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The Impact of Public Expenditure and Efficiency for Economic Growth in Indonesia

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Abstract

The aim of this study is to examine the impact of public expenditure and efficiency to economic growth of regencies and cities in Java, Indonesia in the period of 2011-2016. This study employs secondary annual data on education expenditure, health expenditure, gross fixed capital formation, inflation rate, population growth, and per capita gross regional domestic product as obtained from Central Bureau of Statistic (BPS) and Autonomy Directorate General in Ministry of Finance (DJPK). Fixed effect model was applied for a sample of 73 regencies and cities in Java, Indonesia. The study results present that the increase in public expenditure will improve the economic growth of regencies and cities in Java, Indonesia. The study results also demonstrated a fact when the public expenditure is intercommunicated with the government efficiently; the positive evidence for government involvement in leading the impact of public expenditure on economic growth becoming unnecessary. Based on this study result, fiscal policy maker of regencies and cities in Java, Indonesia should consider more for using the expenditure to accelerate the economic growth.

Keywords: public expenditure efficiency; growth; fixed effect model

JEL classification: H51; H52; H54; O11

Introduction

The debate of government involvement in economic system and its outcome has long been a history since the Keynesian and Neo Classical eras (Danu Prasetyo and Zuhdi 2013). This involvement is corrected by market economy nature. It is an existed belief that, when market is not perfect, the government involvement is; therefore, needed to reduce the distortions derived from the market failure. The objective of replacing the economic system is to reach efficiency and economic growth (Danu Prasetyo and Zuhdi 2013). Nevertheless, when justifying the market imperfections, the government is not needed to substitute the workings of the market system preferably to compensate for its shortage (Danu Prasetyo and Zuhdi 2013). Even as the government aims to reach better efficiency by means of replacing the workings system of the economy, it is an opinion that the government intervention might cause the replacement of private sector performance as the effect of crowding out (Danu Prasetyo and Zuhdi 2013). In most matters, the increasing of public expenditure in developing nations leads to the crowding out of private investment. In consequence, the whole process slows down the economic growth (Chang, Huang and Yang 2011). Despite all of these discussions, the opinion, whether government expenditure supports positively towards economic growth, had become an accepted keynote in almost world economies over time (Danu Prasetyo and Zuhdi 2013). Throughout this hypothesis, for the public expenditure to have meaningful contribution to the country's economic growth maximum efficiency in all resource allocations is very essential. The relationship between the public expenditure and the economic growth indicates various outcomes which are affected by the

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efficiency level (Rahmayanti and Horn 2011). The government performance towards economic growth is more meaningful along with the promotion of government accountability (Hauner, Kyobe and Fund 2010). Public expenditure becomes an input which demands maximum efficiency in distributions to smooth or speed economic growth. Thus, maximization of the growth requires more attention simultaneously of public expenditure and the government efficiency level in resource distribution.

In Indonesia, the government spending has continued to rise annually. Available statistic data present that total government expenditure (capital and recurrent) and its components have continued to rise in the last six years. For instance, government total recurrent expenditure increased from 201,991,751 million in 2010, to 338,698,797 million in 2013 and further to 511,339,197 million in 2016. On the other hand, government capital rose from 241,573,417 million in 2010, to 361,988,009 in 2013 and capital expenditure stood at 422,369,662 in 2014 and 577,116,794 in 2016 respectively.

However, the increase of the government expenditure may have not been translated to meaningful growth and development, as Indonesia rank is still among the middle low income countries in the world. In addition, the economic growth explored by economists of Indonesia was not balanced with the state budget which had an increase of 100 percent every 10-year period. Furthermore, macroeconomic indicators like inflation rate, balance payments, import obligations, exchange rate, and national saving reveal that Indonesia has unexpectedly progressed in the last five years.

It is an unfortunate fact that the increasing of government expenditure seems have not been replicated at the same level of economic growth in Indonesia (between 2010 and 2016), while the GDP growth rate was decreasing (6.38 down to 5.03); while the government expenditure growth rate was increasing (15% to 27.1%). Thus, the government expenditure growth rate has been greater than GDP growth in the same period demanding the inverted relationship between the two periods.

In consequence of the mixed assumption previously presented, this study finds out whether increasing public expenditure would accelerate the economic growth of regencies and cities in Java Indonesia. The study also examines whether government efficiency is considered as an accelerated breakthrough for encouraging the impact of public expenditure on economic growth. Hence, this study answers the two research questions as follows: Firstly, how are the impacts of public expenditure on the economic growth of regencies and cities in Java, Indonesia? Secondly, does the government efficiency encourage the public expenditure on the economic growth of regencies and cities in Java, Indonesia?

The rest of the paper is organized as follows: Section 2 provides a literature review including on the relationship of public expenditure, efficiency and economic growth; Section 3 presents the research method being used in this study to answer the two research questions; Section 4 provides a complete objective of the study; Section 5 presents, discusses and interprets the empirical result; and Section 6 provides the conclusion and the implication of the study.

1. Literature review

1.1. Overview of public expenditure, efficiency and economic growth

The evaluation of public expenditure efficiency as the measurement of government performance remains a relevant issue. It is still not only at the academic and political debate in the public sector but also becomes one of the main issues in public finance (Inverno, Carosi and Ravagli 2017, Hauner and Fund 2008). To date, numerous studies which relate public expenditure and economic growth have produced different results. Some researches, such as: (Osborn 2007, Govindaraju, Rao and Anwar 2011, Yahya *et al.* 2012, Minh Quang Dao 2012, Okoro 2013, Patricia and Izuchukwu 2013, Chipaumire 2014, Al-Fawwaz 2016, Ebong, Ogwumike, Udongwo and Ayodele 2016, Oladele, Mah and Mongale 2017, and Wanjuu and le Roux 2017), generally conclude that the increasing public expenditure leads to the economic growth. Other researches like (Onuorah, A.C 2012, Rashid Mohamed, Singh Jit Singh and Liew 2013, Ahmad and Othman 2014, Chipaumire 2014, Hasnul 2015, Idenyi, Ogonna and Chinyere 2016, Kaakunga 2006) proved that increasing the public expenditure conversely turned down economic growth while some studies like (Sinha 1998, Kollias, Manolas and Paleologou, 2004) explained insignificant relationship between public expenditure and economic growth. Referring to such various opinions, it is sensible to decide that the relationship between public expenditure and economic growth remains unconvincing.

It is an existed point of view that in order to reach robust result when examining the impacts of public expenditure on economic growth, the government efficiency must be thought over (Rahmayanti and Horn 2011, Mandl, Dierx and Ilzkovitz 2008, Angelopoulos, Philippopoulos and Tsionas 2008). The economic growth not only depends on public expenditure but depends also on the capability of the government to distribute its public resources and efficiency. The maximization of growth needs collectively consciousness of public expenditure and

efficiency (Angelopoulos 2008). Based on this opinion, it is rational to decide that public expenditure and efficiency are inevitable if the nation or countries desire to reach better economic growth through public expenditure.

1.2 Government efficiency and economic growth

The question of government efficiency becomes one of the essential point issues. The question which arises more is: what is government efficiency? and where is it from? (Kimaro, Choong and Sea 2017). In the face of focusing on relationship between government efficiency and economic growth, it would be principal to have a concise meaning of institution as the general or universal set by which the government efficiency is initiated.

In a human manner, institution is viewed as the formalized restraint which designs human being synergies. Related to the concept of institution, physical engineering is recognized as the social technologies in the process of productive economic activities involving any human being interactions and deciding the persuasion (Law and Habibullah 2006). From the institutional point of view, market is not regarded as the physical environment of economic appearance, yet it is social institution which depends on the progress of accurate rules and norms (Hodgson 2016). Thus, the institutions are acted as the regulation in the economic play which dictates the interactions among the economic agents (Law and Habibullah 2006).

Afterwards, how do the institutions implement and influence the economy? The quality of the institution is considered essential in the economic system as they produce economics synergies. Institution quality confirms performance standards among various economic agents. From the science or knowledge pours, the outlook exists via the spillovers of technologies transmission, quality of institutions in the perspective of government regulations quality and the confident relationships which are contributed by the socio-cultural economic groups as well as are intermediated by the organization to integrate better market and technological convergence (Kimaro *et al.* 2017). South Korea is an instance to prove that the quality of the institutions supports technological convergence among various manufacturing companies like Hyundai and Samsung which deal with a supply of automobiles and electronics successively (Rasiah 2011). To date, it has been found that government efficiency is the result of the quality of institutions (Radaelli and Francesco 2010). Government efficiency, effective government and the quality of governance are used to indicate the ability of the government to organize and to carry out the sound policies which have positive impact in the economy. Afonso, Schuknecht, and Tanzi (2008) explained the meaning of government efficiency as the ability of the government to invest its public resources in order to create public goods and services which advantage in the economy and lead the economic growth. Better quality of the institutions confirm more effective government which distributes the public resources more efficiently and encourages the economic growth (Law and Habibullah 2006)

1.3 Public expenditure and economic growth

The question which arises is: does the increase in public expenditure usually speed economic growth? If the increase in public expenditure maintains economic growth, then some various factors such as efficiency and source of finance to provide facilitate that expenditure will also be worth considering (Riedl 2008, Lorena Cakerri, Migena Petanaj, and Oltiana Muharremi 2015). In addition, Lorena Cakerri, Migena Petanaj and Oltiana Muharremi (2015) point out that more and more of the process of increasing the public expenditure related with borrowing financial resources from private investors, does not support new spending power in the economy which is vital for economic growth. Government loaning from the private investors finishes at the redistribution of the existing income rather than produces any new productive projects which later smooth the economic growth. The growth of economic is not pushed by allocating among wealthy individuals in the nation; it is preferably supported by new spending power. Enlarging government expenditure which attracts competition between private and public sector on the available credits motivates tension in the credit market; thus the result is raising the interest rate.

In the neo classical growth models argue that higher government expenditure may slowdown overall performance of the economy. For instance, in an attempt to finance rising expenditure, government may increase taxes and or borrowing. Higher income taxes discourage individual form working. This is in turn reduces income and aggregate demand. In the same vein, higher profit tax tends to increase production costs and reduce investment expenditure as well as profitability of a firm. Moreover, if government increase borrowing (especially) from the banks) in order to finance its expenditure, it will compete (crowds out) away the private sector, thus reducing private investment. In fact, studies by (Landau 1986, Barro, Quarterly and May 1991, Engen 1992, Stefan Folster 2001) suggested that large government expenditure has negative impact on economic growth.

But, in Keynesian model, increase in government spending will have a tendency to run into higher aggregate demand and ensure a rapid increase of economic growth. Government performs two functions; protection and provisions of certain public goods (Al-Yousif 2000). Protections function consists of the creation of rule of law and

enforcement of property rights. Provisions of public goods are roads, education, health, defence and power. Some scholars argue that increase in government expenditure on social economic and physical infrastructures encourage economic growth. For example, government expenditure in health and education raises the productivity of the labour and increase the economic growth. Similarly, expenditure on infrastructure such as roads, communication, power, etc., reduces production costs, increase private sector investment and profitability, thus fostering economic growth (Nurudeen and Usman 2010). Supporting this view, scholar such as (Al-Yousif 2000, Cooray 2009), concluded that expansion of government expenditure contributes positively on economic growth.

1.4 Empirical relationship between public expenditure and growth

The impact of public expenditure has been analysed widely, but the results are inconclusive. For instance, Oladele *et al*. (2017) analyse the contribution of government spending towards economic growth in South Africa by using annual data form 1980-2016 and by applying Vector Error Correction Model. The result presents that there is a positive significant relationship between government expenditure and economic growth on the long run in South Africa, while on the short run, there is a negative and significant relationship between government spending and economic growth. Khusaini (2016) analyse the effects of public sector expenditure towards local economic development in East Java, Indonesia by applying the method of the path analysis. The results showed that public sector expenditure has a direct positive effect on local economic development, but not all public sector expenditure indicators have an indirect effect on local economic development. Indirect effect occurs through spending on education and health sectors.

However, Corsetti (2013) identifies the effects of the two economic components of the government spending which are the country capital and the country current spending per capita of economic growth in Latin America countries over period of 1975 to 2000. The study employed GMM method and found that government spending brought no impact on the economic growth in the long term. Similarly, Connolly and Li (2016) employ a generalized method of moments with fixed and random effects panel data from 1995 to 2011 for 34 OECD countries. The study examines the effects of government consumption spending, public spending and public investment as the independent variables. The study results found that the increasing the public spending has a significant negative effect on economic growth; meanwhile, government consumption spending and public investment have no significant effect on economic growth.

1.5 Empirical relationship between government efficiency and growth

Related to the significance of government efficiency in accelerating the impact of public expenditure on economic growth, (Hauner *et al.* 2010) GMM and panel data were applied for 114 countries. The findings showed that the efficiency increases the effects of the government expenditure, in which higher income countries show better public sector. Thus, the study concludes that efficiency and the status of income are closely interlinked each other. Additionally, Butkiewicz (2011) states that if the government is less efficient, the government expenditure indicates to slow down the economic growth. Consistent results which support the significant of efficiency to boost the effects of public expenditure on economic growth are also explored by Rahmayanti and Horn (2011) examining the relationship among government expenditure, efficiency, and economic growth. The study uses panel data of 63 developing economies. The results show that government efficiency has effect on government expenditure to accelerate the economic growth. More results which support the role of efficiency to boost the effects of public expenditure on economic growth are also reported by Angelopoulos *et al.* (2008) who states that getting a robust impact of overall government expenditure on economic growth without expenditure-efficiency is tedious. This statement is consistent with the hypothesis of Rahmayanti and Horn (2011) who also give comment that efficiency is imperative when examining government expenditure and its impacts on economic growth.

2. Research method

2.1 Object of research

The objects of this study are 73 regencies and cities in Java, Indonesia in the period of 2011 to 2016. Those provinces are selected based on: 1. Geographical location, the provinces are expected to denote provinces located on Java Island due to their proximity to the central expenditure and centre of economic; 2. Population, the largest population is used as a criterion in selecting the province; 3. Economic Growth, selected province has a lower regional economic growth after decentralization compared to regional economic growth before decentralization. Based on several considerations as described above, regencies/cities in Central Java and East Java are selected as an object in this study. Both Central Java and East java have the largest population compared to other provinces

in Indonesia. Both Central Java and East Java have lower regional economic growth after decentralization than before decentralization.

2.2 Sources of data and description of variables

This study uses secondary data which are collected from several publications of Central Bureau of Statistics (BPS) and Autonomy Directorate General in Ministry of Finance (DJPK). Accordingly, the variables which are involved in this research are GDRP per capita (y_{it}) to denote economic growth used as a dependent variable. Control variables are as follows; Gross Fixed Capital Formation is measured as a percentage of GDRP to denote physical capital stock (k_{it}); growth rate of population to denote growth of labor force (l_{it}); inflation (cpi_{it}) in order to catch the effectiveness of monetary policy; public expenditure for education and health expenditure (g_{it}) is measured as a percentage of GDRP and government effectiveness (eff_{it}) used as a proxy for government efficiency and an interaction term with government expenditure for education and health. To obtain a measure on government efficiency, the researchers follow the methodology of Kumbhakar and Lovell (2000) as an approach in measuring government efficiency. By estimating a stochastic production frontier for the public sector, the model form is as follow:

$$\ln y_i = \beta_0 + ln\beta_1 x_i + v_i - u_i \quad (1)$$

where: y_i is a measure of public sector output in regency or city *i*, the average of the public sector performance index as a measure is $y_{i,.}$ If x_i is a measure of public sector input, total public expenditure (as share of GDRP) is applied which is available from Autonomy Directorate General in Ministry of Finance. Next, u_i is nonnegative technical inefficiency component or an error term, and v_i is the noise component assumed to be distributed normally and independently of u_i.

2.3 Method of analysis

The panel data methods which used include: common effect, fixed effect and random effect. Determining which model suits the best in the study is conducted by testing the suitability of the model. Therefore, to estimate a suitable model selection, several following stages are employed:

- *Chow Test:* This test is conducted to choose a suitable model between common effect and fixed effect models. The hypothesis that is formed is:

  H_o: Common effect model H_1: Fixed effect model.

The first step is to establish panel data regression with common effect method and subsequently with the fixed effect model. The test result is as follows: if the value of Chi-square probability or the value of F-test probability is less than (<) 0.05 then Ho is rejected; thus, the right model is a fixed effect model, and vice versa.

- *Hausman Test:* This test is used to choose the right model between the fixed effect model and random effect model. The hypothesis which is formed is:

  H_o: Random effect model H_1: Fixed effect model.

The first step is to establish panel data regression with fixed effect model followed by random effect model. The test result show that in case the probability value of random effect is less than (<) 0.05 then Ho is rejected, in which the right model is a fixed effect model, and vice versa.

2.4 Model specification

This study applies the two different models in order to test the impacts of government expenditure (education and health expenditure) and efficiency on economic growth of regencies and cities in Java Island, Indonesia. Model one examines the effects of government expenditure (expenditure in education and health) and other control variables without the involvement of government efficiency. Model two examines the effects of government expenditure and other control variables including efficiency of the government. Therefore, model two examines the capability of the government to manage or to organize the suitable policies intending at right distribution of public resources and its impact on growth. The two models are described as follows;

2.4.1 Model one

$$y_{it} = \beta_0 \sum_{i=1}^{4} \beta_i x_{it} + \varepsilon \quad (2)$$

where: y_{it} denotes economic growth. *X* stands for control variables which are as discussed in section 2.2 above, which are the physical capital stock (k_{it}), growth of labor force (l_{it}), inflation rate (cpi_{it}) and public expenditure in terms of education and health expenditure (g_{it}).

Although the relationship between economic growth and its explanatory variables is linear, this study employs natural logs and implements the growth model forming the equation (1) as follows:

$$\ln Y_{it} = \beta_0 + \beta_1 \ln k_{it} + \beta_2 \ln l_{it} + \beta_3 \ln cpi_{it} + \beta_4 \ln g_{it} + \varepsilon_{it} \quad (3)$$

From the equation (3), public expenditure influences economic growth of regencies or cities in Java Indonesia as follows;

$$d \ln y_{it} = \beta_4 d \ln g_{it} \quad (4)$$

$$d \ln y_{it} / d \ln g_{it} = \beta_4 \quad (5)$$

This equation (5) examines the influence of public expenditure on economic growth of regencies and cities in Java Island, Indonesia. This estimation answers the research question as stated in section 1.

2.4.2 Model two

In order to examine the government efficiency in distributing public resources, this study involves government efficiency in the general growth model as an inter play designation. The objective of the model is to examine the government efficiency in driving the effects of public expenditure on economic growth. Thus, government efficiency is interacted with public expenditure. By intercommunicating public expenditure with government efficiency, this study uses the model two as follows:

$$y_{it} = \alpha_0 + \sum_{i=1}^{4} \alpha_i X_{it} + \alpha_5 g_{it} * eff_{it} + \in \quad (6)$$

Although the relationship between economic growth and its explanatory variables is linear, this study uses natural logs and conducts the growth model from equation (6) as follows:

$$\ln y_{it} = \alpha_0 + \alpha_1 \ln k_{it} + \alpha_2 \ln l_{it} + \alpha_3 \ln cpi_{it} + \alpha_4 \ln g_{it} + \alpha_5 \ln g_{it} * eff_{it} + \in \quad (7)$$

From the equation (7), the significance of government efficiency in encouraging the effects of public expenditure towards economic growth is assessed as follows:

$$d \ln y_{it} = (\alpha_4 + \alpha_5 eff_{it}) d \ln g_{it} \quad (8)$$

$$d \ln y_{it} / d \ln g_{it} = \alpha_4 + \alpha_4 eff_{it} \quad (9)$$

Equation (9) presents the significance of government efficiency towards encouraging the effectiveness of public expenditure for preferable economic growth. Therefore, it replies the research question two which is expressed in section 1.

3. Empirical results and discussions

This section of this study focuses on presentation, discussions and interpretations of the result of choosing model in panel data through Chow Test and Hausman Test. This section also answers the two research questions.

Result of choosing model

In the panel data method, the three methods used include: common effect, fixed effect and random effect. To find out which model is the best in the study, further test is conducted to choose the appropriate model. Chow test is applied to see whether common effect or fixed effect is better by the following steps:

- *Chow Test.* This test is used to choose a suitable model between common effect and fixed effect models. The hypothesis which is formed is:

H_o: Common effect model H_1: Fixed effect model.

Table 1. The result of Chow test

Effect Test	Statistic	d. f.	Prob.
Cross-section F	378.652293	(72,361)	0.0000
Cross-section Chi-square	1,899.851725	72	0.0000

Source: Secondary data (processed), 2018

Table 1 shows that the value of Chi-square probability or the value of F-test probability is 0.0000 < 0.05. H_0 is rejected; thus, the appropriate model is fixed effect model.

- *Hausment Test.* This test is used to select the right model between fixed effect model and random effect model. The hypothesis which is formed is:

H_o: Random effect model H_1: Fixed effect model.

Table 2. The result of Hausman test

Effect Test	Statistic	d.f.	Prob.
Cross-section random	378.652293	5	0.0000

Source: Secondary data (processed), 2018

Table 2 presents that the p-value as obtained by Hausman Test between fixed effect model and random effect model at the 5% significance level is 0.000. Since p-value is less than the 5% of significance level (0, 05), thus, it can be decided that the fixed effect model is more appropriate to examine the research. Here is the conclusion of the election results from testing the model in the study:

Table 3. Conclusion of model selection

	Prob.	Conclusion	
Chow Test	0.0000	Reject H_0	FEM better
Hausman Test	0.0000	Reject H_0	FEM better

Source: Secondary data (processed), 2018

The result of Fixed Effect Model

Table 5. Result for Panel Fixed Effect Model

Variables	Model one		Model two	
	Coefficient	Test Statistics	Coefficient	Test Statistics
C	3.329633	29.61934 (0.0000)	3.121559	30.72849 (0.0000)
Lnl_{it}	-0.289461	-13.60934 (0.000)	-0.322939	-14.09260 (0.0000)
Ln k_{it}	-0.395612	-3.496925 (0.0005)	-0.249763	-2.018584 (0.0443)
$LnCPI_{it}$	-0.001590	-1.039791 (0.29911)	-0.002109	-1.307364 (0.1920)
Lng	3.84e-08	7.122529 (0.0000)	0.003540	3.912049 (0.0001)
Lng*eff			0.004031	1.895420 (0.0589)
Adjusted R-squared		0.989332		0.986905
Durbin-Watson stat		1.251028		1.321685
Observation		438		438

Source: Secondary data (processed), 2018

Table 5 presents several results: In model one when the government efficiency is not interacted in the growth model, the variable of public expenditure is statistically significant positive at 1 per cent of significant level. However, in model two, when government efficiency is interacted in the growth model as an intercommunication term, the

result shows that the intercommunicative term is not significant at all level of significance. The other variables are statistically significant at 1 per cent of significant level but the CPI variable is not statistically significant. These results are confirmed by the exam statistics and p-values which are described in the table.

The impacts of public expenditure on economic growth

Model one demonstrated that the coefficient of public expenditure has a positive sign and significant value as expected by this study. The results state that 1 per cent increase in public expenditure to regencies and cities in Java Indonesia accelerates the economic growth by 3.84 per cents. The findings of positive impacts between public expenditure and economic growth are consistent with (Govindaraju *et al.* 2011, Yahya *et al.* 2012, Sirag, Nor, Adamu and Kher Thinng 2016) who conclude that increasing the public expenditure speeds economic growth of Malaysia; (Qi 2016, Zhang and Zou 1998, Chen 2010) who find that increasing public expenditure accelerate the economic growth of China; (Ogundipe and Oluwatobi 2013, Patricia and Izuchukwu 2013, Okoro 2013, Ebong *et al.* 2016) who reveal that the increase of public expenditure on capital expenditure and recurrent expenditure lead the economic growth in Nigeria.

The impacts of government efficiency on economic growth

The signification of government efficiency is performed by the coefficient of intercommunication term *i.e.*, when public expenditure is communicated with government efficiency. The coefficient of communicative term has a positive impact as supposed by this study although statistically it is not significant. This positive coefficient interprets that the government or public expenditure and government efficiency are counterbalance value they carry out simultaneously to smooth economic growth of regencies and cities in Java Indonesia. The results state that 1 per cent increase in public expenditure which is interacted with government efficiency accelerates economic growth by 0.004 per cents. Based on this finding, the government of regencies and cities in Java Indonesia has failed to be effectives on the distribution of public expenditure for boosting the economic growth. This finding is consistent with several studies by James Guseh (2000), and Yabbar, Ismail, Santosa, and Susilo (2014) pointing out that the improvement of efficiency level in public sector had not always impacted on the economic growth.

The impacts of control variables on economic growth

In this paper, the rest of the variables related to economic growth of regencies and cities in Java Indonesia are as follows:

- The variable of labour represents the population growth rate. The statistic results show that the coefficient of lobor rate has supported the growth theory both in model one and model two. The results show that there is a negative relationship between population growth rate and economic growth. The increase of 1 percent of population growth rate can inhibit 10 percent of economic growth. This finding is consistent with the studies by (Fact 2009) and (Emmanuel Nkoa Onggo and Sciences 2014).
- The variable of capital denotes the capital stock. Based on statistical result, there is negative relationship between physical capital stock and economic growth. The increase of 1 percent of physical capital stock slows down the 0.39 percent on economic growth when the government efficiency is intercommunicated in the growth model and 0.25 percent when the government efficiency is not intercommunicated in the growth model. This result is in line with the studies by Onyinye, Idenyi and Ifeyinwa (2017) and Emmanuel Nkoa Onggo & Sciences (2014), when the government efficiency is involved in the gowth model, the coefficient of capital stock is also negative. The results show that the increase of 1 percent in physical capital stock accelerates the economic growth of regencies and cities in Java Island, Indonesia by 29 percent when the government efficiency is included in the growth model. Furthermore, all models show that the coefficient of inflation has a negative sign related to the expectation of this study. The results show that the increase of 1 percent of inflation can retard the 0.02 percent when the efficiency of government is included in the growth model and the 0.01 percent when the government efficiency is not included in the growth model. This finding is consistent with the studies conducted by Kasid and Mwakanemela (2013) and W. Madurapperuma (2016).

Conclusion

Government involvement in economic activities of regencies and cities in Java, Indonesia gives spillover advantages. Based on the empirical results of this study, public expenditure accelerates the economic growth of regencies and cities in Java, Indonesia. It is unfortunate fact that the government efficiency does not prove any evidance to speed up the impacts of public expenditure on economic growth in regencies and cities. As a result,

the efficiency of the government on regencies and cities in Java, Indonesia was not effective to the public expenditure distribution to accelerate economic growth. Thus, the government of regencies and cities in Java Indonesia has shown imperfection related to the management and the implementation of the suitable policy towards the public expenditure distribution for speeding the economic growth.

Based on these findings, the study proposes that the government of regencies and cities in Java, Indonesia should broaden the public sectors in order to accelerate economic growth. It is expected that the expanding of public sectors involves several factors which can enlarge the government expenditure. Even though the public expenditure increased, the making decision maker, in this case is through the policy should consider some other factors which are important to defend the positive impacts between public expenditure and economic growth in the regencies and cities.

There are some suggestions to note: Firstly, it is very important to inject the power of expenditure in the economy by guaranteeing the external finance and by dissociating the domestic loans to prevent the crowding-out of private sector: Secondly, public expenditure should have a good planning for expenditure, should conduct periodic evaluations to set minimum service standards, should enhance transparency within public sector procurement and should improve supervision function in public expenditure. It is intended that public expenditures can accommodate the budget to produce better service, especially services which are productive in driving regional economic growth. Productive services include: services in education sector, health sector and infrastructure sector. Thirdly, public expenditures should improve the quality of labor with education and training. It is believed that the improvement of the quality of labor will improve productivity and output, as well as will encourage economic growth. Fourthly, it is recommended that the government to dissociate any potential distortions while the taxation is applied to mobilize the government revenues to protect the private sector sustainability. Afterwards, some creations on increasing the society level of spending in public investment can be achieved by diminishing their urgencies when they fund public project. In addition, the efficiency of the government should be considered as a very essential point on economic growth by means of public expenditure; nevertheless, the empirical results of this study have been unsuccessful to verify the hypothesis. Even if the link between the government efficiency and economic growth is positive; unfortunately, the effect on economic growth is not significant. Therefore, the government of regencies and cities in Java, Indonesia should update or correct the institutions targeted to be better in managing and implementing suitable policies which have direct significant impacts on economic growth.

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