decentralization policy basically follows the principle *money follows function*, where in the load delivery authority to the regions is to be followed by the delivery of financial resources to the region. Delivery of the source of funding is mainly through the handover of authority to levy local taxes and regional redistribution, and the delivery of funding through transfers to the regions.

Fiscal decentralization in Indonesia focused on decentralization on the expenditure side, thereby granting relatively limited authority to levy local taxes and regional redistribution, but the regions were given broad authority to make expenditures according to the priorities and
needs of the region. Most of the funds were transferred to the regions as \textit{block grants} (that can be used freely by a region and be fully accounted for at the local level, namely the DPRD).

To support the achievement of national priorities, the region was also given a transfer that is a \textit{specific grant} (directed for use by the Central Government), through the Special Allocation Fund (SAF) so as to maintain the link between the Central Government and the region for a program (Figure 4). To maintain \textit{governance} of the use of public funds, the management of the budget should refer to the pattern of financial management of the State as set forth in the State Finance Act package.

Transfer to region policy is intended among other things to:

- Improve the fiscal capacity of the region and reduce the fiscal gap between the center and regions and between regions.
- Align funding needs in the region in accordance with the division of government affairs.
- Improve the quality of local public services and reduce inequalities in public services between regions.
- Improve the ability of the region to encourage the regional economy.
- Support national fiscal sustainability.
- Improve the efficiency of utilization of national resources.
- Improve synchronization between national development plans and regional development plans.
Notably, the structure of the budget expenditures tends not to be proportional between routine expenditures, capital expenditures and others (Figure 5).
### Table 1. The Relationship between Fiscal Decentralization and Macroeconomic Indicators in Some Countries

<table>
<thead>
<tr>
<th>Macro Indicators</th>
<th>Researcher (Year)</th>
<th>Sample</th>
<th>Research methodology</th>
<th>Research result</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bahl and Wallace. (2006)</td>
<td>21 Region in Russia in 1997</td>
<td>OLS regression</td>
<td>Fiscal decentralization exhibited significantly positively correlated with the level of regional economic growth</td>
</tr>
<tr>
<td></td>
<td>Pose &amp; Krojer. (2009)</td>
<td>CEE countries in 1990-2004</td>
<td>OLS regression</td>
<td>Fiscal decentralization can significantly impede regional economic growth</td>
</tr>
<tr>
<td><strong>Poverty</strong></td>
<td>Sepulveda, CF &amp; Vazquez, JM (2011)</td>
<td>34 developing countries in Africa 1976-2000</td>
<td>GSLS</td>
<td>Fiscal decentralization is significantly negatively related to poverty.</td>
</tr>
<tr>
<td><strong>Inequality Region</strong></td>
<td>Nugrahanto &amp; Muhyiddin (2008)</td>
<td>Indonesian provinces 2001-2004</td>
<td>Fixed effect regression</td>
<td>Fiscal decentralization in Indonesia significantly increased the gap between regions in Indonesia.</td>
</tr>
<tr>
<td></td>
<td>Sepulveda, CF &amp; Vazquez, JM (2011)</td>
<td>34 developing countries in Africa 1976-2000</td>
<td>GSLS</td>
<td>Fiscal decentralization significantly reduce inequality in the region</td>
</tr>
<tr>
<td><strong>Unemployment</strong></td>
<td>Freinkman. (2010).</td>
<td>73 Region in Russia in 2004-2005</td>
<td>OLS regression</td>
<td>Government spending is significantly boosts the quality of education</td>
</tr>
<tr>
<td></td>
<td>Vazquez and Yao (2009)</td>
<td>OECD countries in 1985-2005</td>
<td>2SLS and GMM</td>
<td>Fiscal decentralization significantly boost employment opportunities</td>
</tr>
</tbody>
</table>
The largest proportion of regional expenditure was in personnel expenses despite its continuing decline in the last 3 years. The proportion of capital expenditure was relatively small, though it had been increasing in the last 3 years.

The Table 1 above highlights the literature on the effect of fiscal decentralization. Oates (1972), Wasykuko (1987) argues that fiscal decentralization is measured from the expenditure or revenue share of local governments to the central government budget. This relationship is usually positively correlated with economic development as measured by per capita income. Similar findings of Deparap, Swarop & Zou (1996) found a positive relationship between the share of central government expenditure towards growth. Easterly and Robelo (1993) found a positive relationship with the growth of infrastructure spending.

Meanwhile Baro (1990) found different results where an increase in the central government consumption share of GDP had a negative correlation with growth and income per capita. All of these studies do not touch the decentralized level or intergovernmental composition of public expenditure on economic growth.

Zhang and Zou (1998) examined how the allocation of fiscal resources between the central and local governments influence economic growth. The research sample used provinces in China from 1978 to 1992. The results showed that the high level of fiscal decentralization of government spending inhibited growth of the provincial economy. This significant result was not in accordance with the theory and the results of other studies that argued fiscal decentralization to positively contribute to local economic growth.

Davoodi and Zou (1997), examined the fiscal decentralization and economic growth in a cross-country study and found that in developing countries there was a negative relationship, as with the world in general, however for developed countries there was no relation, even among other the developed countries.

Studies conducted by Braun and Grote (2000) on decentralization and poverty found public financing a key element of poverty reduction policies. But countries with low income have a problem of low public revenues, which averaged 17.5%; while in high-income countries revenue was nearly averaging 30%. In the regions there are problems in the design and implementation of tax collection as it was found to be not well organized and less transparent. The cost to collect revenues in countries where poverty was particularly high and sometimes exceeded the benefits of public spending. But in fact the problem is the limited public resources such as education, health care, that can help the poor to accumulate assets.

Research conducted by Nugrahanto & Muhyiddin (2008) assessed the impact of fiscal decentralization with inequality in the regions of Indonesia. The conventional view held that fiscal decentralization had increased regional inequalities because of pressure from the central government for the redistribution of income between regions, which lowered after the fiscal decentralization. On the other hand, fiscal decentralization encouraged efforts to increase local revenues to finance local expenditure, so it is not dependent on grants from the central
A GAF increase followed by a decrease in inequality. This condition occurred at the national level, Sumatra, Java and Bali.

2. A GAF increase followed by an increase in inequality, this happened in Kalimantan and Sulawesi.

3. A GAF increase followed by a fluctuating pattern on inequality.

Many countries in the world implement policies in order to reduce poverty and improve income distribution, particularly through fiscal decentralization policy among others. Sepulveda, CF & Vazquez, JM (2011) conducted a study that focused on the impact of fiscal decentralization on poverty and income inequality. The sample used was 34 developing countries in Africa during the period 1976 - 2000. The results showed that fiscal decentralization had a significant impact on poverty and income inequality. Fiscal decentralization increased poverty, but reduced income inequality.

Some authors argue that fiscal decentralization leads to an optimization of the provision of public services and efforts to boost economic growth. Moreover, they argue there is a danger of fiscal decentralization that is associated with the regional competition and central redistribution. Lessman (2006) found poor countries were less able to compete in terms of fiscal mobilization compared to the richer countries, therefore, if not aided, the poor countries would remain poor. The Lessman study examined the impact of fiscal decentralization on regional disparities using panel data for 17 OECD countries from 1980-2001 year. The results showed that a high level of fiscal decentralization showed lower regional disparities.

The researchers focused on the determinants of growth in the public sector looking at the impact of an increase in fiscal federalism. Brothaler & Getzner (2010) assessed whether the fiscal decentralization contributes to economic growth in Austria. The research sample used was a province in Austria from the years 1955 to 2007. The results showed that if there was
an increase in GDP, government spending also increased. Government spending showed an active fiscal policy to reduce the unemployment rate. Cointegration test results showed fiscal decentralization was significant to encourage short-term and long-term regional economic growth.

In addition to economic growth, the success of fiscal decentralization was also demonstrated by the increased participation of local people in construction and economic activity. Vazquez and Yao (2009) developed a model to analyze the relationship between decentralization and job opportunities in the public sector. They found that the decentralization of expenditures significantly boosted employment opportunities, and reduced unemployment.

Faridi, Chaudry & Ansari (2012) examined the relationship of fiscal decentralization and job opportunities in Pakistan, and found that the effects vary depending on the fiscal decentralization and the share of revenue and expenditure of each province so as to significantly boost employment opportunities.

Bahl & Wallace (2006) examined the impact of fiscal decentralization on equalization in Russia. The samples used were 21 regions in Russia 1997. The local governments used fiscal instruments to balance a mix of spending for regional autonomy that required a larger budget to the regions and helped eliminate regional disparities. Additionally, Bahl & Wallace (2006) also developed a method to study the trade off between decentralization and equity. The point is that without priorities and a detailed understanding of the institutional arrangements and relationships between local government, the implications of equity and decentralization cannot run optimally.

Other research in developing countries include Pakistan. Pakistan is a country with an emerging economy with an economic growth rate that is not too high. In contrast to other studies of Pakistan, this research focused on fiscal decentralization as a major source of economic growth, examining fiscal decentralization to improve efficiency that would lead to economic growth. Faridi (2011) using a sample of provinces in Pakistan from 1972-2009, found that the indicators of fiscal decentralization, such as expenditure and revenue autonomy had a positive and significant impact on economic growth. Based on these results, Faridi (2011) recommended the federal government to delegate fiscal power to the provincial and district governments to improve the growth and prosperity of the people of Pakistan.

Most of the fiscal decentralization literature tends to emphasize the capacity of large fiscal decentralization in the context of public policy and services where with greater efficiency of the government, it can encourage economic growth. However, evidence of government efficiency is still rare. Pose (2009), in his writings, used a panel data approach to examine the relationship between the degree of fiscal decentralization and economic growth rates in the 16 countries in Central and Eastern Europe from 1990 -2004. Pose’s findings indicated that the results in Eastern Europe were at odds with the majority’s view - there was a significant negative relationship between fiscal decentralization and economic growth. However, there were
indications that the long-term result may be different. Transfer from the central government to the region had a negative correlation with economic growth, as the tax rate was set at a local level to evolve a negative relationship with respect to the national growth rate, but had positive regional economic growth. This is consistent with the view that with its own revenue sources, a region may encourage local production to respond to local demand.

III. METHODOLOGY

3.1. Data

This study used secondary data from BPS, Ministry of Finance and other institutions. The data used was the budget, the GDP, poverty, population, Human the Development Index (HDI), spending, labor and other data relevant to the study. The data used was for the period 1990 - 2011 for 26 provinces in Indonesia.

3.2. Empirical Model and Estimation Techniques

The analytical method used in this research was descriptive analysis and panel data method with Generalized Least Square (GLS), and Static Panel Data Models (Fixed Effect Model and Random Effect Model). The data was managed using the STATA software program.

This study adopted a model based on the earlier research panel model specifications used by Muslianti (2011) and Sobari (2011):

\[
Growth = \beta_0 + \beta_1 InYcap + \beta_2 In + \beta_3 Sch + \beta_4 DDF
\]

The above model was adopted from the study of Aisha (2008) entitled The Effect of Fiscal Decentralization on Economic Growth. The model was developed using the DDF (Degree of Fiscal Decentralization).

The degree of the size of the IMF Fiscal Decentralization adopted the Fiscal Decentralization Indicators that measures expenditure. These measurements are consistent with fiscal decentralization in Indonesia as it provides more emphasis on the decentralization of expenditure.

The calculation of the DDF:

\[
DDF_{it} = \frac{TB_{Prov_{it}}}{TB_{Pusat_{t}} - Trf_{Pusat ke Prov_{it}} + TB_{Prov_{it}}}
\]

where DDF_{it} is the degree of fiscal decentralization district / city i, in year t; TB_{Prov_{i}} shows total spending of districts / cities i, in year t; Centre TB_{i} is the total expenditure of the central government in year t; and TRF Centre to Prov_{it} is the central government transfer or equalization.
payments to the province \( i \), in year \( t \). For the record, before the fiscal decentralization, the numbers used were the Autonomous Regional Subsidy.

**IV. RESULTS AND ANALYSIS**

This study reviewed the variations resulting from fiscal decentralization on economic growth. In addition, it also explored how the success of local post-fiscal decentralization (as represented by the Degree of Fiscal Decentralization) correlated to the variables of economic development that previously were mentioned.

Furthermore, in addition to the analysis at the national level, an estimation was also performed using a sub-sample of each region with the following distribution (see Table 2 and Figure 6):

<table>
<thead>
<tr>
<th>Region</th>
<th>Province</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sumatra</td>
<td>DI Aceh, North Sumatra, West Sumatra, Riau, Jambi, South Sumatra, Bengkulu, Lampung</td>
</tr>
<tr>
<td>Java and Bali</td>
<td>DKI Jakarta, West Java, Central Java, Yogyakarta, East Java, Bali</td>
</tr>
<tr>
<td>Kalimantan</td>
<td>West Kalimantan, Central Kalimantan, South Kalimantan, East Kalimantan</td>
</tr>
<tr>
<td>Sulawesi</td>
<td>North Sulawesi, Central Sulawesi, South Sulawesi, Southeast Sulawesi</td>
</tr>
<tr>
<td>Eastern Indonesia</td>
<td>West Nusa Tenggara, East Nusa Tenggara, Maluku, Papua</td>
</tr>
</tbody>
</table>

**Table 2. Regional Distribution of Provinces in Indonesia**

**Figure 6. Degree of Fiscal Decentralization provinces in Indonesia in 2011.**
Figure 6 displays a comparison the degree of fiscal decentralization between the provinces in Indonesia for 2011, which was calculated by dividing the Provincial Expenditure by the Central Government Total Expenditure minus the Central Government Transfer (Fund Balance) to the Province plus the Total Provincial Expenditure. The color red in Figure 7 indicates regions that already meet the level of independence considered ‘sufficient’. Of the 26 provinces in Indonesia, there were only 10 provinces with a degree of independence that was already quite enough (rule of thumb the above ratio is 2 and shown in red).

The formula approach to fiscal decentralization of expenditure refers to a formula in line with the IMF, and is in line with the fiscal decentralization in Indonesia which places more emphasis on the decentralization of expenditures. Figure 7 shows that most provinces are still not self-sufficient in regional expenditure. This can be explained that there are several issues, among other them is the financial management of the regions themselves, as well as programs to the regions as allocated by the central government. The activities of the central government in the regions such as services to the communities through subsidies, the de-concentration funds, assistance duties, grants etc., which when calculated, the funds flowing into the region reached about 60% of the state budget. Thus, it is not surprising that local authorities in some provinces were less than the maximum in using the fiscal transfer funds.

Table 3 shows the regression results of the provincial GDP growth indicators of the regression model adopted from the Aisha (2008) study. The use of a variable percentage of the population that had completed college in Aisha study was replaced with a variable average length of school age. If the model is estimated in the form of a fixed effect it will produce a heteroscedasticity offense, so that there would be an alteration in the GLS model. The overall model proved capable in explaining the phenomenon of economic growth. Table 3 summarizes the results of the estimation seen as a whole (for 26 provinces) and per region divided into groups from the period 1990-2011, pre-decentralization period 1990-2000 and 2001-2011 period after decentralization. Table 3 also shows a summary of the findings of estimates for all regions. Although generally the efficient model was in the third time interval, there are several variations of the significant variables in each region.

The GDP per capita had a relationship proportional to the level of economic growth in the region and a significant influence on the national growth in the period 1990-2011 as well as in the period before decentralization, 1990-2000. Meanwhile a greater portion of the investment in the output should have had a positive effect on the growth of the regional economy, but national observation showed an opposite effect for the period before and after decentralization and the period prior to decentralization where increased investment had a negative correlation to economic growth.

Regions with high education had a direct correlation with economic growth. The influence of the level of education to economic growth was significantly demonstrated by the schooling variable with GDP growth in the 1990-2000 period, but in the opposite direction. On the other
hand, fiscal independence of a region was shown to have a significant correlation with regional economic growth, particularly evident after a period of fiscal decentralization (2001-2011), i.e. when fiscal independence (DDF) increased by 3%, it boosted economic growth by 1%.

**Sumatra Region**

Provincially, people with higher income levels were shown to have higher growth rates as well, which happened during the long period 1990-2011 and in the aftermath of decentralization. The inverse relationship would occur in the period before decentralization. While investment did not affect the period before and after decentralization, it had a significant inverse relationship and for a long period from 1990 to 2011.

Higher education levels were shown to have the opposite relationship with economic growth, but that only occurred in the period after decentralization. Whereas in the period before decentralization, this variable gave an effect that was directly proportional to the economic growth. Then, at any interval it was seen that the more independent regions had no fiscal effect on regional economic growth.

<table>
<thead>
<tr>
<th>Variables</th>
<th>National (PDRB)</th>
<th>Years</th>
<th>Kalimantan Region</th>
<th>Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Const</td>
<td>-15.07695* (0.001)</td>
<td>1.19367 (0.765)</td>
<td>5.75334* (0.000)</td>
<td>3.24071* (0.000)</td>
</tr>
<tr>
<td>Y cap</td>
<td>0.05618* (0.000)</td>
<td>0.07174* (0.000)</td>
<td>0.00693 (0.326)</td>
<td>Y cap</td>
</tr>
<tr>
<td>Inv</td>
<td>-0.02673* (0.005)</td>
<td>-0.04298* (0.009)</td>
<td>0.00382 (0.591)</td>
<td>Inv</td>
</tr>
<tr>
<td>Sch</td>
<td>0.00559 (0.389)</td>
<td>-0.06171* (0.000)</td>
<td>0.00302 (0.641)</td>
<td>Sch</td>
</tr>
<tr>
<td>DDF</td>
<td>0.00358 (0.641)</td>
<td>-0.00858 (0.461)</td>
<td>0.03030* (0.001)</td>
<td>DDF</td>
</tr>
</tbody>
</table>

| Sumatra Region | | | Sulawesi Region |
| Const | -5.44965* (0.033) | 3.41242* (0.015) | -6.58796* (0.001) | Const | 1.82043* (0.055) | 1.62069 (0.187) | 0.16583 (0.87100) |
| Y cap | 0.06509* (0.004) | -0.03613* (0.047) | 0.18093* (0.000) | Y cap | 0.00524 (0.616) | 0.01504 (0.710) | -0.05742 (0.21100) |
| Inv | -0.04895* (0.004) | 0.03276 (0.164) | -0.05393 (0.068) | Inv | -0.01590 (0.175) | -0.04311* (0.000) | 0.01994 (0.51900) |
### Java and Bali

In this region, the model proved to be significant in the long period before and after the decentralization for all variables. More affluent areas in the region had some impact on growth, particularly for the period 1990-2011 and the period of 1990 -2000. On the other hand, the high investment in the province might have had a positive influence as economic growth mainly occurred in the period after the fiscal decentralization. But in the long period (1990-2011) the effect of the investment was precisely in the opposite direction to economic growth. Similarly, the influence of higher education had an inverse correlation with the economic growth of this region in the period 1990-2011. Fiscal independence was shown have a significant and positive impact on the economic growth of this region that occurred in the period 1990-2011.

### Kalimantan

Findings for Kalimantan showed high per capita incomes had a significant impact on the region’s economic growth, especially in the period before decentralization. More affluent areas in Kalimantan grew faster, which can be seen before decentralization. While investment had an inverse relationship to the length of the period of 1990 -2011 and before decentralization, there was significant influence at the 95% level of significance. Higher levels of education before and after decentralization also carried an inverse relationship to economic growth with a
significant effect. Furthermore, there was a significant relationship between fiscal independence of this region with the growth rate in the province of Kalimantan, especially after the period of fiscal decentralization.

**Sulawesi**

For Sulawesi, the per capita income variable did not significantly affect the economic growth for the region in all of the observation periods. Investments had a significant effect on the economic growth of this region, but in an inverse relationship. A higher education variable was positive and had a significant impact on the economic growth of the region.

**Eastern Indonesia**

In Eastern Indonesia, the high incomes of the population had a positive and significant impact on the region’s economic growth. This was especially the case before decentralization. Similarly, investments affected growth, but with an inverse relationship. In the long period, it was also found that regions with higher levels of education had the opposite effect on the economic growth in the period 1990-2011.

The variable real GRDP per capita was hypothesized to be directly proportional to GDP growth in a province. As raised by Wagner (citation year?), an economy where per capita income increases, there would be a relative increase in government spending that would ultimately boost economic growth. For estimates at the national level, Sumatra (also after a period of decentralization), the regions of Java and Bali, Kalimantan and East regions, showed significant positive effect of income per capita to economic growth. Only in the region of Sulawesi, did the GDP per capita not have an effect on economic growth.

In accordance with the theory of the Solow growth, economic growth can be driven by high levels of investment in an area. This hypothesis can generally be proven before decentralization, but with an inverse relationship of the central government and region. Only in Java and Bali for the interval 2000-2011 this hypothesis was observed and proved to be positive and significant. This finding was due to observations where in any period, it was found that the economy of each province in Indonesia grew steadily at around 5% annually. This also explained why many estimates were not significant in this model.

Fiscal independence represented by the degree of fiscal decentralization (DDF) was hypothesized to be able to spur the movement of the economy of a region. This hypothesis was observed and proved to hold true at the national level, and the Kalimantan region for the period after fiscal decentralization. Meanwhile Java & Bali had a positive and significant effect in the period before decentralization. Financial management policies independently gave a
positive result on the growth of the national economy. The empirical results were in line with the research conducted by Oates (1993), Gramlich (1993), and others.

The variable DDF of other regions that do not affect the regional economic growth was also determined by other factors. For example in the DDF is the element of balance funds after fiscal decentralization (before the central government channels funds to subsidize autonomous regions (SDO)). As described in Section 1, the transfer of fiscal funds constantly increased and tended to result in annual inequality (Fatima, 2007). The inequality of fiscal transfers was closely related to the distribution formula of the transfer funds that was affected by the natural resources available in a region. Resource-rich regions would benefit. Additionally total regional expenditure was largely determined by the financial management of the region where the largest proportion of regional expenditure was personnel expenditure (44% of the budget) while the proportion of capital expenditure was relatively small (22%), so that the impact on economic growth was relatively large. Another factor influencing the expenditures / regional expenditures was the amount of the fiscal transfer funds that had not been used by the region in the bank, consisting of terms deposits, checking and savings account.

5. CONCLUSION

This paper analyzed the effect of fiscal decentralization policy on the level of regional economic growth in Indonesia. Using data from 26 provinces, estimated were made using a panel method, and the findings of this paper are summarized below.

The first finding is, the financial autonomy of regions was represented by the Degree of Fiscal Decentralization (DDF) for positive and significant national impact on economic growth in the aftermath of the fiscal decentralization. This means independence in fiscal expenditures would encourage economic growth in the province concerned. This condition according to Wagner’s Law states that in an economy where per capita income increased, in relative terms government spending also increased, which in turn will boost economic growth. In the sub-samples for each region, the positive influence of the growth in per capita income was only observed in Java and Bali and only valid in the long observation period (1990-2011).

The second finding of this paper is the use of national data variables per capita income had a significant and positive effect in the period 1990-2011 and the period prior to fiscal decentralization. At the regional level, the positive effect was found for the Sumatra region in the period 1990-2011 and the period after the 2001-2011 fiscal decentralization. For Java and Bali, the positive influence of per capita income was applicable to periods prior to fiscal decentralization and the period 1990-2011. For Kalimantan and Eastern Indonesia per capita income had a significant effect on economic growth in the period just before the fiscal decentralization.
The third finding, is the effect of the level of investment to economic growth would indicate an inverse relationship. The positive effects of investment on economic growth was only found in Java and Bali for the interval 2000-2011.

The above findings lead to the conclusion that the effect of fiscal decentralization on economic growth is not conclusive for cases of decentralization in Indonesia. The incompatibility of empirical evidence for this theory can be influenced by the fiscal transfer formula provided by the central government to local governments. Additionally total regional expenditure was largely determined by the financial management of the region where the largest proportion of regional expenditure was personnel expenditure (44% of the budget) while the proportion of capital expenditure was relatively small (22%) so that the impact on economic growth was relatively large.

With regard to the management of regional expenditures where local government spent larger portions on routine expenditure compared to capital expenditure, the effects of spending or local government spending cannot resolve the issue in question. The central government needs to create a mechanism that encourages local governments to maximize capital expenditures.

It should be underlined that the research in this paper had some limitations, the first is the use of better proxies than the fiscal independence index; and secondly estimations done by periodicity. As an alternative, this paper developed an approach of switching regime models.
REFERENCES


Ananta, Aris; Soekarni, Muljana; and Arifin, Sjamsul et all, 2011, The Indonesian Economy: Entering A New Era, Bank Indonesia and ISEAS.


Braun, Joachim von and Grote, Ulrike, 2000, Does Decentralization Serve the Poor?, Center for Development Research, University of Bon, Bon.


Subiyantoro, Heru; Riphat, Singgih, 2004, Kebijakan Fiskal: Pemikiran, Konsep and Implementasi, Kompas, Jakarta.


Swastyardi, Drisnaf, 2008, Regional Inequality in Indonesia: Is the general allocation (DAU) likely to have an impact? Graduate School of Development Studies, The Hague, Netherlands.

Yamoah, Afia Boadiwaa, 2007, *The Effect of Fiscal Decentralization on Economic Growth in U.S. Countries*, Graduate School of The Ohio State University, U.S.

Boetti, Lorenzo; Piacenza, Massimiliano; Turati, Gilberto, 2009, *Fiscal Decentralization and Spending Efficiency of Local Governments; An empirical Investigation on a Sample of 41 Italian Municipalities*, University of Torino, Italy.