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How Does the Role of Government Improve the Quality of Education and How Its Provision? The Case of Public Junior Secondary Schools in Indonesia

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Abstract
This study aims to examine the role government through the Law No. 20/2003 of National Education System and government expenditures on education qualities in public junior secondary schools among provinces in Indonesia during the period of 2000-2004 and to analyze government's role in providing education of public junior secondary schools using panel data analysis. The results showed that the role of government through Law No. 20/2003 of National Education System and routine expenditure for public junior secondary school is significant improving the quality of education on public secondary schools level among provinces in Indonesia. Meanwhile, the education level of public junior secondary schools in Indonesia is the common resource, which has rivalry and non-excludable characteristics.
Keywords*:* Law No. 20/2003 of National Education System**,** Government Expenditures, Public junior Secondary Schools**,** Panel Data**,** Common Resource

1. INTRODUCTION

According to Musgrave (1989), the government essentially carries three main functions, among others. They are a function of distribution, allocation and stabilization. Allocation function is the role of government in allocating resources in order to create an efficient economy, namely the role of government to provide goods or services that cannot be provided through the transaction between the seller and the buyer in the market system due to market failure. Therefore, the government should provide these items (in this case the public goods). The distribution function is the role of government in influencing the distribution of income and wealth to ensure justice or a 'fair' setting on income distribution. Stabilization function refers to the government's action in influencing the overall level of unemployment, economic growth and prices. In this case, the government typically uses fiscal policy (budget policy) to reduce unemployment, a reasonable degree of price stability and sustainable rate of economic growth.

Politically, the role of Indonesian government to provide educational services for all citizens is fairly large. This is reflected in Article 31 of the 1945 Constitution, which stated that every citizen has the right to education, obliged to receive compulsory education and that the government is responsible for the fund. Through the amendment of Article 31 of the 1945 Constitution, this determination is further enhanced by the rule that prioritized educational budget by at least 20% of the national budget (APBN). The same percentage is also mandated to be allocated by each district in the local budget (APBD).[1]

Other government effort in building education services was realized through the preparation and adjustment of the rules and regulations. This preparation was carried out in line with changes in the political structure of government since the implementation of decentralization policy, which is governed by Law No. 22/1999 on Regional Government. A real example of preparation mentioned previously is the ratification of Law No. 20/2003. In reality, however, an attempt to build such education was faced with various problems. Therefore, the promise of providing every citizen his or her rights, a full participation in compulsory education, still cannot be fulfilled. In general, national education in Indonesia was faced with several problems, among others (PROPENAS, 2004): (1) Lack of equal opportunity to education particularly in terms of regions, gender and income level of residents. (2) Poor quality and relevance of education, workforce-irrelevant curriculum, the low quantity and quality of teachers and the lack of educational facilities and infrastructure. (3) Ineffective school management, both in private and public institutions. In addition, other issues are educational equity, which is closely related to a very sensitive issue, justice in gaining access to education. Getting a good education is the right of every citizen guaranteed by the constitution of the nation. Therefore, the government is obliged to provide a good education to the entire community.

According to data from the National Socio-Economic Survey (SUSENAS) of 2003, the net enrollment rate (APM) at the primary, junior, and senior high schools respectively were 92.6%, 63.5%, and 40.6%.

[1] In article 49 the Law no. 20 / 2003 on national education systems affirmed that figure at least 20 % was not including salary educator and educational costs of kedinasan.

Although the APM at the primary level is quite high, but at an advanced level (high school) is still low numbers. If those numbers are elaborated by rural-urban category, socio-economic status (poor people) and provincial (outside Java-Java) a striking disparity fact will be found. For example, APM at the junior and senior high schools in urban areas, respectively reached 71.9% and 56.1%, while in rural areas reached 54.1% and 28.7%. In addition, there are very significant differences in junior high school APM of rich and poor people, respectively 72.3% and 49.9%. Those disparity facts are also found in the provinces of Java and outside Java. Junior high school APM in Yogyakarta 78%, while in West Kalimantan, Central Sulawesi Bangka-Billiton, Papua, and Gorontalo are less than 50%. Even in NTT is still below 40%. Those disparities may become a reference to expand educational programs more evenly.

The relationship between school resources and student achievement levels become controversial because they involve different policy approaches of traditional and mixed results. Hanusek (1997) attempted to review the availability of literature on educational production. Research results show that there is no strong or consistent relationship between the performances of students with school resource availability, at least after variations in family inputs into account. These results are reconsolidated with meta-analysis approach to the investigation of how school resources affect the outcomes of the workforce. Results were confirmed by Burtless (1996), which supports research in the school production function. Krueger (2003) have criticized the method by Hanusek about selecting studies for review and interpretation as well as provide evidence of a positive relationship between the contrast of school resources and student achievement levels. Research on the effect of school resources was first published in the "Coleman Report" (Coleman et al., 1966), in which the schools are not affecting student achievement levels. Levacic et al., (2005) conducted a study on the effect of school resources on the students level of achievement on learning English at secondary school level (English secondary schools) using a national data set includes information on all students who attend school at the secondary level in the UK. The results showed a positive relationship from school resources on the high school level and find a positive effect of additional resources on students' age of 14 achievements. Furthermore, the results indicate that additional spending to reduce the student-teacher ratio is more effective than spending extra on non-teaching staff or an increase in public spending.

Based on the various issues concerning education and previous empirical studies carried out then the goal of this article is to examine the involvement of the government through Law No. 20 of 2003 on National Education System and government expenditures on education qualities, especially in public junior secondary schools level on various provinces in Indonesia during the period 2000-2004 and analyzing the involvement of government in providing educational level characteristics. In addition, since the introduction of regional autonomy in 2001, the management of junior high schools in Indonesia, which is under the Ministry of Education, is now under the responsibility of the district / city. While the Department of Education only act as a regulator in the field of national education standards. Structurally, junior high school is a districts / cities technical unit of education. This study did not including MTs (Madrasah Tsanawiyah) because of available data constraints in writing of this article.

Contribution of this article is to evaluate the role of Government through law No. 20 of 2003 and government expenditures on the national education system at public junior secondary schools level in Indonesia because the level is the bridge between elementary school (SD) and senior high school (SMA) in order to support the Government's policy regarding nine years basic education compulsory program (Wajib Belajar Sembilan Tahun) to prevent a decrease in the quality of basic education

2. THEORETICAL BACKROUND

Initial studies on school effectiveness or quality determination of the education are based on models of education production function. Interest in school effectiveness is already there, but serious efforts to measure the relationship between inputs (input) and outputs and outcomes began in the late 1950's (Hanusek, 1986). In the production function of education, educational outcomes (*outputs and outcomes*) are a function of the education input (inputs) and the educational process. Therefore, to describe the educational production function, need to be defined and measured process inputs and educational outcomes.

Inputs (inputs) are educational resources used in the production of educational activities (Windham, 1990). Inputs provided by the school can be distinguished from within and outside the school. School inputs include physical and human inputs. Inputs consist of the physical characteristics of the building, the characteristics of instructional materials, equipment characteristics, and facility characteristics. Human inputs include teacher characteristics and the characteristics of administrative personnel. The term characteristics are related to resource availability, quality, style and level of use. For example, an important characteristic of the teacher is the teacher ability to handle subjects (like mathematics) which are his / her responsibility. The influence of teachers' mastery in the field of study to the educational production process depends on the level of mastery on the field of study that can be measured as well as the manner and level of use (unit of time or effort of teachers, combined with other sources, including the unit of time and student's effort). Non-schools inputs are

vary but generally consist of student characteristics, family characteristics, and characteristics of the community. Characteristics of students are usually measured by gender, race and ability of early education students. Family characteristics tend to be represented by the level of parental socioeconomic status as measured by family income, education level, father and mother, family size, number of books in the home, property and others. Characteristics of the society may be measured by the degree of urbanization, poverty, racial composition, average education level, and the aspiration towards education, the average level of wealth and others (Hanusek, 2002).

For policy purposes, inputs are necessary to distinguish between the factors that are easy to intervene, and absolutely cannot be intervened by policymakers. Inputs kind of sex, race, and age of the students are obviously no intervene, inputs such as parental education and income can essentially be intervened, but it is not easy and cannot be done by the school but by other agencies. Among the inputs that can be intervened is teachers teaching load, number of students per class, the number of subjects and hours in the curriculum, experience and training of the teachers, teacher's salaries, availability of equipment, facilities, learning materials, and so on.

Educational process refers to the way of education changed educational inputs into outputs and outcomes of education (Hanusek, 1986). The term educational technology is used to describe the process of education. Traditional educational technologies typically include lectures / class discussions, group discussions, individual tutorials, self-study using textbooks, taught himself to follow the guidelines and others. Ideally, the products of education are classified between outputs and outcomes. Outputs are direct results of the educational process. Included in the outputs is a cognitive achievement, development of manual skills, attitude changes and behavior changes. Outcomes are long-term effects of the educational process. In this case the outcomes are included in revenues in the level of education or further training, achievement at the next level of education and training, employment, income, attitude, behavior, externalities, and others. Conceptually, a model that is built into the production function of education can be illustrated as follows (Hanusek, 1979):

$$A_{it} = f(B_t^{(t)}, P_t^{(t)}, S_t^{(t)}, I_t) \quad (1)$$

where for the *i* th student, A_{it} is achievement at time t; $B_t^{(t)}$ is vector of family backround influences cumulative to time *t*; $P_t^{(t)}$ is vector of influences of peers cumulative to time t; $S_t^{(t)}$ is vector of school inputs cumulative to the time *t* and I_i is vector of innate abilities.

3. METHOD AND DATA

The model used in this article is the development of the equation (1) as follows:

$$\ln A_{it} = \alpha_0 + \alpha_1 \ln G_{it} + \alpha_2 DSisdiknas_t + x_{it}^{'}\beta + \eta_i + \gamma_t + e_{it} \quad (2)$$

where A_{it} demonstrate students academic achievement of public junior secondary schools level in i region on t period which is the test scores of The National Final Examination (UAN) which is used as an indicator to show the quality of education on public junior secondary schools (SMPN) in Indonesia during research period, G_{it} are role of government in the public junior secondary schools level in Indonesia through routine and development expenditures. Disdiknas is a dummy variable that reflects the policy of Law No. 20/2003 on National Education System, where the value 0 is before the enacted Law no. 20/2003 and a value of 1 is applied after the Law No. 20/2003. X_{it} shows a set of dependent variable including *family input* in *i* region on t period is family income (in this case using GDP per capita as a proxy for the income of the family in constant prices of 2000), *teacher input* is ratio of students per teacher in period t and *schools inputs* are library facilities and the ratio of students per class size in t period in i region. Meanwhile, η_i is unobservable province-specific factors and γ t is time specific effects, which include the rate of technological change and e_{it} is the error term. This article uses secondary data from 26 provinces in Indonesia (after the decentralization era in Indonesia in 2001, Banten province coupled with West Java Province with the Pacific Islands, South Sumatra, North Sulawesi, Gorontalo province with, Province of Maluku and North Maluku province of West Irian Jaya and Papua) during the period 2000-2004 are estimated using panel data econometrics model. Data obtained from the Directorate General of Primary Education (DIKDASMEN) and Badan Pusat Statistik (BPS).

4. RESULT AND DISCUSSION

4.1. ROLE OF GOVERNMENT TO QUALITY EDUCATION

In choosing the best approach to estimate the model is carried out Hausman test to compare the fit between fixed effects models with random effects model. Hausman test based on the test results it can be concluded that the best method to estimate the characteristics of this data is a random effects model. It can be seen from the results estimated that the p-value = 0.8202 > 5%. Then H_0 accepted. Thus, the more precise the model is a random effects model.

Violation of assumptions in econometric model would produce value, which does not describe the pure effect of independent variables on the dependent variable. Based on the test results indicate that there is no

multicolinearity between the independent variables in the model. This is shown by test of correlation matrix showing no symptoms of multicolinearity in the model, since all the values of each variable correlation below 80%.[1] It means that there is no relationship between the independent variables in the model. Meanwhile, in the estimation of random effects to control heteroskedastic and autocorrelation then used robust standard error due to overcome autocorrelation and heteroskedastic have been corrected using the GLS estimation (Wooldrige, 2009).

Table 1 shows the estimation results using random effects model. Based on the estimation result shows that the role of government through routine expenditure for public junior secondary schools level more influential statistically significant at the 5% level in comparison to development expenditure in improving the quality of education level of junior high schools in Indonesia amounted to 0.0182. This means, if there is an increase of 1 per cent of the routine expenditure then it will improve the quality of education level of junior high schools in Indonesia at 0.0182 on public junior secondary schools level with assuming ceteris paribus. This is because the budget for the year 2001-2004 for the area of school education sector, particularly at the district / city more than the regular budget allocated to the development budget to reach more than 20% (Samosir, 2008). In this case, the public junior secondary schools expenditures more weeks to be allocated to fund teacher salaries and the cost of improving the quality of teachers and the maintenance and improvement of the school which is the greatest need for quality improvement or quality of schools and educational outreach. In addition, other thing due to management education has not run effectively and efficiently, especially since the decentralization of education has not been fully implemented. It is characterized, among others, yet intertwining of cooperation in the division of roles and responsibilities of each level of government, including the contribution to the provision of the education budget. Thus, the area tends to allocate more for teacher salaries compared to the provision of school infrastructure in line with the increase of teachers in the area. In addition, the allocation of education spending varies widely between regions. In Law No. 20/2003 stated that the intended 20 percent are outside the official salary and teacher educators. One of the problems that will arise is the difficulty for many local governments with the existing budget, forced to carry out 20 percent of teachers' salaries and official administration. This is due to the financial capacity of the area for each area varies in the bear budget.

The role of the government through the Law No. 20/2003 of National Education System as Dummy variable has a positive effect on the quality of education level of junior high schools in Indonesia amounted 0.0628 and statistically significant at 1% level. In article 49, first paragraph in Law No. 20/2003 stated that the funding of education in addition to salaries of educators and service education costs are allocated at least 20% of the national and regional budgets in the education sector. This means that with an increase in the budget allocation, particularly for the junior high school level can indirectly improve the quality of education in Indonesia. Including, in fourth paragraph of the education which funds from the central government to the provincial / district / city are given in form of grants in accordance with the legislation in force. Actually there are many articles that explain the role of central and local government, but from many of the provisions described above that can reflect the role of central and local governments in the national education system to improve education quality. Thus, the enactment of Law no. 20 of 2003, it is expected that the learning process takes place in the field of education should be to make the government's position as a facilitator and not the controller so that the main character is a teacher learning as teachers and students as students who receive admonition. Pupils or learners should be given the right to receive instruction in accordance with the choice and be treated in accordance with the potential and achievements.

The coefficient of family income has a positive effect on the quality of education level of junior high schools in Indonesia amounted to 0.0279 and statistically significant at 10% level. This is according to research conducted by Hanusek (2002), stating that the family income tends to a positive effect on verbal and reading one's accomplishments. In general, the cost of education is one of a significant portion of the expenditure of low-income households in Indonesia. For those households that included 20% with the lowest expenses, the percentage of the cost of education per child of total expenditure was 18.5% for junior high school level. Based on the cost of education, 20% for transportation, 10% is for uniforms and registration fees, and other expenses 11% (BAPPENAS, 2005).

The coefficient of the ratio of students per teacher in the models has a negative effect on the quality of education level of junior high schools in Indonesia at 0.0474 and statistically significant at 10% level. This is consistent with the theory proposed by Hanushek (1986). Based on research conducted by Hanushek (1986) and Fuller and Clark (1994) stated that the effect of class size and student-teacher ratio affect student performance on the upside. That is, at the level of the smaller class sizes, where there are more teachers per pupil will result an increase in better student achievement. According to the Directorate General of Primary Education (2005), in the academic year 2004/2005 the ratio of students per teacher for elementary education 20 people, while the MI (madrasah ibtidaiyah) 16 people. The ratio of students per teacher for junior high school education was 22 people at the junior high and 11 people on the MTs (madrasah tsanawiyah). The ratio of students per teacher for

[1] can be seen in appendix

high school education is 20 people (senior high schools level and vocational schools), and MA (madrasah aliyah) 9 people. Teachers who meet the eligibility to teach in elementary school unit is only 42.4%, 39.5% private primary school, with an average of 33.81%. While the level of junior secondary schools, an average of only 48.29%. Low average quality of teachers will affect the quality of education for elementary and secondary school levels. Currently, at least during the study period, there are four issues related to the problems faced by teachers related to the quality of education in Indonesia (Ministry of Education, 2005): firstly, the issue of quality of teachers, the second, the number of teachers who still in short supply, third, teacher distribution problem and the problem of teacher's welfare.

- The Issue of Teacher Quality
  Based on data from the year 2002/2003, out of a total of as many as 466,748 people junior high school teacher, 35, 9% or 167,643 people are unfit to teach. The reality of this kind, will ultimately affect the quality of the students. Not to mention the problem, where the teachers often teach more than one subject which is not a competency that he / she has, thus causing the learning process no to be optimal.
- The Shortage of Teacher
  The number of teachers in Indonesia is still in short supply, when linked with a number of existing students. Therefore, the number of students per class by the number of teachers available this time, still felt lack in proportion, so that is not infrequently one classroom is often filled with more than 30 students. A figure that is far from ideal for the teaching and learning process is considered effective. Ideally, each class is filled with no more than 15-20 students to ensure the quality of teaching and learning are maximized.
- Teacher Distribution Problem
  The uneven distribution of teacher is problem in Indonesia education world. In remote areas, often a strong shortage of teachers in the region, both for security reasons as well as other factors, such as problems with facilities and welfare of teachers who were deemed to be far expected.
- The Issue of Teacher's Welfare
  It well known, that the welfare of the teachers have been very poor. Teacher incomes, is still considered far from sufficient, especially for those as an assistant teacher or teachers. This conditions, has stimulated some of the teachers to seek additional income, apart from their main task as an educator, including doing business in the school where they teach as an educators. Increase the teacher prosperity to a reasonable level, so it can improve professionalism of teachers, as well as discouraging teacher to practices business in schools.

The coefficient of library facilities has a positive effect on the quality of education level of junior high schools in Indonesia at 0.0462 and statistically significant at 1% level. Based on research conducted by Fuller and Clarke (1994), almost all studies show teaching tools such as textbooks, supplementary reading materials, exercise books, and benches positively affect student achievement, particularly in elementary and middle schools. Meanwhile, the other control variables, namely the ratio of students per class size do not significantly influence the quality of public junior secondary schools level among provinces in Indonesia during period of 2000-2004.

Table 1. Regression for the Role of Government Role on Public Junior Secondary Schools Quality among Provinces in Indonesia during 2000-2004

Variables	Independent Variables Ln (National Final Examination)
Ln(Family Income)	0.0279*
	(0.0146)
Ln(Ratio of Student per Teacher)	-0.0474*
	(0.0264)
Ln(Libraries Facilities)	0.0462***
	(0.0175)
Ln(Ratio of Student per Class Size)	0.0490
	(0.0802)
THE ROLE OF GOVERNMENT	
1. Government Expenditures:	
• Ln(Routine Expenditure)	0.0182**
	(0.0091)
• Ln(Development Expenditure)	-0.0206
	(0.0139)
2. Law No. 20/2003 on National Education System	0.0628***
	(0.0167)
Cons	1.0869***
	(0.3021)
R-squared	0.2714

Description: Values in parentheses are robust standard errors
* Significant at the 10 %, ** significant at the 5 % and *** significant at 1 %.

4.2. GOVERNMENT INVOLVEMENT IN PROVIDING EDUCATION SECTOR IN PUBLIC JUNIOR SECONDARY SCHOOLS LEVEL IN INDONESIA

Theoretically, education at the public junior secondary schools (SMPN) in Indonesia is a pure public good because it meets the conditions of non-rivalry and non-excludable. The first dimension, non-rivalry in public junior secondary schools level characterized in that the level of education can be consumed by a number of people together, without reducing the amount that can be consumed by other consumers. In other words, it can be argued that one person will be able to increase their satisfaction with the junior high school education without reducing the satisfaction of others who will also enjoy the same stuff (Gruber, 2011). To reflect this since decentralization in 2001, the government's responsibility area in providing educational services to the population increased. The authority management of primary and secondary education has been fully transferred from the central to the provincial and district levels. Spending on education increased both in number and in a part of the national education spending. The number of shopping districts / cities for the education sector increased from Rp.26 trillion in 2001 to 52 trillion in 2006 and account for 50% of the national total public spending on education in 2006 (World Bank, 2008). The education sector at the regional level also increased priority to the issuance of Law 20/2003 on National Education System, which requires central and local governments to allocate at least 20% of its budget to the education sector. In addition, the government provides scholarships for families who cannot afford the costs of education, namely (a) BOS to basic education, (b) BKM for primary and secondary education, (c) scholarships for primary education to higher education. Especially for basic education (elementary and junior high school level), the ministry working with local governments to undertake a program of free schools achieve 9 Years Basic Education Compulsory Program as Law no. 20/2003 on National Education System.

The second dimensions in public junior secondary schools level are non-excludable. This illustrates that there is no possible way to exclude anyone in order to take advantage of public goods. The fact that the public junior secondary schools level is non-excludable reflected in the mandate of Article 31 Paragraph (1) and (2) the amendment of the 1945 Constitution that every citizen is entitled to education and every citizen is obliged to attend compulsory elementary education and government finance. In addition, the 9 Year Basic Education Compulsory Program by the government in an effort to give the expansion and equal opportunities for all citizens of the various groups of people of different social, economic and gender do to gain access to quality education. Thus, every citizen cannot be excluded in the harness and junior high school level of education obtained.

In practice, so far the level of education is a common resources on the education level of junior high school level (SMPN) in Indonesia has the characteristics of rivalry and non-excludable. Education level is an item that is rivalry, whereas to enter the education level of junior high school level should be determined through the test scores of The National Final Examination (UAN) and other requirements. Thus, these tests can determine a person's access to consumption and can reduce the availability of education and opportunities for people to participate in taking education at the junior high school. During this time, the ratio of students and teachers are still relatively lower than those set by the government. This will indirectly impact on the quality of teaching in the classroom. In the academic year 2004/2005 the ratio of students per teacher for junior high school education level is 22 people, while the ratio set by the government is 14 people. Meanwhile, teachers who meet the eligibility to teach at the junior high school average of only 48.29% (Directorate General of Primary Education, 2005). Thus, low student teacher ratio and will reduce the availability and opportunities for people to earn a quality teaching at junior high school level education. Library facilities based on the results of the econometric estimation, is one of the determinants of the quality of education at junior high school level. So far, that student access to library facilities still low. Still low student access to library facilities in Indonesia caused by several things, among others. First, the library at the secondary level schools in Indonesia has not been considered necessary to improve the quality of education. This is evident from not developing libraries in schools, especially outside the major cities, especially in isolated areas that the majority of poor people. Second, the low percentage of the budget allocated for library facilities, both at the national and local levels. Third, the weakness of library program at every level, both nationally and locally. Fourth, it is the low effort from the government. It is include local government seeking breakthroughs to fund library services. Fifth, the lack of effort to integrate library services with the school curriculum at the operational level. As such, the difficulty of access will impact on reducing the availability and opportunity to participate access facility many libraries.

In Article 49 paragraph no. (1) Law no. 20 of 2003 stated that the funding of education in addition to salaries of educators and service education costs are allocated at least 20% of the national budget to the education sector and at least 20% of the budget. In practice, the amount is not sufficient to finance various school activities routine needs in SMPN level (SMERU, 2003). Thus, the funds will indirectly charge to parents and the community. Maybe this is not a problem for old people who have relatively high incomes, but it will weigh if the parents have the low income. Therefore, this situation will limit the mobility of the people that have a low income, for children from high-income parents will get a better chance. Thus, the condition will reduce the

availability and opportunity to a lot of people; especially people with low incomes have access to education in the junior high school level. The government provides scholarships for families who cannot afford the costs of education by organizing free schools program to achieve Nine Year Basic Education Compulsory Program. Scholarship program in Indonesia are basically meant for students at primary and secondary levels of education from poor families or are unable to pay for school purposes. The fact that many people who are economically with a high enough income parents actually enjoy the scholarship program should be the right of families who cannot afford to pay for school purposes. Therefore, it will reduce the availability and opportunity many poor people in obtaining scholarships.

In addition to a characteristic of rivalry, this time the level of junior high school education in Indonesia has a characteristic non-excludable, which having education is a fundamental human right and is the basis for the implementation of compulsory education to be followed by all citizens of Indonesia. 1945 Constitution and Education Law stipulated that every citizen of Indonesia must complete 9 years of basic education and the costs are borne by the Government. Therefore, any citizen cannot be excluded in utilizing and obtaining education level schools in Indonesia. Figure 1 shows the classification education level of public junior secondary schools in Indonesia based on characteristics of the goods.

Figure 1. The Educational Classification of Public Junior Secondary Schools Level in Indonesia

CHARACTERISTIC	RIVALRY	NON-RIVALRY
EXCLUDABLE	Private Good	Natural Monopoly
NON-EXCLUDABLE	***Common Resource***	Public Good

Source: Based on Analysis Result

Nine Year Basic Education Compulsory Program organized by the government can indirectly create positive externalities for society. **First,** the high level of school participation rate of SMP can indirectly improve the quality of life of individuals. Education at this level can make more informed individuals who will provide positive benefits to the community by increasing quality taking decisions in addressing problems in the community. Besides, it can reduce the likelihood of people turn into criminals. This is another favorable outcome in terms of improving public safety and reducing costs for security. **Second**, it is the subsidies and grants of the central government to the regions at the level of junior high school education, and Law. 20 of 2003, which prioritizes the education budget at least 20% of the State Budget (APBN) and Local Budget (APBD), can help families who cannot afford to pay for education through the program. Therefore, it would be socially optimal if an individual can get education through the basic education subsidy from the government, even though his family was not able to reach the cost of education. This can create a positive externality because it can provide equal opportunities for all citizens of the various groups of people of different social, economic and gender can gain access to a quality education. **Third**, it is an increase in productivity. The highest of school, the students will make a person more productive. Thus, the public can benefit from the higher living standards that are in line with the increase in productivity. From the macro side, with the increased productivity indirectly have an impact on GDP and expected development in the country.

In addition to creating a positive externality, common resources at the level of junior high school education can create negative externalities. This is because inequality in the expansion and access the level of education that causes many people do not benefit. For example, people who are in remote areas away from access to education, the poor, gender inequality, concentration of quality SMP locations in urban areas, is less unequal distribution of teachers between urban and rural areas, establishing a scholarship program for poor people who were more frequently used by the rich.

The government effort to address *common resource* at the public junior secondary schools level of education in Indonesia, are includes thorough regulation and educational funding according to the principles of equity and justice. Equitable financing intended to prevent people who cannot afford it are able to subsidize public education as a result of the subsidy policy of equalization of education funding to all layers of society. In many case the inequality in education funding that most subsidies given to urban communities as a result of the concentration of good-quality educational services, both in the urban areas as compared to investments in education for rural communities. Inequality of educational investment resulted in underinvestment in rural areas and can be interpreted to mean that rural communities subsidize urban education. In fact, the general economic viability of rural communities has weak compared to the urban communities.

5. CONCLUSIONS AND RECOMMENDATIONS

There are several things that can be summed up in this study, **firstly**, based on the estimation results indicate that the role of government through junior high school level expenditures weeks to a better allocated to fund teacher salaries and the cost of improving the quality of teachers and the maintenance and improvement of the school

which is the greatest need in improving quality or the quality of schools and educational outreach than spending significant development in improving the quality of education. In addition, Law no. 20 of 2003 on National Education System has a positive influence on the quality of secondary school level education in Indonesia is at the 1% level of confidence. Application of the Law on National Education System No. 20/2003 has brought significant changes in the education system in Indonesia, where the local government who has been marginalized again involved. Giving local authorities in the National Education Act has provided space for local governments to be more effective in developing education at the local level with respect to the competencies required by each region. Control variable and statistically significant effect on the quality of junior high school level education is the family income, library facilities and ratio of student per teacher. Meanwhile, the ratio of students per class size did not show statistically significant results on the quality of education at the state junior high school in Indonesia during the study period.

Second, the education level of secondary schools in Indonesia are resources that have common characteristics rivalry and non-excludable. The level of education is an item that is rivalry, which has been to enter the education level of junior high school level, should be determined through the test scores of The National Final Examination (UAN) and other requirements. Thus, these tests can determine a person's access to consumption and can reduce the availability of education and opportunities for people to participate in taking education at the junior high school. In addition to a characteristic of rivalry, this time the level of junior high school education in Indonesia has a characteristic non-excludable, where access to education is a fundamental human right and is the basis for the implementation of compulsory education to be followed by all citizens of Indonesia, where in the 1945 Constitution and Education Law stipulates that every citizen of Indonesia must complete 9 years of basic education and the costs are borne by the Government.

This study only used data from the period 2000 to 2004. Nonetheless, there are still many limitations in this study, especially with regard to the methodology, data, and there are many other factors are thought to affect the quality of education for the junior high school level. For example, the parent's education level, gender of students, teacher education level, location of home to school distance, geographic and other dimensions. For further research it will be better if we use a data series for a longer period so that the research results will be better in reflecting actual conditions.

6. POLICY IMPLICATIONS

- Improve accessibility and expanding learning opportunities for all children of primary and secondary education with the main target areas, especially for the poor, remote and isolated normally available outside of Java through scholarships and assistance programs. It aims to address the disparity regarding the issue of access and educational services, particularly for the junior secondary level so that the gap between the gross enrollment rate (APK) and the net enrollment rate (APM) can be resolved, for example, the number of libraries and the students per teacher ratio. For both indicators provinces outside Java is far behind compared to the province on the island of Java. Java libraries out a little more so access to educational resources such as books become fewer. As for the ratio of students per teacher viable outside Java is relatively larger than in Java. So the possibility of students is covered by the teacher to be bigger too. One solution that is appropriate is to multiply the appointment of worthy teachers (teachers with a minimum of Diploma level) to be placed in the provinces that are outside Java.
- Improving the quality of basic education, so that each graduate has a basic competency that can be used to continue his or her education to a higher level, especially these to junior high school. This is to realize the Compulsory Basic Education Program Nine Years has been targeted by the government in 2008.
- Encourage the implementation of regional autonomy and decentralization of the management of continuing education to enhance community participation and local governments in creating educational development.
- Government should realize the education budget to 20 percent of the national and local budgets (APBN and APBD). In this case the Government emphasizes more on development than the regular budget allocation in order to improve the quality of education for secondary school. For example, the allocation of the funds used to support the development of secondary education through the provision of scholarships and school operational assistance (BOS). The budget is also used to expand learning opportunities, improving the quality and relevance of education, improving the efficiency and effectiveness of education, distance education for remote areas that cannot be affordable to ordinary schools (especially the junior and open MTs). In addition, it is used to optimize the role of Non-formal Education Packet A and Packet B to give the opportunity to students who cannot follow through formal education. Furthermore, the development budget in this sector are also used to develop the culture and moral education as a local curriculum management training for leaders of youth organizations, as well as coaching sports achievement at junior through education and training (Training) at the sports center for education and training exercise learner (PPLP). It is necessary for the achievement of quality education junior high schools who qualified.

REFERENCES

BAPPENAS. (2005). "Report of the National Poverty Reduction Strategy. Jakarta

_____. (2004). "Document of Documents and Implementation ". National Development Program 2000-2004 (PROPENAS) viewed 1 January 2011, http://www.bappenas.go.id/node/42/320/program-pembangunan-nasional-2000-2004-propenas-/

Bedi et al., (2000). "The Effectiveness Of Private Versus Public Schools: The Case of Indonesia". Journal of Development Economics. Elsevier Vol. 61/2000. 463–494

Directorate General of Primary Education. (2005). "Elementary and Secondary Schools Level in Indonesia". Ministry of Education and Culture of the Republic of Indonesia.

Coleman et al., (1966). Equality of educational opportunity. Washington, D.C.: U.S. Government Printing Office.

Figlio, David N (1999) "Functional form and the estimated effects of school resources". Economics of Education Review 18 (1999) 241–252

Fuller B, Clarke P. (1994). "Raising. School Effect While Ignoring Culture? Local Conditions and the Influence of Class Room Tools, Rules and Pedagogy." Rev.Ed. Res. 64(1): 119-58.

Gruber, Jonathan. (2011). "Public Finance and Public Policy" 3ed. Worth Publisher.

Hanushek E K. (2002). "Publicly Provided Education". Handbook of Public Economics, Volume 4, Edited by A.J. Auerbach and M. Feldstein, Elsevier Science B.V. All rights reserved.

_____(1986). "The Economics of Schooling: Production and Efficiency in the Public School". J. Econ. Lit 24:1141-77.

_____(1995). "Education Production Functions". In Carnoy M (ed.). (1995). International Encyclopedia of Economics of Education, second edition. Pergamon Press, Cambridge, the United Kingdom.

_____(1979). "Conceptual and Empirical Issues in the Estimation pf Educational Production Functions". The Journal of Human Resources, Volume 14, Issue 3, 351-388.

Krueger, Alan B. (1999). "Experimental Estimates of Education Production Functions." Quarterly Journal of Economics 114,no.2 (May):497-532

Levacic et al., (2005)" The Effect Of School Resources On Student Attainment In English Secondary Schools. Institute Of Education And Centre For The Economics Of Education, Institute Of Education, 20 Bedford Way, London Wc1h OAL.

Melva Samosir. (2008) " The Effects of Decentralization on Education in Indonesia: Education for All?" Master Theses in Public Policy and Human Development. Universiteit Maastrich. Maastrich Graduate School of Governance. The Netherlands.

Musgrave and Musgrave. (1989). "Public Finance in Theory and Practice". 5th ed. Mc-Graw Hill.

Rosen, Harvey. (2008). "Public Finance" 8ed. McGraw-Hill International Edition.

SMERU. (2003). "A Quick Observation About The Problem of Education and Social Safety Net (JPS) Programs, scholarships and DBO in the Four Provinces, the Case in Pontianak, Tanggerang District, Sleman Regency, and Regency East Lombok". Jakarta

Windham D M. (1990). "Indicators of Educational Effectiveness and Efficiency." Office of Education, Bureau for Science and Technology, USAID.

Wooldridge, Jonathan. (2009)." Introductory Econometrics: A Modern Approach". 4th Edition. South Western

World Bank. (2008). "Investment in Education on The Level of Regency /City in Indonesia: A Review of The Public Expenditure and Financial Management At The Local Level. World Bank

APPENDIX: ECONOMETRICS RESULTS

1). Hausman Test: Fixed Effect VS Random Effect

. hausman fe re

```
                ---- Coefficients ----
          |      (b)          (B)          (b-B)     sqrt(diag(V_b-V_B))
          |       fe          re        Difference          S.E.
-------------+----------------------------------------------------------------
    ddiknas |    .0727507     .0627722       .0099785       .0097551
         lf |   -.1341884     .0461564      -.1803447       .1511753
         re |    .0126265     .0181684      -.0055419       .0055922
         sc |    .0424861     .0490289      -.0065429       .0669291
         de |   -.0187578    -.0205586       .0018008        .003626
         fi |   -.1183657     .0278757      -.1462414       .1548875
         st |   -.0288213    -.0474152       .0185939       .0206462
------------------------------------------------------------------------------
           b = consistent under Ho and Ha; obtained from xtreg
           B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic
                  chi2(7) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =       3.64
                Prob>chi2 =      0.8202
```

It can be seen from the results estimated that the p-value = 0.8202 > 5%. Then H_0 accepted. Thus, the more precise the model is a random effects model.

2). Random Effects Estimation

xtreg loguan ddiknas lf re sc de fi st, re vce (robust)

```
Random-effects GLS regression                   Number of obs      =       112
Group variable: prop                            Number of groups   =        26

R-sq:  within  = 0.1887                         Obs per group: min =         2
       between = 0.3604                                        avg =       4.3
       overall = 0.2714                                        max =         5

                                                Wald chi2(7)       =     43.79
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000

                                (Std. Err. adjusted for 26 clusters in prop)
------------------------------------------------------------------------------
             |               Robust
      loguan |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    ddiknas |   .0627722    .016682     3.76   0.000     .0300761    .0954683
         lf |   .0461564   .0175233     2.63   0.008     .0118113    .0805014
         re |   .0181684   .0091472     1.99   0.047     .0002401    .0360967
         sc |   .0490289   .0801981     0.61   0.541    -.1081565    .2062143
         de |  -.0205586   .0138918    -1.48   0.139    -.0477861    .0066689
         fi |   .0278757   .0145835     1.91   0.056    -.0007075    .0564589
         st |  -.0474152   .0263623    -1.80   0.072    -.0990843     .004254
      _cons |   1.086895   .3020983     3.60   0.000     .4947936    1.678997
-------------+----------------------------------------------------------------
    sigma_u |  .05552814
    sigma_e |  .06470506
        rho |  .42411602   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```


3). Breusch-Pagan Lagrange Multiplier (LM): OLS VS Random Effect
Breusch and Pagan Lagrangian multiplier test for random effects

loguan[prop,t] = Xb + u[prop] + e[prop,t]

Estimated results:

	Var	sd = sqrt(Var)
loguan	.0085778	.0926167
e	.0042468	.0651673
u	.0029086	.0539312

Test: Var(u) = 0
chibar2(01) = 25.47
Prob > chibar2 = 0.0000

Here we failed to reject the null and conclude that a simple OLS is not appropriate. This is, no evidence of significant differences across provinces, therefore we can run a random effects.

4). Test of Serial Correlation
xtserial loguan ddiknas logperpus logsiswakelas logrutin logpem logycap2000 logsiswaguru, output

Linear regression
Number of obs = 86
F(7, 25) = 30.19
Prob > F = 0.0000
R-squared = 0.1993
Root MSE = .08411

(Std. Err. adjusted for 26 clusters in prop)

D.loguan	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
ddiknas						
D1.	.067338	.0214844	3.13	0.004	.0230901	.111586
lf						
D1.	-.0120352	.0046569	-2.58	0.016	-.0216262	-.0024442
sc						
D1.	-.1185118	.1384538	-0.86	0.400	-.4036627	.1666392
re						
D1.	-.002018	.0104815	-0.19	0.849	-.0236051	.019569
de						
D1.	-.0187525	.0111325	-1.68	0.105	-.0416803	.0041752
If						
D1.	-.1777754	.2111395	-0.84	0.408	-.6126253	.2570746
st						
D1.	.0174796	.0407164	0.43	0.671	-.0663775	.1013367

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
F(1, 19) = 1.427
Prob > F = 0.2469
Note that the null hypothesis of no serial correlation is strongly accepted.

5). Test of Multicolinearity

. corr lf sc re de fi st ddiknas
(obs=112)

	lf	sc	re	de	fi	st	ddiknas
lf	1.0000						
sc	0.4280	1.0000					
re	0.4725	0.2821	1.0000				
de	0.4092	0.0462	0.2285	1.0000			
fi	-0.0459	0.1624	-0.0082	0.0919	1.0000		
st	-0.0439	0.3095	0.3249	-0.1472	0.1310	1.0000	
ddiknas	-0.0439	-0.1531	-0.5422	0.1037	0.0592	-0.3784	1.0000

Based on the test results indicate that there is no multicolinearity between the independent variables in the model. This is shown by test of correlation matrix showing no symptoms of multicolinearity in the model, since all the values of each variable correlation below 80%.

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