

# **Is Government Expenditure in Human Capital Investment of Districts/cities in DI Yogyakarta Productive to Improve the Labor Productivity?**

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## **ABSTRACT**

The effectiveness of government spending affects the labour productivity depends on the type of expenditure. This study aims to determine the influence of local government spending on the labour productivity, the influence of government spending in the function of education and health to the labour productivity, and also to compare the effectiveness between the total spending and the expenditure according his function, in education and health, on the labor productivity. Utilizing econometric method, OLS of panel data, this study employed secondary data from local government's summary provided by the Indonesia Ministry of Finance. It is 2002-2014 data of five districts in Daerah Istimewa Yogyakarta (DIY) Province. Both of the expenditure, the total government expenditure and the expenditure by each function, influenced the labour productivity. Only government expenditure in health function increased the productivity. The size of the population and the territory of districts/cities in DIY was proven to lower the labour productivity.

Keywords: regional government, human capital investment, economic growth

## **INTRODUCTION**

The fiscal decentralization is implemented in Indonesia as part of the regional autonomy. Huge money that is originally managed by the central government transferred to the local government to be governed. The local government is expected to capture the aspirations of the people as its principal. It is is expected to encourage the course of development can really be optimized for the benefit of the common people through the closeness.

Regional autonomy has many dimensions and is generally divided into three namely administrative, political, and fiscal. It is neglected the readiness of the fiscal capacity. When the local government is ready to manage the fiscal source, the transfer will optimize the welfare of its people. The fiscal policy becomes more efficient and

effective, more corruption can be eliminated. On the opposite, the transfer only generates waste and consequently the corruption that was in the center actually spread to the regions.

Kyriacou and Sagalés (2008) argued that decentralization can improve the quality of government in various ways. Those are firstly, local government can increase people's satisfaction in receiving public services due to get more precise information; secondly, the local population can exercise control and can also reward and punish it as well as direct the way of better local governance; and thirdly, fiscal is decentralized in flexible way and more competitive authorities are expected that local governments can provide public goods efficiently. It is more responsive to the demand and at low cost and also creates lower levels of corruption in the regions. In this way, both the local government and the people get the positive side.

Through decentralization, the principle of accountability mechanisms will emerge. It consists of external competition with other governments and also pressure in the local government itself with regard to its local democracy (Bardhan and Mookherjee, 2005). We can't deny, that in general, the lack of government accountability is common in transitional and developing countries. This occurs because of the malfunctions of local democracy, which are associated with the asymmetry of knowledge, wealth, social status, and patterns of political participation.

In a developing country, the different condition of regions is existing between the central dan regional especially capacity of human resources. Therefore the administration in the area is weak, the rule of the game is not good enough. Because of this condition, the accountability of the elites in executive is weak as well. While the authority given is large in terms of function and number but limited of capacity and accountability of administrative then of course it has a risk of large deviation and also vulnerable to be corrupted.

Suprayitno (2011) found that the greater fiscal decentralization received by local governments more corruption in the region. This is because the process of decentralization in Indonesia since 2001 is run suddenly in line with the reforms that resulted in changes included in the governance structure resulting in Law No.22 on

Local Government Year 1999 and updated with Law no. 32 of 2004. This sudden process was not accompanied by better governance capacity than before.

In this fiscal decentralization era, Rp518.9T from Rp1657.7T of expenditure in RAPBN 2013 is transfer directly to the local government through the balancing fund (Kemenkeu, 2012). More than that, the (central) government also expend 30% of the APBN in the region through ministries and institutions. Thus, there is about 65% of the APBN expend in the regional. Through this mechanism, good or bad of development in Indonesia depends on the good or bad quality of local government in carrying out development.

Unfortunately, the implementation of the APBD is not intended for the welfare of the people. It has big portion to be spent for official expenditure. Nationally, the average of official expenditure is 42% and even some regions have expended more than 70% of the total expenditure, such as Aceh Barat, Langsa, and Ciamis (Kemenkeu, 2012).

Decentralization should not be construed as simply raising money managed by local governments but also businesses that require the creativity and innovation of local governments in terms of spending. When the local government emphasizes its financial management on the revenue side, there is no doubt that there will be many levies or levies whose purpose is to increase revenues. If this is done blindly without seeing its impact on the economy as a whole then it will actually decrease income in the future because we know that taxes/retributions and the like will be disincentive or have negative economic multiplier. Conversely, when the government considers well the expenditure is done, it is expected that the priority of particular sectors / fields is targeted so as to create an optimal economic multiplier.

Stansel argued (2009) that government spending in total is not so important in relation to economic growth. While this spending is broken down into a more specific component of the investment expenditure, it shows that the greater the government investment is the higher the growth it gets. On the other hand, as expected, this government investment is also effective in lowering the unemployment rate in the area.

Denaux (2007) found the similar that local government spending on higher education significantly affected the region's economic growth. But for expenditure at lower levels

the school (12 years) has no effect on economic growth. Research conducted at a more macro level by Oluwatobi and Ogunrinola in Negeria also shows that government spending on education and health enhances economic growth. Findings at a broader level, the world, Dao (2012) also show that government spending in human capital investment is very important. This study shows that the country's economic growth depends on the level of government spending on education, health, in addition to other investments.

The quality of the government depends on how the conditions of the existing regional government according to the dimension. Various implementations of the role of government are protecting or robbing ownership, letting or suppressing differences, serving or distorting the public through its executives. The dimensions of government include (La Porta et al, 1998) the most common standard of good government is to protect property rights, maintain regulations, and taxes, efficient governance or a quality bureaucratic side, with good bureaucracy the government can intervene The government also performs essential public services in development such as the provision of health services, the provision of educational facilities and infrastructure, and the provision of infrastructure, and other performance indicators are spending on subsidies, government consumption, and public sector empowerment, and the dimensions The latter is the right of democracy and political rights.

Corruption of the government depends also from the centralization of the government. The more centralistic of government authority the more centralized the power so that facilitates government agencies to corrupt. Through decentralization, corruption is diminishing. On the contrary, there are many empirical studies which show that the more decentralized the more marginal propensity to accept bribery, the more corrupt it grows when decentralization occurs. This happens because the potential for corruption will easily arise when only a few segments of bureaucrats need to be involved for corruption (Fjeldstad, 2004).

When local governments have greater constraints than the central government or have inappropriate systems of reporting and accounting, or contribute to less open and less criticized government systems, decentralization tends to make corruption more rampant.

In this condition, corruption at the center is much less than the level of corruption that has accumulated in the local government. Thus the capacity and quality of local institutions and character in the local political arena are important variables for predicting the impact of fiscal decentralization on corruption (Kolstad and Fjeldstad, 2006).

There are various ideas about decentralization. This is due to the inequality of the proposed dimension. Treisman (2002) considers decentralization for various sides of structures, decisions, resources, elections, and institutions. Kaufman et al (2006) considers six governance dimensions of accountability and freedom of speech, political stability and low abuses, government effectiveness, regulatory quality, and rules of conduct and control of corruption. While La Porta et al (1998) classifies government performance variables into five groups: private sector intervention, public sector efficiency, public goods supply, size of government, and political freedom.

Agrawal and Ribot (2002) suggest the dimensions of decentralization as presented by the Menor of administration, fiscal, and democracy. Meanwhile, according to Binswanger decentralization has political dimensions, fiscal, and administration. While Agrawal and Ribot themselves argue that to run decentralization is the perpetrator, power, and accountability. Without understanding the power of the various actors, the domains employed in the exercise of power, and to whom it must be accountable, it is impossible to study about the best form of decentralization. In the view of the concept, further Agrawal and Ribot argue that the political and administrative dimensions are characterized by a combination of these three components.

The IMF argues that the new trends and challenges posed in managing governance in globalization is to carry out sustainable development. According to Gupta et al (2002), sustainable development consists of three pillars. The three pillars are economic development, social development, and environmental protection. The essence of the pillars is to maintain and enhance the capacity and capabilities of future generations and meet the needs of the present generation. To achieve multi-dimensional tasks, human capital must be strategically cultivated and positioned for both current preservation and

future economic growth and development. Lyakurwa (2007) states that humans have three essentials of choice for a better quality of life is to have a long and healthy life, acquire knowledge, and gain access to biological resources to obtain a decent standard of living. If these various essences are not met then opportunities for better living will not be achieved including economic growth and development.

Of the various essences put forward it is clear that to get a better quality of life then human capital investment is needed ie investment in education and health. With educational investment, their productivity will increase through technological improvements and increased knowledge as the basis for economic growth. Health is also in line with education, a good level of health will support improved education with indications of nutrition, mobility, illness, and high population (Lyakurwa, 2007).

Human development paradigm must include 1. Productivity, society should be enabled to increase their productivity and to participate fully in the process of increasing income and profitable work; 2. Justice, society should have access to equal opportunities where all barriers to economic and political opportunities should be abolished; 3. connection, access to opportunity must be ensured not only for the present generation but also for future generations; 4. Empowerment, communities must participate fully in decisions and processes that determine their lives (UNDP, 2010). This principle is used for human capital approaches by improving health, education and skills.

The production function refers to the Cobb-Duglas function production function (Yeoh and Stansel, 2013) as follows:

$$Y = f(K, L) \tag{1}$$

Where  $\alpha$  and  $\beta$  are each output elasticity to changes K and L, then the function is:

$$Y = A.K^\alpha L^\beta \tag{2}$$

Assuming that the production has a constant return to scale pattern, and the above equation is divided by L then:

$$\frac{Y}{L} = A.\left(\frac{K}{L}\right)^\alpha \tag{3}$$

Taking log form therefore:

$$\ln\left(\frac{Y}{L}\right) = \ln(A) + \alpha \ln\left(\frac{K}{L}\right) \quad (4)$$

A is total factor productivity (TFP) where TFP can be obtained from government expenditure in various public service facilities such as water, roads, electricity, health, education and so on:

$$\ln(A) = A + \gamma \text{PUBLIC} \quad (5), \text{ then}$$

$$\ln\left(\frac{Y}{L}\right) = A + \gamma \text{PUBLIC} + \alpha \ln\left(\frac{K}{L}\right) \quad (6)$$

This per capita growth model is used as a reference model in estimating the relationship between variables studied.

## METHOD

This research is quantitative approach utilize econometric method with panel data. It analyze secondary data from summaries of local government budgets of districts in DIY provided by the Ministry of Finance Directorate General of Finance Regional Finance Indonesia and BPS in 2002-2014.

We carry out the model used in this study is the model used by Yeoh and Stansel (2013) in examining the effect of government spending on growth and unemployment rates in the US. The model used is modified as follows this description. In general the production equations used in Cobb-Dauglas production theory are:

$$Y=f(K,L)$$

This model can be specified to be developed in accordance with the role of government expenditure as the previously described, we take look again at equation (6):

$$\ln\left(\frac{Y}{L}\right) = A + \gamma \text{PUBLIC} + \alpha \ln\left(\frac{K}{L}\right) \quad (6)$$

Changing the name and modifying the equation, we get the following equation.

$$\text{LnGRDPcap} = A + \gamma_i \text{PUBLIC}_i + \alpha \text{LnCAPITALcap} + \beta_1 \text{LnPOP} + \beta_2 \text{LnLAND}$$

(7)

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GRDPcap or Y/L or VALUE: Regional GDP per capita of labor, we can get it from each provinces. This presents labor productivity in the province. PUBLIC<sub>i</sub> is composed of various expenditures, we use only three kinds of expenditures namely education expenditure (GEdu), health expenditure (GHealth), and expenditure of service / home and public facilities (GFac). PUBLIC<sub>i</sub> to be Gtot, while it represent the total of all expenditures not only the three. CAPITALcap = K / L is the capital stock per capita, for the proxy used gross capital change in GRDP usage. POP is the population in the province. LAND is the total area of the province.

## RESEARCH RESULT AND DISCUSSION

### 1. Data Description

The following descriptions provide a general profile of the data.

Table 1

Descriptive statistics

	Mean	Median	Maximum	Minimum	Std. Dev.
VALUE (Rpmillion/capita labor)	22.72	19.21	82.07	6.60	16.48
GTOT (Rpmillion)	733,045.70	626,227.00	1,978,674.63	78,628.43	421,847.83
GEDUC (Rpmillion)	343,990.05	304,226.30	856,881.02	21,108.52	208,466.13
GFAC (Rpmillion)	67,805.86	52,812.16	252,039.01	6,449.72	49,154.24
GHEAL (Rpmillion)	84,436.90	75,368.90	291,217.02	4,489.53	57,677.36
KapB (Rpmillion)	2,388,603.00	1,881,884.00	8,664,699.00	179,822.00	1,999,571.00
POP (jiwa)	682,810.94	677,998.00	1,160,596.00	372,167.00	267,196.31
LAND (km <sup>2</sup> )	637.16	574.82	1,485.36	32.50	474.52

The lowest value of labor productivity per capita per year (Value) according to the actual price was Rp6.6 million as the labor productivity of Kab. Bantul. The average



productivity of Bantul alone during 2002-2014 was Rp15.8 million. The highest value was Rp82.07million as the labor productivity in Yogyakarta City and the average productivity was Rp47.3million. This is understandable considering that Bantul relies heavily on agriculture and small industry while the city of Yogyakarta is the capital of the province with a level of economic activity far greater than Bantul.

The average value of this productivity in DIY is Rp22.72 million, where the lowest one was Gunung Kidul about Rp14.4 million and the highest one was Yogyakarta City, Rp47.3 million. This shows that the average labor productivity in DIY (DIY) was very low. This means that every month, the average labor productivity in DIY was only Rp1.6 million. More than that, the existing disparity among the districts because of the different regional typologies.

The lowest total value of government spending (GTOT) was Rp78.6milliar as the Gunung Kidul Local Government total spending. The highest government expenditure was Rp1,978.7milliar as the spending of Sleman Local Government.

The average local government spending in DIY in 2002-2014 amounted to Rp733.05million. The highest average spending was Sleman Government spending, Rp930.3milliar. The lowest one was by the Government of Kulon Progo, Rp571.2milliar. Sleman local government had the highest regional income, Sleman had large industrial centers and property with relatively more expensive price than other districts in DIY. Thus, this condition that causes local government spending Sleman occupy the highest one in DIY.

The three regional government expenditures were namely education expenditures (GEduc), health expenditures (GHeal), and general public and housing expenditure (GFac) expenditure, the largest one was GEduc. This was because expenditures in this field include teacher salaries and benefits that were now handled by regional authorities. In addition, the compulsory of local governments to provide education spending portion was 20% of APBD causes this happen.

On average, the highest education expenditure per year during 2002-2014 was conducted by Sleman Local Government amounting to Rp416.4milliar. While the lowest one was the Yogyakarta City Government Rp257.9milliar.

The highest average expenditure for public facilities and housing per year during 2002-2014 was conducted by the Bantul Local Government amounting to Rp93.9milliar. While the lowest one was by the Government of Gunung Kidul Rp46.3milliar. From the fact that there was indeed seen that the existing infrastructure such as roads in Yogyakarta, Bantul has a good enough of road infrastructure. It even spread to the corners.

On average, the highest expenditure on health per year during 2002-2014 was conducted by Sleman Local Government amounting to Rp106.2milliar. The lowest was by the Government of Gunung Kidul Rp65.7milliar.

## 2. Model Estimation

After estimating the equation, we obtained the following results:

**Table 2**  
**Result of Estimated Government Expenditure by Function**

Dependent Variabel: LVALUE		
Variable	Coefficient	Prob.
C	9.501024***	0.0000
GHEAL	1.13E-06	0.4342
GFAC	-7.56E-07	0.3026
GEDUC	1.02E-06***	0.0042
LKLB	1.03E-07***	0.0006
LPOP	-0.413986***	0.0011
LLAND	-0.279968***	0.0000
R-squared 0.906923		
Adjusted R-squared 0.896581		
F-statistic 87.69411, Prob(F-statistic) 4.85e-26		
***Sig 1%, ** sig 5%, *sig10%		

The model estimation results utilizing the total expenditure of provincial government (Gtot) obtained the following results:

**Table 3**  
**Total Government Expenditure Estimation Results**

Dependent Variabel: LVALUE		
Variable	Coefficient	Prob.
C	10.99954	0.0000
GTOT	4.96E-07	0.0000
LKLB	1.37E-07	0.0000
LPOP	-0.554573	0.0000
LLAND	-0.227261	0.0000
R-squared 0.879468		
Adjusted R-squared 0.871433		
F-statistic 109.4485 Prob(F-statistic) 7.42e-27		
***Sig 1%, ** sig 5%, *sig10%		

Violiting non-autocorrelation assumption, it is better to improve the estimation so that the classical assumption is not violated. To overcome this then the researchers do the estimation by Robust LS method. This method is considered better to overcome the estimation results that violate nonautocorrelation and homoskedastic assumptions.

After the reestimation of Robust LS for both models, the results can be summarized as follows:

**Table 6**  
**Comparative Results of the Human Capital Investment Model and Government Expenditure Estimates (Robust LS)**

Dependent Variabel: LVALUE		
Variable	Human Capital Investment Model	Total Government Expenditures Model
C	9.993759***	10.09332***
GHEAL	3.31E-06**	
GFAC	-9.69E-07	
GEDUC	4.24E-07	
Gtot		6.40E-07***
LKLB	1.31E-07***	1.20E-07***
LPOP	-0.467396***	-0.495464***
LLAND	-0.243347***	-0.217853***

In the human capital investment model we can see that the human capital variable of government expenditure in the health sector only influenced the change of labor productivity increase. 1 unit increase (ie per Rp1 million) of government expenditure in the health sector resulted in an increase in labor productivity of 0.0000033 or 0.00033%. If there is an increase of Rp1M in health expenditure then it will increase labor productivity by 0.33%.

Thus, if the current average labor productivity in DIY in 2014 is Rp34.5 million, each Rp1billion unit increase in health expenditure will increase labor productivity by 0.33% or become 34.6 million. In 2014, the average health expenditure of district in DIY was Rp189.6billion, if it is increased by 10% or Rp18M it will increase the labor productivity by 5.94% or will increase to Rp36.5billion.

Expenditures on public facilities and housing and education have no effect on the increase of labor productivity of districts in DIY. This can happen because government spending on education was not governed properly. As we know the amount of education expenditure that is not in accordance with its function to encourage the quality of education itself. Much expenditure was made as gaining private provide in executing the budget.

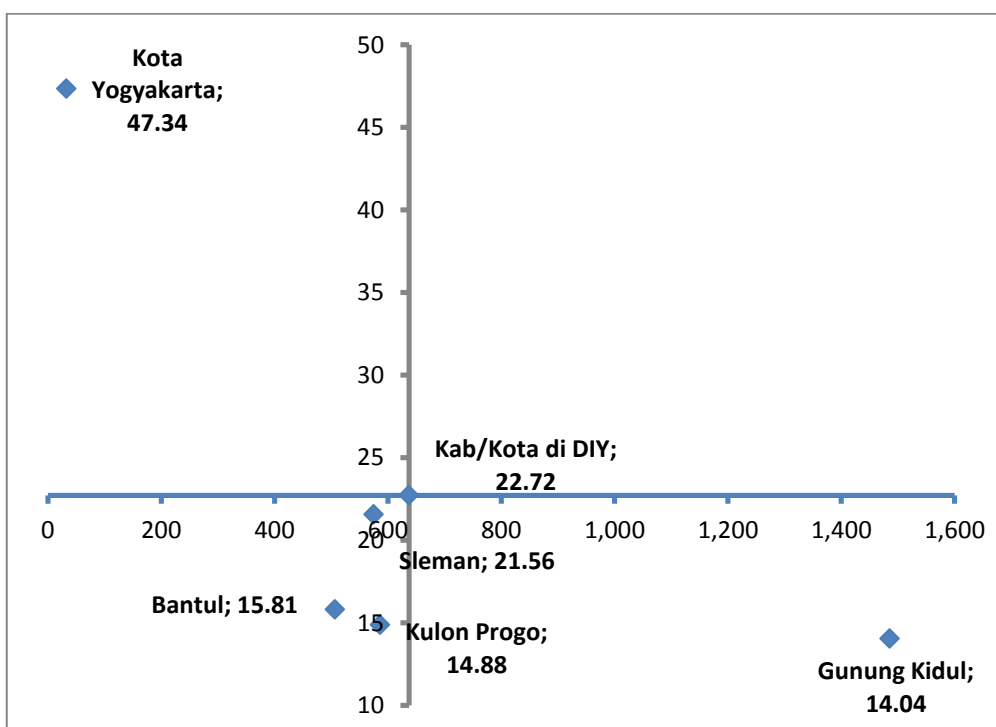
There was also much educational expenditure by corrupting the budget for the personal interests of officials so that the development of education was not optimal or the quality was very poor. Moreover, government expenditures made in development expenditures in the field of education in the physical sense, many facts explain that the resulting physical had no good quality or the value was not standard or not representing the budget. It is no secret that the budget for health and education, especially for development, has a lot of budget cuts finally, even up to 40%. Many we see the quality of educational facilities and infrastructure is not good. It doesn't represent the budget, the usage is much shorter than the appropriate economic life.

Other variables indicated that the variable stock of capital per capita labor, population, and the extent of the area proved to affect labor productivity. As expected, the increasing of the gross investment of productive provinces will improve labor productivity; at the oppsite the population will instead suppress labor productivity.

Changes in gross capital per capita labor show an increase in investment per worker performed in the economy as a whole. Increased investment is done both by the government and by the people in general that is the business. From the existing results show this gross investment has a positive effect on increasing labor productivity. Thus, the government was able to influence the private sector should as much as possible create conditions conducive so that the private sector can get incentives to make bigger investments again.

From the population point of view, the increase of the existing population does not necessarily increase the labor productivity in the region. This indicates that the more populations will not automatically increase productive workers but instead the increase of the number of people will hamper the improvement of the welfare.

The increasing of population was proven to suppress the growth of productivity of local labor concerned. This means that the demographic explosion may increase the demographic load itself if not managed properly.



**Figure 1**  
**Scatter Plot of Labor Productivity (Y, in Rp million per capita) and Area (X, in km<sup>2</sup>)**

The area of land owned by the provincial region negatively affect the productivity of labor. For districts in DIY respectively Gunung Kidul, Kulon Progo, Sleman, Bantul and Yogyakarta City were the district with the widest area to the smallest. The data shows that the greater the area of the region that the lower the productivity of its workforce. This can happen considering the given vast area of coverage therefore the number of infrastructure that can not be built well. It affected the poor of the connectivity among villages. It including how to access access from the central of government that causes low economic productivity.

From model estimation utilizing Gtot, the facts shew that total government spending has a positive effect on labor productivity. However, the human capital investment expenditure was more effective than the total government spending. Total expenditure was less effective than human capital investment when the expenditure broken down as its function.

Every addition of 1 unit of total government expenditure increase (in Rp million) increase 0.00000064 or 0.000064% of labor productivity. Whereas when viewed in terms of government expenditure in the investment function of human quality improvement in terms of health, each unit is equal to general government expenditure, each increase of Rp1 million in health expenditure will result in a productivity increase of 0.0000033 or 0.00033%. If mentioned in Rp1billion, any increase in government expenditure for health function will increase productivity by 0.33%, while total government spending only increased productivity by 0.064%.

This shew that expenditure in human capital investment (the quality side) is more effective than total government spending. This happens because many parts of the total government expenditure was on the unproductive side. This fact at the same time indicates that the amount of government spending that is done ineffective encourages economic growth. This can happen because the total government expenditure is not issued in accordance with the field that encourages economic productivity but more on personnel expenditure.

For your information, based on the APBD recapitulation of district and provincial governments throughout Indonesia in 2014, the ratio of total personnel expenditure to government spending had averaged 46.15%. It means that 46% of total expenditure in the APBD was spent on employee income. In local government in Yogyakarta, only the city of Yogyakarta, total official expenditure was only below 50% that is 46.52%. The remaining four other districts spent more than 50%, where Bantul, Gunung Kidul, Kulon Progo, and Sleman were 62.21%, 64.56%, 65.60%, and 59.49% respectively.

It can be explained briefly that government spending in the framework of human capital investment more productive increase labor productivity than total government spending. This is as expected even the health function only is productive.

Moreover, negative and insignificant coefficients obtained from human capital investment can be obtained because human capital has the nature of lag or slowness in getting the impact or gained influence in the long term so it requires approach of dynamic model estimation. While the model we do is a static model. It can not be denied, however, that dynamic estimates face constraints given the limitations of data by considering regional financial data that have undergone a standard change since the implementation of fiscal decentralization in the 2000s. If time series data is applied then there will be a lot of data being deleted which at the end of the degree of freedom data becomes smaller or even insufficient for the benefit of estimation.

## **CONCLUSION**

Local government spending in total has a positive effect on the productivity of labor in the district of DIY. The greater the government's expenditure will increase the productivity of labor. Government expenditure in kind of human capital investment, only health expenditure affects the productivity of labor. The greater the government's expenditure in the health sector, the more productive in its labor. Both Government expenditure in general and the human development in health are proven productive to increase the labor productivity. It's only that government expenditure in the health sector proves more productive than general government expenditure.

Local government expenditure of districts in DIY has proved effective to increase the labor productivity. This means that a lot of local government spending in DIY is still a focal point for the economic movement in DIY as well as an increase in the productivity of its labor. Therefore, government spending is more applied to productive sectors. The government's expenditure on human development is only productive in health sector that increases the productivity of labor.

This will encourage other development sectors to improve their effectiveness and efficiency in implementing the budget so that it can really have a positive impact on development, especially on the human productivity. The spending according to its functional aspect of human capital investment is proven to be more effective in increasing the productivity of labor than the total expenditure of local government. This shows that sectoral expenditures are more optimized than aggregate expenditures. More than that because these expenditures are more useful directly to the citizens in Yogyakarta, it is expected that the implementation of the budget to be considered the usefulness and the efficiency.

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