The Effect of Health and Education Facilities on Poverty in 33 Provinces in Indonesia (2012-2016 Periods)

Tri Wahyu Yuliani[1], Suprapto[2]*, and Christina Tri Setyorini[3]

[1] Faculty of Economics and Business, Jenderal Soedirman University
[2] Faculty of Economics and Business, Jenderal Soedirman University
[3] Faculty of Economics and Business, Jenderal Soedirman University

Abstract. Poverty is a complex problem faced by all countries in the world, including Indonesia. Poverty may trigger other social problems hindering the development process of a country. The government has done many ways to eradicate poverty, one of which through government expenditure for education and health at every province in Indonesia. Poverty is strongly related with health and education, because one of its causes is the minimum access to health and education. The main problems causing the low level of health among people in poverty are poor access towards basic health service and poor quality of basic health service, which is caused by limited health facilities such as health center and hospital. Furthermore, people in poverty have hoped that education will increase their living standard. The problems they faced are poor access towards educational service and poor quality of educational service. There is disparity among provinces on how poverty is handled, and it is interesting to analyze whether it is an indication of the existence of access towards health and education or not. This research's goal is to analyze the effect of health and educational facilities on poverty at 33 provinces in Indonesia for the period of 2012-2016. The dependent variable used in this research is the percentage of people in poverty. The independent variables used as health proxy are health center and hospital. The independent variable used as education proxy is the number of elementary school. The method used in this research is panel regression. It can be concluded that health facility negatively affects poverty, which means that the higher the number of health facilities, the lower the percentage of people in poverty at 33 provinces in Indonesia. However, the number of grade school as an education proxy does not affect the percentage of people in poverty at 33 provinces in Indonesia.

Keyword : Poverty, Health Facility, Education Facility, Health Center, Hospital.

1. INTRODUCTION

Poverty is a complex matter that is faced by entire countries of the world. This a multidimensional problem because it's connected to social, economical, cultural, and other aspects which becoming a problem in development. Poverty pointed to a miserable and helplessness situation of someone, whether because his inability to fulfil life needs, or because the inability of the country or society on giving protection to its people (Suharto, 2009).

The alleviation of poverty has became an issue and a problem of development in a global, national, and local level. This poverty alleviation problem has made into the main goal of Millennium Development Goals (MDGs) on 2015, which followed up as the main and second goal out of seventeen goals of Sustainable Development Goals (SDGs) on 2030 (Todaro dan Smith, 2014:25). This global commitment emphasize the equality among countries and citizens which is applied to all of countries in United Nation, that is raising a proper income, wiping out hunger, gender issues, environmental problems, obstacles to education, health care, clean water, accessible energy, sustainable consumption and production, keeping peace and justice, and global partnership. This shows that poverty is a serious matter and needed a serious attention and needs to be solved.

According to the data which is released by the World Bank, the level of world's poverty has decreased but tend to be slowed down. This slower decline is going to bring up worriness on Sustainable Development Goals' (SDGs) achievement on 2030 which is reducing the poverty level up to three percent by 2030. The global poverty level has decreased on 2015, which is up to ten percent out of global population. The International poverty level today worth 1.90 US dollar per

---

* Corresponding author. Tel.: +62 (8122704333)
  E-mail address: suprapto97@yahoo.co.id

day. This decline started from 11.2 percent in 2013 to 10 percent in 2015 which has decreased about 68.3 million two years earlier.
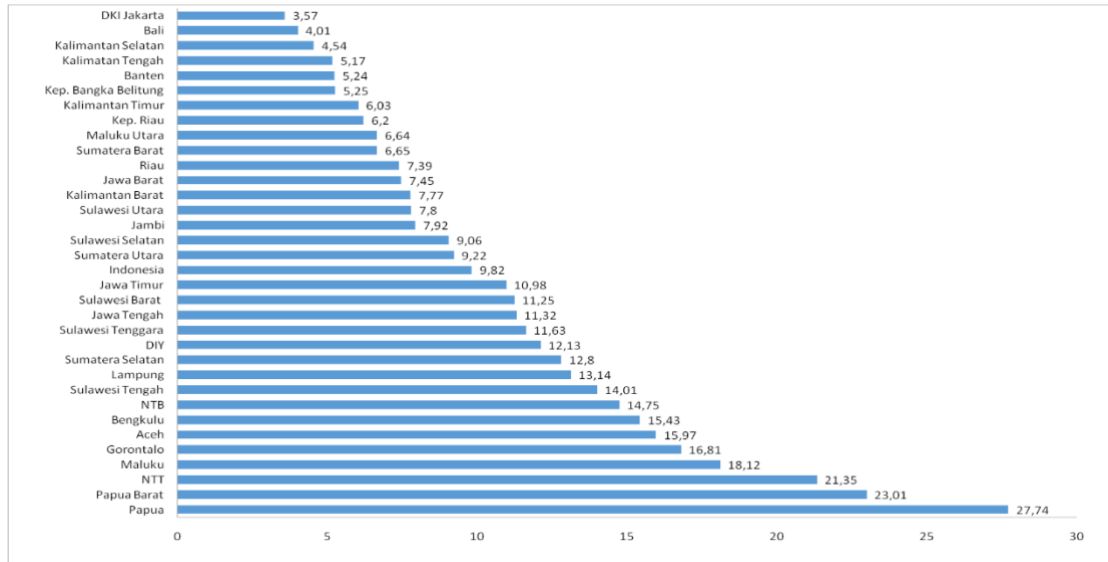
Source : BPS, 2018 (data processed)

Figure 1. Percentage of Poor Population by Province (March 2018)

On the other side, the percentage of Indonesia's poor on March 2018 has decreased 9.82% compares to September 2017 on 10.12% or March 2017 on 10.64%. Despite of the National Poverty keeps declining up to March 2018, there are 16 province (48,48%) with the percentage of poor above 10% and above the national poverty number. The rest, 17 province (51,52%) the percentage of the poverty is below the national poverty number. Based on Figure 1 can be seen that Papua is the province with the biggest number of poor, up to 917.630 people or about 27.74% of the population. It means that more than a quarter of Papua residents live under poverty. But, the poverty number has decreased compared to September 2017 which is reached 27.76%. Second is West Papua with 23.01%, and Nusa Tenggara Timur with 21.35% on third position. Because of that, the poverty phenomenon in Indonesia is still become an issue that it's cause needs to be resolved.

Poverty can also be influenced by education factor (Afzal *et al.*, 2010; Janjua dan Kamal, 2011; dan Awan *et al.*, 2011). If the education level is low then it will have an impact to the low of self actualizing skill and causing them to hardly get the job they want. The education- influenced poverty is also hardened by the scarcity of the job employment. As long as there are employment or business, then there will be a hope to cut the poverty circle. According to Janjua and Kamal (2011) the poor people can't afford basic needs such as health care and education.

The other cause of poverty is the low quality and limited health care (Permana, 2012; Faisal, 2013; Janjua & Kamal, 2014; dan Solichin, 2014). The low health and nutrition level causing low physical durability, power, mind, and eventually hardly get the proper job caused by unstable health condition. Poor people has to face the limited access to health care and low health status that is impacting their durability to work and get income, so that affecting their earnings (Komite Penanggulangan Kemiskinan, 2005). With the increase of health facility, people are expected to access health care easily, and in this matter the government has the same role as education in providing health program for the less fortunate. Therefore, a better health will make the people can increase their work quality to get a better job.

Disparity among provinces in Indonesia of lowering the poverty is interesting to be analyzed, whether there is an indication of different education and health facility among provinces. So, the main problem that will be examined in this thesis is whether the availability of education and

health facility has a significant influence to reducing the percentage of poor people in 33 provinces in Indonesia.

2. LITERATURE REVIEW

2.1 Vicious Circle of Poverty

Vicious circle of poverty is stated by economic expert from Sweden and also the Noble receiver for Economy, Ragnar Nurkse. According to Ragnar Nurkse, the vicious circle is pictured as a row of circular power which is reacted one to another and causing the poor stays in the poor. The poor people is picture in lack of eating condition. This condition causing their health to be terrible and affecting their productivity in work. The decreasing productivity causing their earning to be low. Eventually, with their low earning, the poor people can't get enough food and so on.

According to Ragnar Nurkse, there are two traps of poverty, one is from the demand, and the other is from the supply. From the demand, the vicious circle is explained in Figure 2. The low rate of earning will cause the demand to be low, so that the investing rate will be low. The low investment rate eventually causing the capital to be low and lacking in productivity. Low productivity reflected on low earning. This condition keeps going and creating a circle.
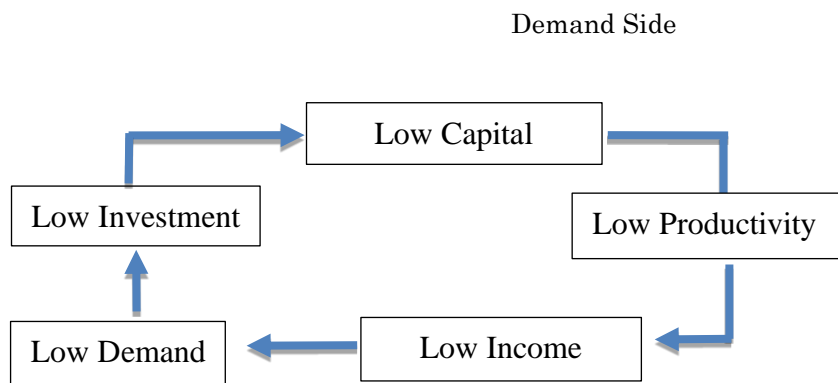
Demand Side

Source : Hendra, 2010

Figure 2. Demand Side of Vicious Circle

The same thing happened on the supply just like in Figure 3. Supply where the earning of the people is low caused by the low productivity causing the saving ability of people becoming low. The low ability of saving causing the capital low, and the low investment causing the lack of capital, so that the productivity rate is also low.
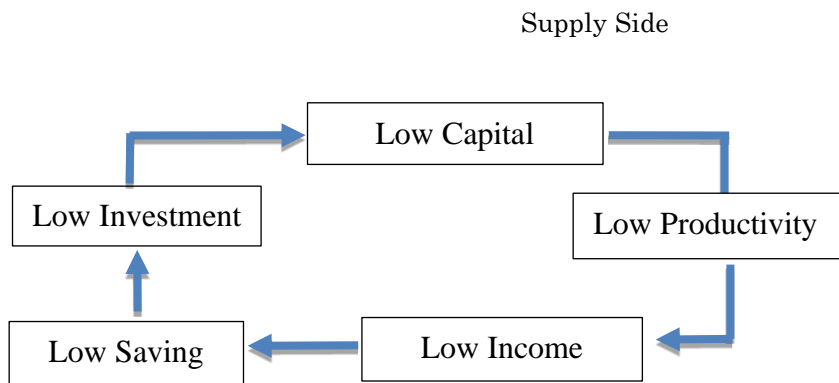
Supply Side

Source : Hendra, 2010

Figure 3. Supply Side of Vicious Circle

2.2   Health and Poverty

Studies related to health factors on poverty have been mostly done by Mochammad Solichin (2014) on the influence of the availability of education and health facilities on poverty. The results show that the variables of education and health facilities significantly influence the reduction of the poor population. Janjua and Kamal (2014) also found that improvement in education and health outcomes had a strong and significant effect on poverty reduction. Hanjra *et al.* (2009) and Permana (2012) also prove that investment in health can significantly reduce poverty problems. Faisal (2013) proves that health variables have a negative effect on poverty. If a person's health level is in a good condition, then the productivity will also be higher. The higher a person's productivity, the greater for someone to get out of poverty.

2.3   Education and Poverty

Improvement of facilities and medium in education sector also affects several improvements in other fields, according to Babatunde & Adefabi (2005) in Afzal *et al.* (2012), education can trigger economic growth by increasing several factors such as increasing employment opportunities, technological development and reducing poverty. Improvement of educational facilities and medium can be the first step to reduce poverty and increase people's income, because it is expected that the community can experience proper education and can complete higher education. Awan *et al.* (2011) also prove that the higher level of education of a person, the greater probability of a person not to be poor. Zuluaga (2007) and Malik *et al.* (2012) examined that education has an influence not only to improve individual abilities to get better income but also helping them escape from poverty. According to Hanjra *et al.* (2009), Janjua *et al.* (2011), and Afzal *et al.* (2012), and Janjua & Kamal (2014) the main factor in alleviating poverty is educational factor. Where investment in education can reduce the problem of poverty. Nurdaya *et al.* (2012), Permana (2012), and Faisal (2013) found that the level of education had a significant negative effect on poverty. Nirwana (2013) and Marinho *et al.* (2017) also found that the average school year variable as an education proxy had a significant negative correlation with poverty. The higher the average school year, the lower the poverty.

Faturrohim (2011) dan Nirwana (2013) found that literacy rates as a proxy for education variables were not significant in reducing poverty. On the other hand, Solichin (2014) examined the effect of availability of education and health facilities on poverty in West Java. The results of that the study were educational facilities variables (number of elementary school and middle school) and health (number of health center) had a significant influence on reducing the poor population in West Java.

3. RESEARCH METHOD

The use of panel data in this study makes it possible to include provinces in Indonesia as cross section data and time between 2012 and 2016 as time series data. The multiple linear regression models in this study are:

$$POVit = α + β1LOG(PUS) + β2LOG(RS) + β3LOG(SD) + e_{it} ...... (2.1)$$

Di mana:

POV	:	Poverty (%)
PUS	:	Number of Health Center (units)
RS	:	Number of Hospitals (units)
SD	:	Number of Elementary Schools (units)
e	:	Error term (disturbances) which is a container for other factors not included in the model
i	:	Number of independent variables
t	:	Number of years (range 5 years from 2012 to 2016)
α	:	Constants or intercepts
β1.. β3	:	The magnitude to be estimated and the parameter associated with the independent variable

The measure of poverty which is the dependent variable is the poor compared to the total population in a province. This variable was chosen with the consideration that the poverty measure based on the headcount index is used by the government in various development policies and programs.

The size of the availability of health infrastructure which is the independent variable to be examined is the number of health center and hospitals. The number of health center and hospitals represent health infrastructure with the consideration that health center and hospitals provide basic services to the community in the sub-district and provide easy and inexpensive access to health services for people who are less able to reach other health facilities. The coefficient of this health facility is expected to have a negative veranda which means the higher the availability of these health facilities, the lower the percentage of the poor.

The size of the availability of educational infrastructure which is the independent variable to be examined is the number of elementary schools. The number of elementary schools was chosen with the consideration that education at this level is a reflection of the education infrastructure in the context of eradicating illiteracy. The coefficient of this educational facility is expected to be a negative veranda which means that the higher the availability of these educational facilities, the lower the percentage of poor people.

4. RESULT AND DISCUSSION

After making several model tests, the best results of regression analysis with panel data models using the fixed effect model are:

Dependent Variable: P0 or Percentage of Poor Population (Head Count Index)			
Variable	Coeff	Stad. Error	t-Stat
Constant	39.318	31.568	1.24548
LOG(PUS)	-7.7508	3.8475	-2.0145**
LOG(RS)	-1.9808	0.8015	-2.4710**
LOG(SD)	2.789	3.9636	0.7037
R-squared	0.989		
F-statistic	313.394		
Prob. F-statistic	0.00000		

Description: ** Significant at 5%

Table 1. Results of Regression

Based on Table 1, the results of the regression analysis of panel data models with the fixed effect model show that:

Independent variables that have a significant effect on the percentage of poor people (POV) with α of 5% (0.05) are the number of health center (PUS) and the number of hospitals (RS).

Independent variables that have a non-significant effect on the percentage of poor people (POV) are the number of elementary schools (SD).

The value of the Prob (F-statistic) is 0.000000 where smaller than α (0.01) explains that all independent variables have a significant effect on the percentage of the poor (POV) in a model with a confidence level of 99%.

Adjusted R-squared value of 0.998321 explains that the independent variables in this model are able to explain the percentage of poor people (POV) in 33 provinces in Indonesia during 2012 to 2016 amounting to 99.83%.

The relationship between the number of health center units and the percentage of poor people, and with the condition of ceteris paribus, namely the number of health center units can influence the percentage of the poor (significant) and has a negative relationship of -7.7508 with a confidence level of 90%. If the number of health center units increases by 1%, it can reduce the percentage of poor people by 7.7508%.

The relationship between the number of hospital units and the percentage of poor people, and with the condition of ceteris paribus, namely the number of hospital units can influence the percentage of the poor (significant) and have a negative relationship of -1.9808 with a confidence level of 90%. If the number of hospital units increases by 1%, it can reduce the percentage of poor population by 1.9808%.

Health has a correlation with productivity, because someone who is healthier will be more productive. With high productivity, the opportunity to get high income is more open. If someone has higher income then the opportunity to get out of poverty is also more open. Then health facilities such as health center are needed as facilities and infrastructure to obtain better health. This proves that if an increase in the number of health center and hospital units is able to reduce the percentage of poor people.

Whereas for the factor of educational facilities it has not been able to influence the decrease in the percentage of the poor population, namely through proxy variables for the number of elementary units. The relationship between the number of elementary schools and the percentage of poor people, and with the conditions of ceteris paribus, namely the number of elementary schools has a positive and not significant relationship to the percentage of poor people.

The influence of education that does not show an inverse relationship to poverty may also be caused by other factors outside of education itself which influence poverty, which does not change. For example, the condition of countries in South Africa in 1997-2003, which showed a ratio of population who completed basic education was quite high 84.6% and those who dropped out or did not graduate from junior high school (secondary school) were quite low at 15.4% . In addition, in 2000, the adult literacy rate of countries in South Africa was 75%, in which the literacy ratio of developed countries (emerging economies) was 74% and a less developed country (least developing countries) 52%, but poverty in South African countries has remained stagnant or increased in some cases (Awan et al, 2011).

5. CONCLUSION

The regression results obtained provide evidence for policy makers in this case, namely local governments in each province in Indonesia, that health facilities, especially health centers and hospitals have an effect on poverty reduction. Therefore, this helps each local government prioritize the allocation of limited resources to both types of health facilities in an effort to overcome poverty.

The advice in the health sector is to increase the number of health center units and hospitals. Additional health center and hospital units are needed so that the poor can easily access health. The addition of health center units and hospitals must also pay attention to accessible locations for the poor.

REFERENCE

Afzal, M., Malik, M.E., Begum, I., Sarwar, K., & Fatima, H. (2012). Relationship among Education, Poverty and Economic Growth in Pakistan: An Econometric Analysis. Journal of Elementary Education, Vol.22, No.1 pp. 23-45.

Awan, M.S., Malik, N., Sarwar, H., & Waqas, M. (2011). Impact of Education on Poverty Reduction. Munich Personal RePEc Archive (MPRA) Paper No.31826.

Faisal, Herry. (2013). Pengaruh Tingkat Pendidikan, Kesehatan terhadap Produktivitas dan Jumlah Penduduk Miskin di Provinsi Kalimantan Barat. Tesis, Universitas Tanjung Pura.

Faturrohmin, Rahmawati. (2011). Pengaruh PDRB, Harapan Hidup dan Melek Huruf terhadap Tingkat Kemiskinan (Studi Kasus 35 Kabupaten/Kota di Jawa Tengah). Skripsi, UIN Syarif Hidayatullah.

Hendra, Roy. (2010). Determinan Kemiskinan Absolut Di Kabupaten/Kota Provinsi Sumatera Utara Tahun 2005-2007. Tesis, MPKP UI.

Janjua, P.Z., & Kamal, U.A. (2014). The Role of Education and Health in Poverty Alleviation A Cross-Country Analysis. British Journal of Economics, Management & Trade 4(6): 896-924, 2014. The Lahore Journal of Economics, 16:1 (Summer 2014): pp. 143-172.

Janjua, P.Z., & Kamal, U.A. (2011). The Role of Education and Income in Poverty Alleviation: A Cross-Country Analysis. The Lahore Journal of Economics, 16:1 (Summer 2011): pp. 143-172.

Komite Penanggulangan Kemiskinan. (2005). Strategi Nasional Penanggulangan Kemiskinan (SNPK). Jakarta: Author.

Maliki, S.B-E., Benhabib, A., & Boutedja, A. (2012). Quantification of the Relationship Poverty-Education in Algeria: A Multinomial Econometric Approach. Topics in Middle Eastern and African Economies, 14, 376-394.

Marinho, E., Campelo, G., Franc, J., and Araujo, Jair. (2017). Impact of Infrastructure Expenses in Strategic Sectors for Brazilian Poverty. EconomiA 18 (2017): pp 244-259.

Nurdyana S, H., Budiono, & Fahmi, M. (2012). Pendidikan dan Kemiskinan; Studi Kasus Provinsi Maluku Utara.

Nirwana, Indah Dewi. (2013). Pengaruh Variabel Pendidikan terhadap Presentase Penduduk Miskin (Studi pada 33 Provinsi di Indonesia, 6 Provinsi di Pulau Jawa, dan 27 Provinsi di Luar Pulau Jawa pada Tahun 2006-2011). Jurnal Ilmiah, Universitas Brawijaya.

Suharto, Edi. (2009). Kemiskinan & Perlindungan Sosial di Indonesia, Menggagas Model Jaminan Sosial Universal Bidang Kesehatan, Bandung : Alfabeta.

Solichin, Mochammad. (2014). Pengaruh Ketersediaan Fasilitas Pendidikan dan Kesehatan Terhadap Kemiskinan di 25 Kabupaten/Kota Provinsi Jawa Barat Tahun 2006-2010. Tesis, Universitas Indonesia.

Todaro, Michael P. dan Smith, Stephen C. (2014). Economic Development.12th Edition. Pearson Education. New Jersey, USA.

Zuluaga, Blanca. (2007). Different Channels of Impact of Education on Poverty: An Analysis for Colombia. Paper.