THE ANALYSIS OF GOVERNMENT EXPENDITURE FOR EDUCATION AND HEALTH SECTOR ON HUMAN DEVELOPMENT INDEX (HDI) IN INDONESIA YEAR 2008-2013

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THE ANALYSIS OF GOVERNMENT EXPENDITURE FOR EDUCATION AND HEALTH SECTOR ON HUMAN DEVELOPMENT INDEX (HDI) IN INDONESIA YEAR 2008-2013

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ABSTRACT

The purpose of this study is to analyze the influence of government expenditure on education and health sectors in the human development index (HDI) as a measurement of social welfare.

This study was quantitative panel data. The data used is time series data (2008-2013 periods) and cross section data (33 province in Indonesia). Type of data uses is secondary data as data which are processed by source of data or related institutions such as Djpk, BPS, Kemenkes, Bkkbn, and Susenas. Method of analysis used in this study is linear regression panel data analysis (pooled data) with Fixed Effect Model as an instrument to process the data by using eviews 7.

The finding shows that Education Expenditure has not significant so education expenditure variable will not influence significantly on social welfare, and Health Expenditure has positive relationship and significant influence on social welfare.

Keywords: Education Expenditure, Health Expenditure, Social Welfare, and HDI.

A. INTRODUCTION

People have an important role to achieve social welfare, where the social welfare is a major goals of every country to be achieved. The central focus on human development has grown since 2000 after world leaders at the summit agreed on the MDG (Millennium Development Goal's) as the commitment of the international community. Nationally, many government policies and programs are taken to address the social and economic conditions. This policy is in accordance with the recommendation of the United Nations Development Programme (UNDP) in the book "The Economics of Democracy: Financing Human Development in Indonesia" (BPS, 2007) with an emphasis on a more adequate financing for the poor to improve their welfare. UNDP explicitly suggested that Indonesia needs to focus greater priority to human development efforts and way of financing.

The government has launched many programs as the state authority executor responsibility to increase the human development through the expenditure of the State Budget (APBN). Based on the data from Central Bureau of Statistics of the Indonesia Republic, which includes the state budget allocation of central government expenditure, the transfer to the regions, and the suspension always increase, beginning in 2008 at 985.731 billion rupiah, up to the value of 1.726.191 billion rupiah in 2013.

The high and low quality of human resources will be determined by several aspects such as education and health status, because both are considered as the basic services which should be accepted by society as a whole. Efficiency of government expenditure in education and health sector becomes an important issue in the public sector. On the other words, every rupiah of government expenditure can produce the best output of human resources quality, so it create the most optimal social welfare.

The amount of the government's commitment in providing public services seen from the government budget expenditures which increase every year, especially on the education and health sector. Based on data from the Finance Ministry of the Republic of Indonesia in 2013, education expenditure has increased constantly every year in almost all provinces in Indonesia. The highest average of educational expenditure during the period 2008-2013 are DKI Jakarta, Nanggroe Aceh Darussalam, and West Java Province, while the lowest average of educational expenditure are North Maluku, West Sulawesi, and West Nusa Tenggara Province. Then, The highest average of health expenditure are DKI Jakarta, East Java and Central Java Province, while the lowest average of health expenditure are the provinces of Gorontalo, West Sulawesi, and North Maluku.
Increased government expenditure on education and health sectors per-year is expected to be the input to produce great output so that improvements can be achieved and create quality human development. Lanjouw, et al. (2001) indicates that the level of human development will contribute on creating improvements in the quality of human life, which can affect the level of poverty in the society. The poverty is one of tools in measure social welfare level. The data show that the poverty rate in Indonesia has decreased since 2008 but starting in 2011, the reduction of poverty in Indonesia has slowed down as shown in Table 1.

Table 1: Precentage of Poverty in Indonesia year 2008-2013

<table>
<thead>
<tr>
<th>Year</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>Sep-11</th>
<th>Sep-12</th>
<th>Sep-13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Precentage</td>
<td>34.96</td>
<td>32.53</td>
<td>31.02</td>
<td>28.89</td>
<td>28.59</td>
<td>28.55</td>
</tr>
</tbody>
</table>

Source : Central Bureau of Statistics in Indonesia, modified

A decreasing in poverty levels led to poverty disparities between provinces, poverty levels in the eastern Indonesian province were relatively higher than in western Indonesia, and GINI coefficient continued to increase and reach 0.42 in 2013. Poverty become an issue that needs to be questioned, as the financing of the government on education and health sector should provide on output of the human resources quality or a better human development. The quality of better human resources would effect on the higher level of welfare, while a poverty as indicator of welfare level has declined slowly every year. On the other hand, HDI value put Indonesia as a category of countries with medium human development. It only could place Indonesia in order to 108 of the 187 countries that evaluated. In the ranks of ASEAN, Indonesia was ranked 5 below Singapore, Brunei, Malaysia and Thailand (UNDP Indonesia, 2013).

The aims of this study is to analyze the influence of government expenditure on education and health sectors in the human development index (HDI) as a measurement of social welfare level.

B. LITERATURE REVIEW

Government Expenditure

Government has the responsibility to achieve the human development quality through the use of money to carry out the functions of government in the form of government expenditure to create social welfare. Mangkoesoebroto (2010:169-176) explained that the macro theory about the development of government expenditure are grouped into three categories, namely:

a. The development model about government expenditure development

The model developed by Rostow and Musgrave (1999) explains some phase of development in government spending, 1) The initial stage, the stage that refers to the huge government investment in supply infrastructure, such as education, health and so on, 2) Phase intermediate, government investment to boost economic growth in order can run optimally, but the role of private investment has been greater than before, 3) further stage, the government's activities shifted from the provision of infrastructure into expenditures for programs of public service.

b. Wagner's Law about the development of government activities

Theory of Wagner (1883, 1893) explained when per capita income increases, the relative government spending will also increase mainly because the government must regulate relations arising in society, law, education, recreation, culture, and others.

c. Peacock and Wiseman Theory

Theory of Peacock & Wiseman (1961) is based on the government's policy to increase spending, on the other hand people tend to be unhappy to pay taxes by a huge amount.

Basic theory of government expenditure is the identity of the balance of national income that can be seen from the equation \( Y = C + I + G + (X-M) \), which \( Y \) is the national income at the same aggregate supply, while aggregate demand is described by the equation \( C + I + G + (X-M) \), where \( G \) is government expenditure in a form of government intervention in the economy. The equation gives an understanding that the increase in government expenditure will affect the increase on the national income and vice versa. Government expenditure on specific sectors can spur such acceleration of social welfare through human development, particularly on the basic points in the
improvement of human resources such as education and health so that the social welfare will be more easily obtained

**Government Expenditure for Education**

Education is one of the main functions that are preferred, because it touches directly on the societies’ right and it is very closely with the development of human resources to achieve social welfare of a country. Therefore, the state should consider the implementation of government budget allocations to produce quality education both on the infrastructure of education and the quality of education system ranging from the subject matter, the quality of good teachers and education management. The budget allocation to education is expected to be at least 20 percent of state revenue and expenditure budget (APBN) as well as from local revenue budget (APBD), it is in line with the 1945 Constitution article 31 paragraph (4).

**Government Expenditure for Health**

Health becomes a central issue in the social welfare achievement. It caused by level-quality of healthcare is an important indicator to describe the quality of human development of a region because it is also recognized as the healthy condition of a society, if it supports the process and the dynamics of economic development of a country/region even more, it will get better (BPS, 2013). UU no. 36 in 2009 arranging funds for health, the Act states that a large government health budget is allocated at least 5 percent of the government budget exclude salaries, while large government health budgets of provincial and district/city is allocated at least 10 percent of the budget excluding salaries.

**Social Welfare**

Sen (2008) mentioned that the social welfare can be measured from some measurements such as the level of life, the fulfillment of basic needs, quality, and human development. The revelation stated that human development is one indicator of the level of social welfare. The achievement of human development has been the focus of government actors, of various sizes made of human development, but not all of them can be used as a standard size that can be compared between regions and between countries (BPS, 2008). Therefore, the Board of the United Nations then set the standard measure of human development agreed to use is the Human Development Index (HDI). HDI explain how residents can access development results in obtaining expenditure per capita, health, and education.

**The Relationship of Education and Health Expenditure toward Social Welfare**

The developments of education and health are two important pillars in the form of human capital in human development to achieve the social welfare, so that the whole society needs to get access to these sectors. Furthermore, investment in education and health would be more meaningful for the poor than the non-poor because the main asset of the poor is their manual labor (Charisma et al, 2008).

Education is one of the most effective tools to break the chain of the vicious circle of poverty. The high levels of education will give a certain values for society, especially a wide range knowledge, better and comprehensive skill. That will give an opportunities to develop what has to be used appropriately in order to improve quality and productivity, and to provide an opportunity to increase revenue. The increase revenue will be followed by a decrease in the level of poverty, in the long term it will affect the level of welfare itself.

The next sector is the health sector. Health is one of the basic productivity of human resources. The condition of physical and mental health will encourage workers to be more robust and productive, so it getting a higher income because it is not constrained by anything, especially in
conditions of developing countries, a large proportion of work is manually controlled by humans. People with higher income will have an effect on increasing social welfare of a country.

Therefore, the development in the field of education and health can continuously increase the quality and productivity of the society, which means the productivity growth of society is the motor of economic growth and welfare of the society itself (Faisal, 2013).

**Conceptual Framework**

**Figure 1: Theoritic Conceptual Framework**

![Conceptual Framework Diagram](image)

The social welfare can be described by the quality of human resources in the region or country, the parameters are applied internationally as a measurement for human development to see social welfare is through HDI. In concept, human development is the effort made to provide a decent life which is done through improving productivity through increased knowledge and population health status.

Government allocation for the education and health sector needs to be managed well in order to improve the quality of society and to rise the investment of better human resources. The budget allocations for education and health from year to year has increased, so the expectation of the human development index also increase.

**Hypothesis**

Based on a review of theory and previous research which has been described previously, the hypothesis can be formulated for this study are as follows:

H1 : It was alleged that government expenditure on education significantly affect to the human development index (HDI) in Indonesia

H2 : It was alleged that government expenditure on health sector significantly affect to the human development index (HDI) in Indonesia

**C. RESEARCH METHODOLOGY**

Research design used in this study was descriptive quantitative. Types of data used in this study is secondary data, it is a time series data for the period 2008 to 2013 as well as cross section data covering 33 provinces in Indonesia.

In analyse the government expenditure on education and health sector in social welfare increase, this study uses two independent variables ie government expenditure in education, and government expenditure in health. While the dependent variables is HDI.

This study uses data which are processed by sources of data or related institution such as Central Bureau of Statistics, The Directorate General of Fiscal Balance, Bappenas, Kemenkes, books, journals, also other sources that related to research problem.

This study used panel data analysis (pooled data) with Fixed Effect Model (FEM) approachment as an instrument to process the data by using Eviews 7 software applications. The model equation is as follows:
Log\(Y_{it} = \alpha + \beta_1 \log X_{it1} + \beta_2 \log X_{it2} + \epsilon_{it}\)

So, the research model equation is:

Log\(HDI_{it} = \alpha + \beta_1 \log \text{Education Expenditure}_{it} + \beta_2 \log \text{Health Expenditure}_{it} + \epsilon_{it}\)

D. RESULT AND DISCUSSION

Result

In analyse government expenditure on education and health sector in social welfare increase, the researcher uses panel data with Fixed Effect Model (FEM) approach. FEM approach is chosen through Chow Test dan Hausman Test. The result of panel model estimation show a significant relationship of government expenditure on health sector to social welfare, but non-significant relationship of government expenditure on education sector to social welfare as the table below,

<p>| Table 2: Estimation Result of Fixed Effect Model (FEM) |</p>
<table>
<thead>
<tr>
<th>CORS</th>
<th>Coefficient</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>1.572555</td>
<td>79.82055</td>
<td>0.0000</td>
</tr>
<tr>
<td>EDEX</td>
<td>0.001627</td>
<td>0.818802</td>
<td>0.4141</td>
</tr>
<tr>
<td>HEEX</td>
<td>0.023669</td>
<td>12.69473</td>
<td>0.0000</td>
</tr>
<tr>
<td>R-squared</td>
<td></td>
<td>0.969237</td>
<td></td>
</tr>
<tr>
<td>F-statistic</td>
<td></td>
<td>151.0480</td>
<td></td>
</tr>
<tr>
<td>Prob(F-statistic)</td>
<td></td>
<td>0.000000</td>
<td></td>
</tr>
</tbody>
</table>

Source: Eviews

Regression equation for this analysis are as follow:

Log\(HDI_{it} = 1.572555 + 0.001627 \log (\text{Education Expenditure}_{it}) + 0.023669 \log (\text{Health Expenditure}_{it}) + \epsilon_{it}\)

Based on a regression equation model result above, so the hyphotesis testing of this study are as follows:

H\(_1\) : It was alleged that government expenditure on education significantly affect to the social welfare increase as measured by the human development index (HDI) in Indonesia.

Variable education expenditure has \(t_{\text{statistics}}\) as 0.818802 and the value of \(t_{\text{table}}\) is 1.28591 so \(t_{\text{statistics}} < t_{\text{table}}\) in the degree of freedom 5% (\(\alpha = 0.05\)). Education expenditure variable is also has p-value as 0.4141, that value is above degree of freedom as 5% (\(\alpha = 0.05\)), so reject \(H_1\). That result show that education expenditure has non-signifikan effect toward HDI.

H\(_2\) : It was alleged that government expenditure on health sector significantly affect to the social welfare increase as measured by the human development index (HDI) in Indonesia.

Health expenditure variable has \(t_{\text{statistics}}\) as 12.69473 and the value of \(t_{\text{table}}\) as 1.28591 so the value of \(t_{\text{statistics}} > t_{\text{table}}\) in the degree of freedom 5% (\(\alpha = 0.05\)). Education expenditure variable is also has p-value as 0.0000, that value below the degree of freedom as 5% (\(\alpha = 0.05\)), so accept \(H_2\). That result shows that health expenditure has significant effect toward HDI. The regression coefficient value of health expenditures amounted to 0.023669. It has a positive relationship in the which each increase of health expenditure (\(X_2\)) at 1%, the human development index (Y) will increase is at 0.023669% with ceteris paribus assumption.

The amount of Constanta as 1.572555 explained that if the education expenditure (\(X_1\)) and health expenditure (\(X_2\)) is equal to 0 (zero) then the value of the HDI (Y) is equal to 1.572555 assuming ceteris paribus.
Then, from the table 2, the independent variables has F-statistics as 151.0480, and F-table value of 3.04 on a degree of freedom 5% (α = 0.05). Independent variable also have a p-value on F-statistics of 0.0000, the value is below the degree of freedom of 5% (α = 0.05), so the testing concludes that both of education expenditure and health expenditure as independent variables significantly affect HDI.

The coefficient of determination (R²) is 0 to 1. The higher the coefficient of determination (R²), the greater the ability of independent variables explain the dependent variable. The estimation results of the Fixed Effect model chosen in this study, obtained the R² value of 0.969237 or 96.92% and the remaining 3.08% is explained by other variables outside the model equations.

Discussion

Education Expenditure (X₁) toward HDI (Y)

Based on the observation, the results of these estimation is not significant so the changes in the variables of education expenditure (X₁) are not able to affect the value of HDI (Y). This is evidenced by the p-value of 0.4141, the value of the above-mentioned significance of α = 0.05. This is not consistent with the hypothesis which education expenditure has significant effect on the HDI.

The results of the above analysis shows that education expenditure in the provinces in Indonesia is not able to provide a positive and significant benefits to the increase in the HDI. The average expenditure on education in 33 provinces in Indonesia each year has increased, but the increase in education expenditure is not so influential on the growth rate of HDI. The average expenditure per year of education and IPM can be seen in Chart 1.

Chart 1: The Average of Education Expenditure and HDI of 33 Province in Indonesia year 2008-2013

Source: DJPK and BPS, modified
Chart 2: The Average of Literacy Rate Level and Length of the School of 33 Province in Indonesia year 2008-2013

<table>
<thead>
<tr>
<th>Year</th>
<th>Literacy Rate (%)</th>
<th>Average School Length (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>92.7</td>
<td>7.83</td>
</tr>
<tr>
<td>2009</td>
<td>92.98</td>
<td>7.93</td>
</tr>
<tr>
<td>2010</td>
<td>93.37</td>
<td>8.08</td>
</tr>
<tr>
<td>2011</td>
<td>92.95</td>
<td>8.19</td>
</tr>
<tr>
<td>2012</td>
<td>93.51</td>
<td>8.26</td>
</tr>
<tr>
<td>2013</td>
<td>94.25</td>
<td>8.33</td>
</tr>
</tbody>
</table>

Source: BKKBN, modified

Chart 2 shows the result of performance of educational services which is the result of the initiative of individual provincial governments to increase the level of public education in Indonesia. Data on the Chart 2 presents the literacy rate in the first three years on average has increased every year. In 2008 amounted to 92.70%, in 2009 amounted to 92.98%, in 2010 amounted to 93.37%, but in 2011 AMH decreased by 0.43% which becomes 92.95%, then rose again in 2012 that is equal to 93.51%, and in 2013 amounted to 94.25%. On the other hand, the average rate of the old school in the entire province of Indonesia has increased as shown in Chart 4.8, with a row.

In theory of Charisma et al (2008), the increase in government expenditure in the education sector have a significant impact in providing access to education, especially the poor. Meanwhile, in reality it has not impacted on the quality of education that effect in social welfare. According to Al-Samarrai (2013), some problems cause no significant relationship education sector government expenditure to quality education are the education budget which is spent to finance more policies related to improve the quality lifeof teachers, the weakness of the government transfer mechanism and weak local governance. Basically, the Indonesian education budget has increased since 2008, this is caused by a constitutional amendment that requires minimal education expenditure by 20%, but the budget is still relatively low compared to neighboring countries.

Education expenditure in Indonesia is divided by education pre-premier, secondary and tertiary. The largest expenditure of education is in secondary education. Allocation of additional financing depends heavily on the level of education. In higher education, the allocation is widely used to decrease the salary, and a sharp increase in capital as well as goods and services. In primary and secondary education, a lot of extra expenditure is allocated to salaries and teacher certification that is 60% of the total budget. It absorbs much budget for salaries and certification, but only 30% of teachers who received certification. Both of these are caused by the increase in the number of teachers but the regulation is not a permanent contract that will impact the teachers. Trends in teachers’ salaries and remuneration will weigh on government expenditure, but the reality of some reports state primary schools managed by the regions do not get additional funds.

Student-teacher ratio decreases with the increase in the number of teachers, then it is a weak impact on improving the quality of education (tested by regression analysis). Certification of teachers is to increase motivation in teaching and improve the welfare of teachers, but it is not offset by an increase in the quality of teaching materials and learning outcomes. Solutions that can be taken is to the efficient use of teachers by not making excessive recruitment as well as through periodic certification policy that teachers have the incentives and motivation to improve. In addition, funds (like BOS) needs to be executed proportionally ie areas far from the city center to get funding that is larger than the area near the city center. In other words, the education budget should be targeted to the interests and purposes concerning human development by improving the quality of education.
Health Expenditure ($X_2$) toward HDI ($Y$)

Based on the observation, the result of health expenditure variable ($X_2$) coefficient is 0.023669. In other words, if health expenditure increases by 1 percent, then the value of HDI will increase by 0.023669 percent. Health expenditure ($X_2$) has a positive correlation with the Human Development Index ($Y$), the estimation result shows that the variable of health expenditure ($X_2$) significantly affect the HDI value ($Y$). This is evidenced by the p-value of 0.0000, the value is below the significance of $\alpha = 0.05$. This is consistent with the hypothesis where health expenditure significant effect on the HDI.

The results are consistent with research Novitasari Evi (2015) who studied the effect of health expenditure on IPM in 38 cities / regencies in East Java in 2007-2013 which states that health expenditure has a positive and significant impact on the HDI, thus increasing the number of health expenditure will affect on improving the HDI.

The results of the above analysis shows that health expenditure in provinces in Indonesia to provide positive benefits and significant impact on the growth rate of HDI. It is based on the importance of health services for productivity and human welfare. The results of this analysis is supported by the theory of government expenditure and the development model developed by Rostow and Musgrave, this theory explains that the initial stage of economic development refers to the investment of government in providing infrastructure on a large scale as in health care in order to provide improvements in the quality of the source human as agents of national development. This is consistent with the data, where the average health expenditure in 33 provinces in Indonesia each year has increased, the increase in health expenditure significant effect on the growth rate of HDI.

Chart 3: The Average of Health Expenditure and HDI of 33 Province in Indonesia year 2008-2013

Source: DJPK and BPS, modified

Achievement levels are visible on the health of the average life expectancy in 33 provinces in Indonesia for the period 2009-2013 as in Chart 4.
The achievement of educational services is the result of the initiative of individual provincial governments to increase the level of public health in Indonesia. Data on the Chart 4 presents the increase in life expectancy on average has increased significantly each year. This achievement definitively becomes an achievement for Indonesia because it proved that health expenditure is able to be allocated to provide good service to the community.

Health care is important to note because it is an investment on human resources to reach the people who live healthy and have a long life. Health is also one of the basic productivity of human resources. Conditions are physically and mentally healthy workforce will push for a more powerful and productive so that they can earn higher revenue and affect the welfare of the community, where the level of social welfare can be viewed through the human development index (HDI). Therefore, it is proper health to the attention of the government as public service providers. The government is responsible for guaranteeing the public's right to gain access to the use of facilities and quality health care, quality and affordable.

E. CONCLUSION AND SUGGESTION

Conclusion

Based on the data analysis results, the conclusion of this research are as follow:
1. Variable of education expenditure did not significantly affect to the level of welfare as measured by the HDI, so that changes in the amount of education expenditure were not followed by a change in social welfare increase. One cause of no significant relationship is the education budget spent more in financing policies related to improve teachers life quality, the weakness of the government transfer mechanism and weak local governance.
2. Variable of health expenditure had a positive and significantly affect to the level of welfare as measured by the HDI, so that changes in the number of health expenditure followed by a change in social welfare increase. It proved by the achievement levels which visible on the increasing of average life expectancy in every year. This achievement definitely becomes a true because health expenditure can provide quality public service to the community in the form of infrastructure, facility, doctor quality, hospital system and management.

Suggestion

Based on the results of the discussion and conclusions regarding the effect of government expenditure on education and health sector towards improving the social welfare by HDI indicator in 33 provinces in Indonesia in 2008-2013, then the advice which can be given including:
1. The efforts of the local governments of 33 provinces in Indonesia to improve the quality of social welfare is through increased government expenditure each year on education. Increased
government expenditure to maximize educational services are intended for all people to get the basics right according the Constitution. Whereas in reality that expenditure the education sector has not been targeted in the allocation of human development and greater in financing operations also other financing which does not related to supporting quality of education. Furthermore, it is unable to improve the social welfare as reflected in the HDI. It is expected to be a correction of the government in making the education budget, and to consider educational programs are not effective enough affect the quality of education.

2. The efforts of many ways for the local governments in 33 provinces in Indonesia to improve the quality of social welfare is through increased government expenditure each year in the health field. Increased government expenditure to maximize health services meant that the whole of society will have easy access to quality health care, and affordable in order to live a healthy, long-lived, sufficient nutrition, especially for the poor. Realization, increase in government expenditure health sector proved to be able to guarantee the social welfare as reflected in the HDI. This needs to be maintained so that the government can ensure the health of the people in accordance with the mandate of Law No. 36 of Article 36.

3. The Government has a responsibility to the social welfare, one of many ways is through government expenditure that affect the quality of the community. It would be better if the government meticulous in every budgeting, especially in education and health as both are considered as the basic services that should be accepted by society as a whole, so that the increase in government expenditure can be accomplished as efficiently as possible. On the other words, every rupiah government expenditure can produce the most optimal social welfare.

4. This research has a limitation which require an improvement and development in next research. This research use the old method in estimate the HDI value in every province of Indonesia to adjust the availability data in current year, so the next research should use the new method in HDI estimation. The way of estimation have a great effect in the estimation result.
LIST OF BIBLIOGRAPHY


