REVOCATION OF REGIONAL REGULATIONS AND ECONOMIC PERFORMANCE IN INDONESIA: PROVINCIAL PANEL DATA 2002-2009

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ABSTRACT

The aim of this study is to investigate the impact of regional regulation on economic performance in Indonesia. This study uses a panel data set of 31 Provinces in Indonesia during the period of 2002 to 2009 and applies fixed effect method for its estimation. In order to provide better explanation, this study also utilize three proxies of regional regulation variables, namely the number of regional regulations, the number of revoked regional regulations, and ratio of the revoked regional regulations to the existing regional regulations.

The result of this study shows that regional regulation negatively affects economic performance. However, the coefficient of regional regulation is insignificant. In general, it can be concluded that there is not enough evidence to claim that regional regulation affect economic performance. Still, by classifying regions into two groups, rich and poor regions, the significant effect of regional regulation on economic development varies.

Keywords: *Regional regulation, Economic performance, Decentralization, Panel data*

1. INTRODUCTION

After the resignation of former President Soeharto in 1998, Indonesia started an ambitious program called decentralization. By establishing Law No.22/1999 concerning Local Government which has been replaced by Law No.32/2004 (First Revision: Government Regulation in Lieu of Law No. 3/2005[1]; Second Revision: Law No. 12/2008[2]) and Law No.25/1999 concerning Fiscal Balance between Central and Local Government which has been replaced by Law No.33/2004, Indonesia has tried to transform from one of the world's most authoritarian and centralized countries to one of the most decentralized and democratic countries (Chalid, 2005). The main goals of that transformation areadvancing people's welfare and creating better economic conditions (Ministry of Finance, 2009).

Based on the laws, one of the important functions mandated to local governments of Indonesia is promoting economic development, which is consistent with the theory that said decentralization generates rapid economic development. Davoodi and Zou (1998) also stated that decentralization, the process of transferring political and administrative power to lower level governments, has improved

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[1] Government Regulation in Lieu of Law No. 3/2005 changed the substations of Law No. 32/2004 regarding the regional election.

[2] Law No.12/2008 changed the substitutions of Law No. 32/2004 regarding the duty and authority of the deputy of the head of region and regional legislature, and the regional election.

economic efficiency and augmented growth rate at regional and national level.

In contrast to the theory, the implementation of decentralization is not always in accordance with its grand design since it is a complicated phenomenon and characterized by various aspects at different levels (Iimi, 2004). The main problems of the implementation of decentralization are not only from the central government side, such as the lack of regulations and guidelines and the reluctance of some ministries to distribute their authorities, but also from the local governments side, such as the lack qualified human resources in the bureaucracy, low capacity of local legislatives members, and lack of funding sources to support their development projects or high dependence on central government subsidies (Rasyid, 2002). Regarding the decentralization manuals or guidelines, USAID (2009) also reported that the obstacles in implementing decentralization are unclear guidance and legislation, which did not regulate the new mandate (decentralization) specifically or provide technical guidance about sharing authority and responsibility among local, provincial, and national government.

In order to overcome the difficulties of decentralization implementation, some local governments have taken several actions. Reforming bureaucracy, upgrading the unqualified officers, and providing good infrastructure are the focuses of some local governments for spurring economic development at several recent years (Chalid, 2005). However, one of the most popular actions taken by local governments is issuing additional regulations to clarify the role of decentralization in promoting regional income (Zuhro, 2013)[3].

The trends of issuing regional regulations have made the number of regional regulations increase rapidly. Local governments seem to be competing in making regulations in order to execute their larger authorities. It has been noted that 14,000 regional regulations has been issued by the local governments (Yuntho, 2012). According to Indrawati[4] (2009), there were 9,714 regulations that have been issued by local governments from 2002 to 2009. However, from the total of those regulations, 3,455 regional regulations (36%) have been revoked by the central government because most of those regulations violated the general principle of the establishment of regulations.

There are two different arguments related to the implication of revocations of regional regulation on the economy. The supporters of revocation say that revocations are necessary since those regulations set higher tariffs on taxes and levies than the central government does and also create new varieties of taxes and levies. Charging high tariffs and creating many kinds of taxes and levies may impose high economic costs on investment, and also can be a barrier for entrepreneurs to start businesses (Monitoring Committee of Regional Autonomy Implementation, 2012). Consequently, investors will prefer other regions which offer lower cost for doing business, then the income of those regions will be deteriorate.

In contrast, the opposers, most of whom are legal experts, argued that revocations will create *recht-vacuum* or legal vacuum and generate uncertainty in economic situations. It is also a sign of the inefficiency of the rule of law, especially for investors (Rajaguguk, 2003). Those situations can cause hesitation among local and foreign investors to invest in a particular sector in a region which is graded as a moderate-high level risk investment (Schwark, 2009). Finally, such a lack of investment can decelerate the development of local economy.

Although there are debates among experts related to the revocations of regional regulations, there are no empirical studies trying to explore the relationship between the revocations of regional regulation on economy. Many studies related to this topic only focus on the field of law instead of the field of empirical economics.

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Those studies explore the legal matters of a regulation's establishment, and prevention action to control revocations. For instance, the study conducted by Isrok (2009) only discusses about legal matters rather than economics.

On account of the different arguments regarding regulation revocations and the lack of studies related to the impact of regulations on economy, this study intends to investigate whether the revocation of regional regulations will improve or impede economic performance in Indonesia. I also try to examine how significant revocation affects economic performance and determine other factors that can be accelerators of economic performance in particular region.

Furthermore, this study is expected to serve as a more comprehensive analysis on the implementation of decentralization programs related to regional economic performance. This study is also expected to give useful information and policy recommendation that can support Indonesian central government in accelerating the realization of local economy independency.

2. LITERATURE REVIEW

2.1. The Implementation of Decentralization in Indonesia

Brief history of decentralization in Indonesia

The era of decentralization in Indonesia begun by the implementation of Law No.22/1999 concerning Local Government and Law No.25/1999 concerning Fiscal Balance between Central and Local Government. These laws have made significant changes on the interregional relations by changing Indonesia from implemen-ting centralized system to decentralized system (World Bank, 2003).

Prior to those laws, Indonesia implemented centralized system on its intergovernmental interactions, although central government tried to adopt decentralized system on Law No.32/1956 by transferring some authority of collecting taxes, such as land tax, land product tax, household tax, vehicle tax, road tax, slaughter tax, copra tax, and construction tax, and giving two kind of funds, regional autonomous subsidy (SDO) and presidential instruction funds (INPRES). It means that local governments had no independency on organizing their budget. In addition to that, local government did not get share of their natural resources which were exploited by central government. Those mechanisms showed that the role of central government still prominent (World Bank, 2003).

After the demission of former President Soeharto, Indonesia started to change its centralized system into decentralized system. The changing of the system was intended to prevent national disintegration as a result of economic and political crises that happen in 1998 (Usui and Alisjahbana, 2005; World Bank, 2003). By enacting Law No.22/1999 to resolve regional administration problems and reformulate the system of decentralization and Law No. 25/1999 to introduce the decentralized system regarding the fiscal balance system between central and local governments, Indonesia tried to correct the problems from the implementation of foregoing laws. Furthermore, Law No.22/1999 granted broader authority to local government regarding public goods and services in 11 sectors such as public work, health, education and culture, agriculture, transportation, trade and industry, investment, environment, land, cooperation, and labor force services[5]. Whereas some sectors such as foreign policy, defense, security, judicial, monetary and fiscal policy, and religion are under the central government authority[6]. In addition, Law No.25/1999 introduces general allocation funds (DAU) and specific allocation funds (DAK) to reduce the gap of fiscal capacity between regions (Brodjonegoro, 2005; World Bank, 2003).

Due to confusion among local government regarding the ambiguousness of the mandates assigned (Sidik, 2007) and the innacurate use of budget (Ahmad and Mansoor, 2002), central government replaced Law No.22/1999 by Law No.32/2004 concerning Local Government (this law was revised twice. First revision is

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[5] Article 11, verse 2 Law No.22/1999

[6] Article 7, verse 1 Law No.22/1999

Government Regulation in Lieu of Law No.3/2005, and second revision is Law No.12/2008) and Law No. 25/1999 by Law No.33/2004 concerning Fiscal Balance between Central and Local Government. The new laws brought several improvements in administrative and fiscal function on intergovernmental relations. Law No.32/2004 explains more specific about authority distribution from central government to local government and the interregional connection and also provides the possibilities of citizen to participate in regional development planning process.

Furthermore, Law No.33/2004 also contains improvement in terms of fiscal balance in intergovernmental relations. Based on this law, decentralization, deconcentration, and co-administration are the fundamental bases of intergovernmental fiscal relations. This law also introduces revenue sharing mechanism from the exploitation of natural resource and income tax. Other improvements that resulted from Law No. 33/2004 are the new formulation of DAU and DAK, and the introduction of local bond.

During the implementation of decentralization, there were several obstacles came from central government and local government side. Rasyid (2002) stated that the problems, from central government side, are the lack of clear regulations as technical guidelines and also the reluctance of some ministries to transfer some of their authorities in order to execute decentralization, whereas, from local government side, are low qualification officers in the bureaucracy, incapability of local legislature in creating regional laws, and high dependency on central government subsidies.

To solve the problems of the implementation of decentralization, there were several actions taken by local government, such as reforming the bureaucracy, upgrading the unqualified officers, and providing good infrastructure (Chalid, 2005). Besides, one of the most popular actions taken by local governments is issuing additional

regulations to clarify the role of decentralization in promoting economic growth (regional income) (Zuhro, 2013)[7].

2.2. The Revocation of Regional Regulation
Legal aspect and Mechanism of Revocation

The trends of issuing regional regulations have made the proliferation of regional regulations. Local governments seem to be competing in making regulations in order to execute their larger authorities. It has been noted that 14,000 regional regulations has been issued by the local governments (Yuntho, 2012).

According to Minister of Finance, from the period 2002 to 2009, there were 9,714 regulations issued by local governments. However, from the total of those regulations, 3,455 regional regulations (36%) have been revoked by the central government because those laws violated the general principle of the establishment of regulations. The first place was taken by East Java (272 regulations), then North Sumatera (247 regulations), Central Java (202 regulations), West Java (174 regulations), and East Kalimantan (168 regulations).

In Indonesia, the revocation of regional regulations by the central government shows that many regional regulations are in disagreement with The Establishment of Regulatory Law No.10/2004. Law No.10/2004 provided the general principle of the establishment of regulation as guidance on establishing law, such as the principle of clarity of objectives, the principle of institutional basis and appropriate officials, the principle of conformity of type, hierarchy, and substances, the principle of useful and profitable, the principle of clarity syntheses, and the principle of transparency. Furthermore, Article 7 verse 1 Law No.10/2004 provides a hierarchy of laws in Indonesia as follows: The 1945 Constitution; Law/Government Regulation in Lieu of Law; Government Regulation; Presidential Regulation; and Regional Regulation. Legally, each type of law must not

[7] Interviewed by Bali Post.
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conflict or contradict with any law higher than its own type in the hierarchy, and a law can amend or revoke a lower law than its own type in the hierarchy. Once it contradicts the higher law, regional regulation is susceptible to being overridden by law, government regulation or presidential regulation, all of which are higher on the hierarchy.

In addition, based on the theory, the enactment and implementation of regulation should follow the eight principles of procedural morality in legislation which introduced by Fuller in 1964 (Murphy, 2005), such as the laws must be general, the laws must be published (promulgated), the laws must be prospective (not retro-prospective), the laws must be intelligible (clear), the laws must non-contradictory, the laws must be possible to be complied, the rules must be constant (not relatively easy to be changed), and there must be a congruency between the declared and published laws and the actions of responsible officials on its enforcement.

As a legal instrument of state, regional regulations can be reviewed. The regional regulations that are contrary to the public interest and / or contrary to the higher regulation can be reviewed by two institutions, namely Supreme Court and Central Government through Ministry of Home Affairs. The review conducted by Supreme Court is judicial review, while by the Government through Ministry of Home Affairs is executive review.

In performing their authority, the Supreme Court is passive. The Supreme Court only wait for the request of group of people or an individual petition containing objections to the enactment of a legislation which is allegedly contrary to legislation filed to higher levels. When the regulations is contrary to higher regulation and / or its establishment does not meet the applicable provisions, the Supreme Court granted the petition and ordered the Local Government together with the legislature to repeal the law within a period of 90 days. This decision cannot be raised a review.

Conversely, on behalf of Central Government, several ministries under the coordination of Ministry of Home Affair also have an authority to review the regulation called executive review in the forms of preventive and repressive control. The Central Government will do preventive supervision regarding the draft of budget legislation, local taxes and levies, and Urban Land use Plan. Furthermore, the repressive control will be conducted to all regulations made by the local governments, including the regulations that on preventive supervision. Thus, it is possible to have two kinds of control for one regulation. While judicial review focuses only on legal basis (contradiction to higher regulation), executive review checks the regulation not only based on the rule of law, but also based on the public interest standard. The public interest is more sociological aspects rather than legalistic. So testing against the public interest depends on a whole range of aspects of the enforceability of laws and social norms in the society.

Debate about the revocations of regional regulation

There are debates among experts related to the effect of the revocation of regional regulation on the economy. The bureaucrats, who support the revocation, argued that revocations are necessary because the implementation of those regulations will increase the cost of doing business in its region. The high cost of doing business in provinces is caused by the higher tariffs on taxes and levies and the new varieties of taxes and levies which were set on the regional regulations. That condition can be an obstacle for the entrepreneur to invest (Monitoring Committee of Regional Autonomy Implemen-tation, 2012). Thus, investors will divert their business destination to other regions which offer lower cost for investment. On the other hand, legal experts argued that revocations will create *recht-vacuum* or legal vacuum and generate uncertainty in economic situations. Revocation is also a cue of the inefficiency of the rule of law, especially for investors (Rajaguguk, 2003). Because of those conditions, investors will hesitate to invest their money in a particular sector in a region which is graded as a moderate-

high level risk investment (Schwark, 2009). Finally, the lack of investment can decelerate the economic development of those regions.

Although there are debates among experts related to the revocations of regional regulations, there are no empirical studies trying to explore the relationship between the revocations of regional regulation on economic performance. Studies related to this topic only focus on the field of law instead of the field of empirical economics. Those studies explore the legal matters of a regulation's establishment, and prevention action to control revocations. For instance, the study conducted by Isrok (2009) only discusses about legal matters rather than economics.

Because of the different arguments provided by experts, and also the lack of studies related to the impact of regulations on economy, this study will focus on the effect of the revocation of regional regulation to Indonesia's economic performance at sub national level. This study is expected to provide empirical results to explain whether the revocations of regional regulations improve or impede economic performance in Indonesia.

3. RESEARCH METHOD
3.1. Theoretical Model

The model of this study is built based on augmented Solow model, which was introduced by Mankiw, Romer, and Weil in 1992. By adding human capital accounting to the Solow growth model, Mankiw, Romer, and Weil tried to provide a better explanation for the variation in the standard of living across regions. They show that steady state income per capita depends on the rate of investment in physical capital, the rate of population growth, and the level of human capital, as follows:

$$ln\left[\frac{Y(t)}{L(t)}\right] = \ln A(0) + gt$$
$$+ \frac{\alpha}{1-\alpha}\ln(s_k)$$
$$- \frac{\alpha}{1-\alpha}\ln(n+g+\delta)$$
$$+ \frac{\alpha}{1-\alpha}\ln(h^*)$$

Where: Y is output; L is labor; A is technology; s_k is capital accumulation; n is growth rate of labor; is advancement of knowledge; is rate of depreciation; h^* is human capital; and t is time.

Furthermore, this study adopts the augmented Solow growth model for sub national/regional level analysis rather than cross country analysis.

3.2. Empirical Issues

Regarding the application of sub national model in particular country's studies, there are some additional consideration related to the availability of data, the impact of national policy, and interregional interaction (Vidyattama, 2007). However, the concern of this study is only the data availability since it is assumed that during the period 2002 to 2009 there were not any national policies that had significant effects on the economy excluding decentralization program itself, and this study will not analyze the comparison between the economic condition before and after decentralization is implemented. The interregional interaction is not discussed in this study because of the limitations of the data.

In addition to several considerations, there are some advantages in employing the empirical framework in regional data particularly in Indonesia studies. Since the source of most regional data in Indonesia is collected by the Indonesian Central Board of Statistics (BPS), there will be no varying variables in terms of definition, method of collection and calculation, and the data among regions in one particular period are comparable, for example variable income. Moreover, having several proxies for income in sub national level studies is possible since the definition of income is same and the collection and calculation process are similar. Conversely, it might be difficult in the case of cross country analysis due to different methods or processes for collecting data, and also different ways of income distribution (Vidyattama, 2007).

In addition to the similarities in definitions and collecting process, Vidyattama (2007) stated that there are two advantages in applying sub

national frameworks related to empirical issues. First, there is more justification to impose coefficient homogeneity than in cross country studies. This means it can be expected that the impact of particular growth determinant is more uniform within one country than between countries (cross countries). Second, in the case of Indonesia, income per capita data are dynamic since it is always fluctuating not only for five yearly but also annually.

3.3. Data

The data used in this study is a panel data set of 31 Provinces in Indonesia during the period of 2002 to 2009. The data are obtained from several institutions such as the Ministry of Finance, Central Bodies of Statistic, Ministry of Home Affairs, and United Nation Development Program (Provincial Governance Strengthening Program as a collaborative program between UNDP and Government of Indonesia). Due to lack of provincial data from two provinces in the period of 2002 until 2009, this study only uses 31 out of 33 Provinces. Lack of data from two provinces, Kepulauan Riau and Sulawesi Barat, occurred because they just established in 2002 and 2004 consecutively. To create balanced panel data, the data of Kepulauan Riau and Sulawesi Barat are combined in the data of its origin provinces. This treatment has already been used by Indrawati (2008), and Beta (2009), in order to tackle the incompleteness of provincial data in Indonesia.

The panel data set starts from 2002 because the complete data of the variables of interest, which is revoked regional regulation, is only available from 2002 to 2009. The revoked regional regulation data are obtained and consolidated from Ministry of Finance (Directorate General Fiscal and Balance) and Ministry of Home Affairs (Directorate General Regional Autonomy).

3.4. Empirical Model

In order to investigate the impact of regional regulation on regional economic performance in Indonesia, the economic performance across

provinces will be examined in this study and the augmented Solow model by Mankiw, Romer, and Weil (1992) will be adopted. The adopted model in this research can be expressed as

$$lnY_{it} = a_0 + a_1 lnY_{it-\tau} + a_2 I_{it} + a_3 H_{it} + a_4 lnL_{it} + a_4 lnR_{it} + \varepsilon_{it}$$

Where:

Y_{it} : is income (GRDP) per capita in province i at time t,

$Y_{it-\tau}$: is initial income (GRDP) per capita or lag income per capita in province i at time t,

I_{it} : is physical capital or gross capital accumulation in province i at time t,

H_{it} : is human capital in province i at time t,

L_{it} : is labor force in province i at time t,

R_{it} : is regional regulation in province i at time t,

ε : is error term

The model shows that the income per capita is affected by the previous year's income per capita, investment, human capital, and regional regulation. The provincial income/ GRDP per capita (Y), as dependent variable, is measured by dividing gross regional domestic product (GRDP) (constant price) from 2002 to 2009 in each provinces to total population in each provinces. Per capital GRDP here is in million rupiah. This variable shows the provincial income to capture the effect of regional regulation. GRDP demonstrates the amount of products in the form of goods and services produced by the production units within the boundary of a province. Produced goods, which included capital goods, have not been depreciated. Hence, the amount obtained from the GRDP is based on a gross level. Economic performance of a region (province) can be determined by looking at how much output or income region is reflected in the value of Gross Regional Domestic Product (GRDP). Although it is not a good indicator, the welfare of the people seen from economic aspect can be measured by national income per capita. (Hamrullah, 2012).

The initial income per capita or lag income per capita ($Y_{it-\tau}$) is measured by the previous year's provincial level GRDP. The one year time difference is indicated by $Y_{it-\tau}$ instead of Y_{it-1}, since it might be possible to take any yearly time difference to capture the impact of that variable that could be happened after only a few years. In a study conducted by Beta (2009), five-yearly time difference of GRDP is used. However, due to the short time range of the available data, this study only uses one year time difference of GRDP.

Labor force (L) is measured by the number of labor force in particular provinces. Labor force can be used as a control variable to explain economic performance, since in the process of production; it will lead to the increases of output (Zhang & Zou, 2001). Thus, labor force is expected to have a positive correlation with economic performance.

Zhang and Zou (1998) defined variable investment as the share of fixed capital accumulation and circulating funds to provincial income. However, since the data of circulating funds at sub national level is not available in Indonesia, this study only uses the share of gross fixed capital formation to provincial income as a proxy of Investment (I). The relationship between investment and income is expected to be positive relations since increase in fixedh assets will lead to increase in capital stock, then as a part of production factors, it also will increase output.

Human capital (H) is from Human Development Index (HDI). HDI developed by UNDP is a composite index which covers three areas of human development that are comprised of critical lifespan, knowledge, and decent living standards. The higher of HDI is expected better economic perfor-mance

As an interest variable, this study defines three kinds of proxies for Regional Regulations. First, Regional Regulation is measured by the number of regional regulations in a particular province (RR). Second, Regional Regulation is measured by the number of regional regulations that were revoked by central government in a particular province in a specific year (Revoked RR). Third, Regional Regulation is measured by the ratio of revoked regional regulations to the regional regulations (Ratio Revoked RR). By defining three proxies of Regional Regulation, this study is expected to give empirical evidence of the effects of regional regulation on economic perfor-mance. Furthermore, three methods contai-ning Pooled Least Square, Fixed Effect and Random Effect are applied to analyze the relationship.

4. RESULTS AND DISCUSSION

The objective of this chapter is to present the empirical evidence regarding the relationship between regional regulations and economic performance in Indonesia. This chapter is divided into three sections. First section present the basic relationship between regional regulation as the Interest variable and economic performance as dependent variable. By adding other variables that determine economic perfor-mance, second section present more comprehensive explanation about the role of regional regulation to the economic performance. After conducting Chow Test, Hausman Test and Breusch Pagan LM Test, the third section presents the examination of variation of the effect of regional regulation among regions.

Basic relationship between regional regulation and economic performance

Before analyzing the relationship between regional regulations and economic performance of local governments, three proxies of regional regulation are introduced as the interest variables, RR, Revoked RR, and Ratio Revoked RR. The aim of using three proxies of regional regulation is to demonstrate comprehensive perspectives of the impact of regional regulation on economic growth in sub national level. The regression results of those proxies estimation are presented in Table 1.

Table 1. The basic relationship between three proxies of regional regulation and economic performance

	Reg 1	Reg 2	Reg 3
RR	*0.105*** *(0.059)*		
Revoked RR		*-0.087*** *(0.488)*	
Ratio Revoked RR			*-0.482**** *(0.185)*
Obs	*248*	*248*	*248*
R²	*0.0123*	*0.0128*	*0.0267*
Adjusted R²	*0.0083*	*0.0088*	*0.0227*
F	*3.07*	*3.20*	*17956.10*
Prob>F	*0.0812*	*0.0750*	*0.0100*
***p<0.01, **P<0.05, *p<0.1			

Reg 1 in Table 1 shows the results of the first regression using the number of regional regulations as a determinant of regional economic growth. This result suggests that the number of regional regulation has positive and significant impact to GRDP. The positive relation between GRDP and the number of regulation also can be seen from the Graph 1 in appendix 1. It means that if the number of regional regulation increases in particular provinces, the GRDP of those provinces will increase. The positive effect of regional regulation to GRDP is possible since those regulations set the level of taxes and levies higher than Central Government does. As a result, the revenue of local government from taxes and levies increases, which also increases GRDP.

The result of regression between GRDP and Revoked RR can be seen in Reg 2 in Table 1. It shows that the number of regional regulation has negative coefficient and significant impact to GRDP. The negative relation between GRDP and the number regulation also can be seen from the Graph 2 in Appendix 1. It means that if the number of revoked regional regulation increases in particular provinces, the GDRP of those provinces will decrease. As explained by Schwark (2009), it can be assumed that the uncertainty

created by the revocation causes hesitation among local and foreign investors to invest. As a result, lack of investment due to revocation can decelerate the local economic performance.

Furthermore, the significant and negative relationship between Ratio Revoked RR and GRDP can be seen in Reg 3 in Table 1 and in Graph 3 in appendix 1. The negative relation of Percent RR and GRDP indicates that when the ratio of revoked regional regulation increases in particular provinces, the GDP of those provinces will decrease. If the number of regional regulation increase, the ratio/percentage revoked regional regulation to regional regulation will decrease. The decreasing of the ratio will lead to the increasing of GDP.

4.1. Regional regulation as one of determining variables of economic performance

This section reported the results derived from the empirical model in this study. Three different techniques consisting of Pooled Least Square, Fixed Effect and Random Effect were employed to estimate the impact of regional regulation to economic growth in provincial level. The regression results of estimated models are presented in Table 2.

Based on the results, from the three proxies of regional regulations measured, which are RR, Revoked RR, and Ratio Revoked RR, only Ratio Revoked RR provided consistent negative coefficient, while RR and Revoked RR are inconsistent. The inconsistency of variable RR arose when random effect was applied. Whereas, the inconsistency of variable Revoked RR took place in the fixed effect regression. Due to the inconsistency of the two indicators, it can be assumed that the variable of Ratio RR is more appropriate to represent the regional regulation as one of determinants of GRDP.

Using Ratio Revoked RR as the variable interest and applying three techniques of panel estimation, Regression 3 (pooled least square), Regression 6 (fixed effect), and Regression 9 (random effect) in Table 2 represents the results of whole model. In order to obtain proper method analysis to be used, three tests including Chow

Table 2. Panel data regression results with all variables determining GRDP

	Pooled Least Square			Fixed Effect			Random Effect		
	Reg 1	Reg 2	Reg 3	Reg 4	Reg 5	Reg 6	Reg 7	Reg 8	Reg 9
Initial GRDP	0.966*** (0.137)	0.960*** (0.013)	0.958*** (0.133)	0.037 (0.435)	0.035 (0.043)	0.041 (0.044)	0.934*** (0.019)	0.929*** (0.109)	0.937*** `(0.019)
Capital formation	0.003 (0.005)	0.007 (0.004)	0.008* (0.004)	0.669*** (0.527)	0.780 *** (0.0465762)	0.715*** (0.056)	0.015* (0.009)	0.019* (0.008)	0.013 (0.019
Human Development	-0.00002 (0.0008)	-0.00001 (0.0008)	0.00002 (0.008)	-0.005*** (0.0008)	-0.004*** (0.0008)	-0.005*** (0.0008)	0.0004 (0.001)	0.0003 (0.001)	-0.0005 (0.001)
Labor Force	0.0001 (0.039)	0.001 (0.004)	0.0004 (0.003)	-0.009*** (0.003)	-0.105*** (0.038)	-0.010*** (0.003)	-0.002 (0.004)	-0.0008 (0.004)	0.0002 (0.004)
RR	0.008 (0.011)			0.045** (0.186)			-0.150 (0.112)		
Revoked RR		-0.103 (0.008)			0.024* (0.127)			-0.12 (0.106)	
Ratio Revoked RR			-0.081*** (0.286)			-0.277 (0.339)			-0.0955*** (0.035)
Obs	248	248	248	248	248	248	248	248	248
R2	0.9973	0.9973	0.9974	0.7300	0.7270	0.7233	0.9971	0.9971	0.9973
Adjusted R2	0.9972	0.9972	0.9973						
F	17884.04	17956.01	18435.71	114.63	112.91	110.82			
Prob>F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

***p<0.01, **P<0.05, *p<0.1

test, Hausman test, and Breusch Pagan Lagrange Multiplier (LM) test should be conducted. Chow test is used to determine the desirable method between pooled least square and fixed effect, while Hausman test is applied to decide the proper method between fixed effect and random effect, and Breusch pagan Lagrange Multiplier (LM) test is carried out to determine the appropriate method between pooled least square and random effect. The Table 3 presents those results.

From the results above, it can be concluded that the appropriate method to be used is fixed effect method (Regression 6). Nachrowi and Usman (2009) stated that fixed effect is a good method to eliminate the time invariant unobserved effect.

Regression 6 shows the estimated coefficient of gross capital formation, human capital, and labor force is significant. However, only gross capital formation that has positive impact to GRDP; while human capital and labor force is

Table 3. Test results among panel data methods

	Chow test	Hausman test	Breusch Pagan LM test	Selected Model
Pooled Least Square or Fixed Effect	Prob=0.0001			Fixed Effect
Fixed Effect or Random effect		Prob>chi^2 =0.000		Fixed Effect
Pooled Least Square or Random Effect			Prob>chibar^2 = 0.114	Pooled Least Square

negatively affect GRDP. Regarding the human capital, the possible interpretation of that negative impact is because the effect of investment in human capital cannot appear instantly, while the income spent in the investment process is taken annually (at least 20% from the total budget). Although in the short run human capital has negative effect to GRDP, the benefits of investment on education are expected will be acceptance in many years later (Atmanti, 2005).

There are several possibilities that cause the negative significant effect of labor force to the economic growth. Abdullah (2012) said that the employed unskilled labor force (at least two years working experience) and the low minimum wage gave negative contribution to the economic growth. The employed unskilled labor force hampers economic growth through the foreign investment. Since the level of wage of the employed unskilled labor is higher compared to the freshman, the production cost is more expensive. Another factor that caused negative effect of labor force to economic performance is the low minimum wage. Because the wage is low, the purchasing power of worker also low, especially when the high inflation happened.

Regarding to the insignificant coefficient of regional regulation, it can be conclude that there is not enough evidence to claim that regional regulation (the ratio of revoked regional regulation) affect economic performance. However, the negative sign of it coefficient is in accordance to the argument of legal expert. In this case, when the ratio of revoked regional regulation to regional regulation increase, which mean the number revoked regional regulation is relatively higher compare to the number of existing regional regulation, it can decrease economic development.

4.2. The variation effect of regional regulation among regions

The effect of the revocation of regional regulation may vary depending on the categorization of the GRDP level of those provinces. A province is categorized as a rich province if the GRDP of that province is above the median or as a poor province if the GRDP is below the median. The rich provinces are Nangroe Aceh Darussalam, Sumatera Utara, Sumatera Barat, Sumatera Selatan, Riau, Bangka Belitung, DKI Jakarta, Jawa Barat, Jawa Timur, Banten, Bali, Kalimantan Barat, Kalimantan Tengah, Kalimantan Selatan, Kalimantan Timur, Sulawesi Utara, Papua, and Papua Barat; while the poor provinces are Jambi, Bengkulu, Lampung, DI Yogyakarta, Jawa Tengah, Sulawesi Tenggara, Sulawesi Tengah, Sulawesi Selatan, Nusa Tenggara Timur, Nusa Tenggara Barat, Maluku, Maluku Utara, and Gorontalo.

Table 4. The variation effect of regional regulation between provinces

	POOR PROVINCE	RICH PROVINCE
Initial GRDP	0.023 (0.036)	0.060 (0.093)
Capital formation	0.749*** (0.085)	0.590*** (0.106)
Human Development	0.006 (0.005)	-0.005*** (0.001)
Labor Force	-0.228*** (0.039)	-0.009* (0.005)
Ratio of Revoked RR	0.697** (0.032)	-0.103* (0.059)
Obs	124	124
R2	0.8792	0.5541
F	144.09	24.82
Prob>F	0.0000	0.0000
***p<0.01, **P<0.05, *p<0.1		

In the rich provinces, the effect of revoked regional regulation (percentage to regional regulation) on economic growth is negative. It means that in the rich provinces, revoked regional regulations hamper economic performance. At least, there are two possibilities that make revocation negatively affect economic growth. First, regions tend to disobey the revocation and still implement that regulation (related to the tax and levies). This behavior (collecting

unauthorized tax and levies) creates uncertainty which increases capital cost and discourages the investors on those regions (Jalilian, Kirkpatrick, and Parker, 2006). Furthermore, they argue that politician's interference tends to create inconsistency by destabilizing the regulations to alter them for their own immediate advantage. Second, the revocations spread the exertion. In many cases, bad officers charge illegal fees for services which actually free or it is charged above the actual amount. This behavior may cause high economic cost, and then investor will choose other regions which offer lower business cost (Basri[8], 2004; Fauzi[9], 2013; Pri[10], 2013; Rajasa[11], 2013; Suroso, 2013). It is in line with Jacob's study (2004) which concludes that government in Asia depend on low quality and low-commitment regulators.

In the poor provinces, the effect of revoked regional regulations (percentage to regional regulation) on economic growth is positive. It means that in poor provinces, revoked regional regulations promote economic performance. The governments of poor provinces realize that they lack of resources. In order to compete with other regions which offer abundant resources to attract investor, they offer the low cost of doing business and shorten the bureaucracy. The ease of investing can attract investors, than increase economic performance (Basri, 2004).

5. CONCLUSION AND RECOMMENDATION

This study investigates the impact of regional regulation on economic performance in Indonesia by pane data analysis. This study utilizes data from 31 provinces in Indonesia over 8-years period, from 2002 to 2009. As the interest variable, this study uses three proxies of regional regulation variables which are the number of regional regulation, the number of revoked regional regulation, and ratio of the revoked regional regulation to the existing regional regulation. The aim of using those proxies is to provide better explanation about the role of regional regulation on economic performance.

After applying several regressions, the estimations show that only one proxy of regional regulation is suitable to be analyzed, which is the ratio of revoked regional regulation to regional regulation. Other variables that are used as independent variables in this study are initial GRDP, gross capital formation, human capital index, and labor force, while as dependent variable is income/GRDP.

Furthermore, this study concluded that the best method used to estimate the model is fixed effect method based on the results of F-Test, Breusce Pagan Lagrange Multiplier (LM)-Test, and Hausman-Test. The estimation result of fixed effect method shows that the estimated coefficients of gross capital formation, human capital, and labor force are significant. However, only gross capital formation that has positive impact to GRDP, while human capital and labor force negatively affect GRDP. The negative impact of human capital is caused by the effect of investment in human capital that cannot appear instantly, while the income that spent in the investment process is taken annually.

The negative significant effect of labor force to GRDP is caused by the employed unskilled labor force (at least two years working experience) and the low minimum wage (Abdullah, 2012). The employed unskilled labor force hampers economic growth through the foreign investment. Since the level of wage of the employed unskilled labor is higher compared to the freshman, the production cost is more expensive. Another factor causing negative effect of labor force to economic performance is the low minimum wage. Because the wage is low, the purchasing power of worker is also low, especially when the high inflation happened.

Regarding the insignificant coefficient of regional regulation, it can be concluded that there is not enough evidence to claim that regional regulation (the ratio of revoked regional

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[8] Researcher from University of Indonesia. Minister of Finance (now).
[9] Minister of Home Affairs

[10] Researcher from Padjajaran University.
[11] Former Minister Coordinator of Economy

regulation) affects economic growth. However, the negative sign of its coefficient is in accordance with the argument of legal expert. When the ratio of revoked regional regulation to regional regulation increases or, in other words, the number of revoked regional regulations is relatively higher than the number of existing regional regulations, the economic performance hampers. Generally, the result is in line with Jalilian, Kirkpatrick, and Parker's study (2006) which mentioned that the ability of the government to provide effective regulatory institutions and regulations could be the positive factors of the economic development.

In addition to that, by classifying provinces into rich and poor groups, the effect of regional regulation may vary. In rich provinces (provinces with GRDP above the median), the effect of revoked regional regulation (percentage to regional regulation) on economic growth is negative, meaning revoked regional regulation hampers economic performance. Conversely, in poor provinces, when the ratio of revoked regional regulation increases, their economic performance also increases.

For recommendation, this paper suggests that central government should give more attention to the phenomena of proliferation of regional regulations. The best action to overcome the proliferation by local governments is not by revocation, but by preventive action such as disseminating the impact of revoked regional regulations to the local governments' economic performance, improving regulatory organizations in terms of capacity and supervision to private sectors (World Bank, 2001) and educating them regarding the legal system and the grand design of decentralization . Thus, regions can obtain sustainable advantages from investment and avoid getting short-run benefit from taxes and levies.

Our study may have some limitations. Although Indonesia has transformed from one of the world's most authoritarian and centralized countries to one of the most decentralized and democratic countries, there are several functions that are still under the authority of the central government, such as: religion, foreign affairs, security and defense, fiscal and monetary policy, and justice. Consequently, most relevant variables related to those functions might be invariant across country, for example rule of law, foreign debt, exchange rates, and tariffs on trade (Vidyattama, 2007). In addition to invariant variables among regions, it is possible that some variables differ among regions but are not collected consistently for a long period of time because they are not considered important subject at the sub national level nor are they important in a particular period. Examples in this case are corruption and conflict. Unfortu-nately, data availability prevented this study to include those issues. Finally, we admit that the relationship between regional regulations and economic growth needs further analysis. However, we believe that this study provides new understanding that regional regulations affect economic growth of poor and rich provinces differently.

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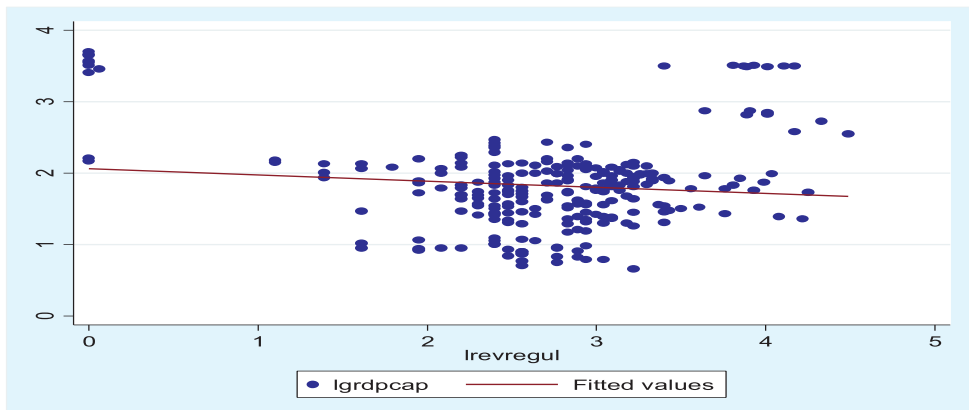
APPENDIX

APPENDIX 1
GRAPHS OF REGIONAL REGULATION AND GRDP

Graph 1. The relationship between regional regulation and GRDP
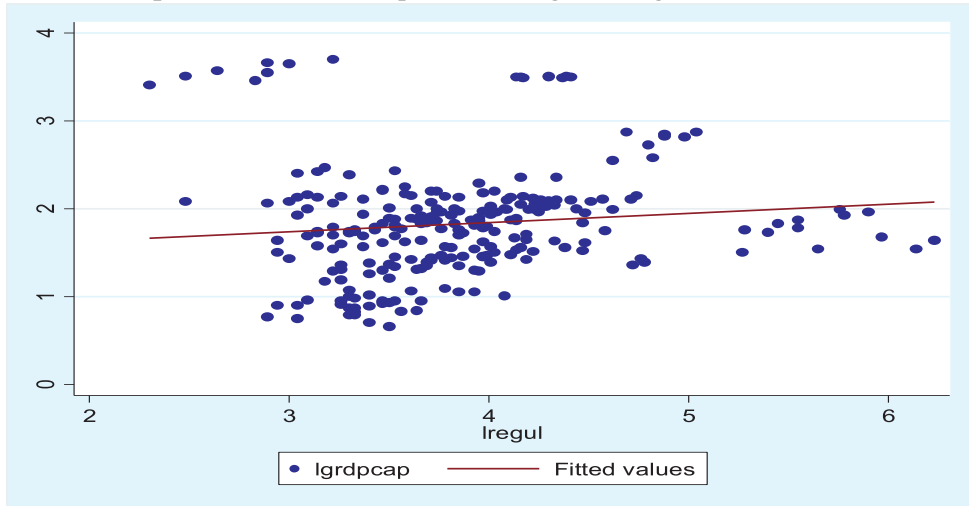
Graph 2. The relationship between revoked regional regulation and GRDP

Graph 3. The relationship between ratio of revoked regional regulation to regional regulation and GRDP