Journal of International Conference Proceedings (JICP) Vol.5 No.4, pp. 362-371, November, 2022
P-ISSN: 2622-0989/E-ISSN: 2621-993X
https://www.ejournal.aibpmjournals.com/index.php/JICP

Regional Competitiveness: Infrastructure, Education, and Health Sectors Approach

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ARTICLE INFORMATION

Publication information

Research article

Khusaini, M., Kornitasari, Y., Wiguna, A. B., Murniati., & Finuliyah, F. (2022). Regional Competitiveness: Infrastructure, Education, and Health Sectors Approach. *Journal of International Conference Proceedings, 5*(4), 362-371.

DOI: https://doi.org/10.32535/jicp.v5i4.1997

Received: 19 September 2022
Accepted: 22 October 2022
Published: 22 November 2022

ABSTRACT

This study aims to analyze the effect of the infrastructure, education, and health sectors on regional competitiveness. This is because the government expenditures have been allocated to develop infrastructure, education, and health sectors in each region. In line with the principle of fiscal decentralization to increase services in the public sector. When the government increases the quality of public sectors, it can impact economic growth, social welfare, and regional competitiveness or in the economic developments component. Previous studies show that the government expenditures on the infrastructure and component of the human capital index can increase the economic development in each region. In line with the theory of expenditures by Musgrave, Rostow, and Adolf Wagner. Therefore, using a regression panel data with the secondary data. The result of this study shows the effect of infrastructure, education, and health sectors on the regional competitiveness, study case in the Indonesia Province. Based on this study, it implies that when the local government will increase the competitiveness index, they should allocate more expenditures on this component.

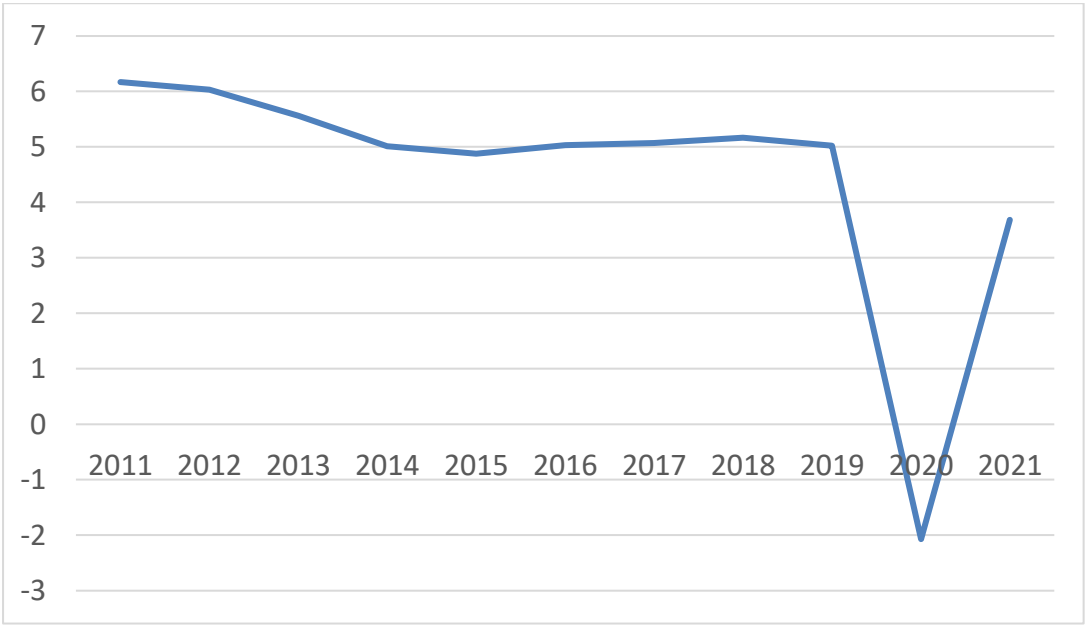
Keywords: Education, Health Sector, Infrastructure, Regional Competitiveness.

INTRODUCTION

Regional competitiveness is an important component in determining government policies for economic development. Todaro (2003), economic development is not only to increase economic growth, but also to improve the welfare of society. Thus, when the region has a high regional competitiveness index, it means relatively high in macroeconomic conditions. In reality, not all regions can determine regional competitiveness because of their problems to know the indicators to measure. As a developing country, Indonesia has a several problems in economy and society.

There are macroeconomic indicators to know economic conditions as an indicator of regional competitiveness. Economic growth in Indonesia had the highest decrease especially during pandemic covid-19, with the main sectors being agriculture, industry, information and communication, and services sectors. Based on the data, economic growth in Indonesia has decreased since 2018 (5,17%) to -2.07 in 2020 (BPS, 2022). The phenomenon of decreasing economic growth in Indonesia because of internal and external factors. An internal factor is the increased prices of commodities and an external factor is the economic conditions of other countries. The problems in macroeconomics, not only decrease economic growth but also other problems about unemployment.

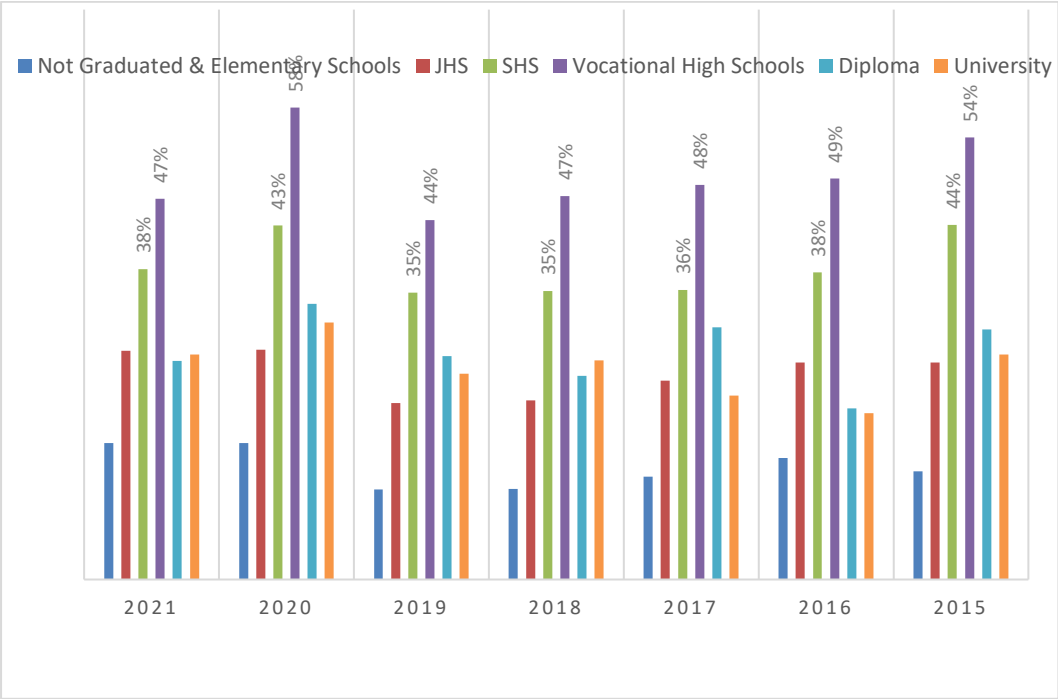
Figure 1. Economic Growth in Indonesia



Source: BPS (2022)

As one of the developing countries, Indonesia has a high unemployment rate. Based on data BPS with the education indicators, high numbers of education from the vocational high school graduated (47% in 2021) and senior high school graduated (38% in 2021). There are many factors that affect unemployment, one of the factors is the disequilibrium between supply and demand in the labor market and the quality of human resources is still low. Msigwa in Aprilliofany (2020), the factors caused unemployment in Tanzania because of location, marriage status, and education. Furthermore, previous studies show that all of the independent variables influenced unemployment in Tanzania, especially educational factors. It means, youth who do not complete their education, tend to become unemployed, unless they have skills to work.

Figure 2. Unemployment Rate Based on Education



Source: BPS (2022)

Based on the macroeconomic problems, the government policies with the fiscal decentralization have allocation in the expenditures, namely government spending. A government spending is one of the indicators to fiscal strategy (Alim, Setiyantono, & Zakiah, 2021). Sasongko, Bawono, and Prabowo (2021), government spending encompasses all aspects, society and economy. The government spending has been allocated, especially to infrastructure and human capital components with their programs to increase services in the public sector. When the government increases the quality of public sectors, it can impact on the economic developments component. Previous studies, show that the government expenditures on the infrastructure and the human capital index can increase the economic development in each region. However, based on the theory of expenditure, there are steps of government spending in the country. Thus, this study aims to analyze the effect of the infrastructure, education, and health sectors on regional competitiveness.

LITERATURE REVIEW

The study defines competitiveness as the extent to which regions can compete with other places. Main factors for competitiveness are those that determine the level of productivity in a region and when it compares with others. According to Frinces (2011), competitiveness is the result of the accumulation of advantages and value of a region. The advantage comes from the quality of processes and professional management systems accompanied by the contribution of the best resources, especially human resources. In the theory of competitiveness, there is a theory of comparative advantage in the measurement of the level of competitiveness. This study uses innovation development components that include infrastructure as a support factor, mean years school, and health sectors.

According to Komarova, Zjablova, and Denmukhametov (2014), to increase the competitiveness index, the region can be developed by infrastructure. One of the infrastructures that can affect competitiveness is roads both national, provincial, and

regional roads that are connected. Rahmat and Sen (2021), there are several types of roads built by the government that have proven to have an effect on the competitiveness index. In addition**,** the mean years of school is one of the indicators used to measure the human development index in terms of formal education. The mean years of school have an influence on the unemployment rate. One of them is research conducted by Siskawati, Surya, and Sudeska (2021); when a region has a good quality of resources, such as higher mean years of school, the number of unemployed will decrease. Another study that examines the influence of the mean years of school is Putriana and Aji (2022) that educational factors have an influence on economic growth as one of the indicators of success in economic development.

Another indicator of the quality of human resources is the health sector. Appleton and Teal (1998), health and education are both elements of human capital that benefit to improve human welfare. When the education or health sector increased, the quality of human resources in the region relatively increased. Best quality of human resources can be one of the indicators to know the regional competitiveness. According to Bloom (2004), education and good health can affect the productivity of labor. When the labor could be productive to produce some goods or services, it stimulates national economic growth because of the effectiveness and efficiency.

Three components in this study will be the indicators for local government spending. There is a theory of expenditures by Musgrave, Rostow, and Adolf Wagner. Musgrave and Rostow said that the expenditures have three steps, government spending to build infrastructure, government spending to increase economic growth, government spending to social activities.

RESEARCH METHOD

This study used a descriptive quantitative method with secondary data. The time in this study is in 2019 to 2021 with the type of annual data. The selection of the time based on the availability of data can be obtained through the website of the official data provider institution which shows the existence of supporting infrastructure data; mean years of school; and health component.

The sample of this study is 20 provinces that have carried out government expenditures on the research and development component in order to increase the regional competitiveness index, which can then be referred to as the cross section. Sampling techniques are carried out purposely with criteria such as data availability and data samples representing regions in Indonesia. The combination of time series and cross section data is panel data.

$$Y_{it} = \alpha_0 + \alpha_1 Infr_{it} + \alpha_2 Edu_{it} + Health_{it} + \varepsilon_{it}$$

Y: Regional Competitiveness Index

RESULTS

Local governments have the authority to plan and budgeting in the region. This is in accordance with the mandate contained in the implementation of fiscal decentralization and regional autonomy for more than two decades. The definition of fiscal decentralization includes the process of optimizing regional revenues through the resources owned, expenditures according to needs and priorities to financing both in terms of revenue and expenditure. The aim of fiscal decentralization is to reduce gaps with efforts to fulfill public facilities that can be carried out by each region. The fulfillment

of public facilities is expected to increase economic growth and reduce poverty in the context of regional development. In addition, the efforts to increase regional competitiveness through various components, including research and innovation. This study used three years from 2019-2020 with twenty provinces in Indonesia.

1. Nanggroe Aceh Darussalam
2. Riau
3. Jambi
4. South Sumatra
5. Lampung
6. Bangka Belitung Islands
7. Riau Islands
8. West Java
9. Central Java
10. East Java
11. Banten
12. Bali
13. East Nusa Tenggara
14. Central Kalimantan
15. North Kalimantan
16. North Sulawesi
17. South Sulawesi
18. Southeast Sulawesi
19. Gorontalo
20. North Maluku

Based on the sample in this study, a regression of panel data was then carried out to determine the influence of infrastructure, mean years of school, and health sectors to the regional competitiveness index.

Table 1. Model Summary

Model	R	R Square	Adj R Square	Std Error of the Estimate	R Square Change	F Change	Df1	Df2	Sig. F	Durbin-Watson
1	.170	.029	-.023	30573.2920	.029	.555	3	56	.647	2.648
a. Predictors: (Constant), X3, X1, X2										
b. Dependent Variable: Y										

Based on the regression test results, the R-Squared value is 0.029. It means the variables used, such as supporting infrastructure; mean years of school, and health sectors affect the regional competitiveness index by 2.9%. Meanwhile, the remaining 97.1% was influenced by other variables that were not contained in the study. The small R square because many indicators can determine the regional competitiveness index in Indonesia. But, this study only used three variables to know the effect of infrastructure and human capital components to regional competitiveness.

Hypothesis testing can be carried out by the t-statistical and the probability value. The alpha value used is 5%. Meanwhile, the criteria accepted and rejected for the hypothesis test are Ha accepted and H0 rejected on the condition that the value of Ha shows a number less than 0.05.

Table 2. Regression Result

Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.

	B	Std. Error	**Beta**		
(Constant)	-135049.92	166244.765		-1.812	.420
X1	6.465	7.250	.119	.892	.376
X2	.780	375.168	.000	.002	.998
X3	2166.797	2344.967	.122	.924	.359
a. Dependent Variable: Y					

Based on the table, the results of the hypothesis test can be known as follows.

H0 = Infrastructure (X1) has no effect on regional competitiveness
H1 = Infrastructure (X1) affects regional competitiveness
H0 : β = 0 ; H1 : β ≠ 0

H0 is accepted because the p value indicates 0.376 which means more than 0.5 so the hypothesis is rejected. It means, the infrastructure especially for public facilities cannot affect the regional competitiveness index in Indonesia.

H0 = Mean years of school (X2) has no effect on regional competitiveness
H1 = Mean years of school (X2) affects regional competitiveness
H0 : β = 0 ; H1 : β ≠ 0

H0 is accepted because the p value indicates 0.998 which means more than 0.5 so the hypothesis is rejected. It means, the education component can be seen a mean years of school cannot affect the regional competitiveness index in Indonesia.

H0 = Health Sector (X3) has no effect on regional competitiveness
H1 = Health Sector (X3) affects regional competitiveness
H0 : β = 0 ; H1 : β ≠ 0

H0 is accepted because the p value indicates 0.359 which means more than 0.5 so the hypothesis is rejected. It means, the health sector cannot affect the regional competitiveness index in Indonesia.

This study shows that no independent variables affect the regional competitiveness index, study case in the twenty (20) province in Indonesia at 2019-2020. Many factors can affect this phenomenon, especially from the planning and budgeting government because at the same time, they focus to decrease the negative impact of COVID-19 in the health sectors.

DISCUSSION

Based on the panel regression, the result of this study shows that the infrastructure spending (infrastructural expenditures) in the province has not affected directly on the regional competitiveness index. Snieška and Drakšaitė (2007), many factors determine regional competitiveness, one of them is infrastructure. In this study explained there are many factors needed to increase competitiveness. First of all, knowledge from human capital because it is one of the important things to increase the economic conditions. When the quality of human capital is higher, then the stakeholders can build infrastructure and other components in macroeconomics, market effectiveness, and innovation. In the globalization era, innovation can be the first resource to grow because it can improve the sustainability and the competitiveness in the country.

Infrastructure can be defined as public capital or *public capital* as well as government investment, which includes roads, bridges, and other development systems (Mankiw, 2003). Infrastructure development has been carried out since the previous period, but

more massive development was carried out in each province, especially in Java during the Joko Widodo administration. Infrastructure development such as roads is mostly carried out, especially building roads because of the main support in distribution activities. Based on article 5 of Law No. 38 of 2004, roads are part of transportation facilities and infrastructure that are important for social, economic, political, environmental, cultural, defense and security, used as much as possible for the community. Therefore, the road is like being the lifeblood of society, nation, and state because it is a link between regions.

The government is allocated the infrastructural expenditures, but in fact not all the region has access and connection. So, at the same time the infrastructural expenditure has not affected the increasing economic growth because of the different things. In line with Manrai, Manrai, and Friedeborn (2018), to have good accessibility, transportation infrastructure must be effective when it can impact on competitiveness, so in the process of planning the construction of infrastructure can encourage competitiveness through the development of transportation infrastructure must be with a measure of connection and accessibility.

Although the results of this study are not in line with several studies including research conducted by Komarova et al. (2014); Rahmat and Sen (2021), infrastructure development, such as roads, will increase the regional competitiveness index. Existing research conditions, this study uses sample data from outside Java Island which have infrastructure values that tend to be still low, this is in line with the development planning of outside Java Island which are still being pursued in the development process. In addition to the cross section data, this study is still dominated by areas outside java island which have a regional competitiveness index in the low infrastructure pillar, there are causes in terms of time dimensions.

The time series data used is 2019-2021 or called the transition period to a pandemic. During the pandemic, there was a reallocation and refocusing of the budget to fund priority activities aimed at reducing the COVID-19 virus, especially from the health sector. The priority budgeting has an impact on infrastructure development. In line with the existence of Presidential Instruction Number 4 of 2020 concerning Refocusing Activities and Budget Reallocation. Not only on the health sector, but also on the educational side. COVID-19 era has an impact on the level of education in Indonesia because many students can adopt the technologies because of the limitedness.

The education side, the mean years of school can not influence the regional competitiveness index in Indonesia. The government said the educational expenditures needed to increase and focused on the best quality. When the quality of education is higher, it can impact the quantity of mean years of school. On the other hand, based on the law, the portion of educational expenditures is 20% of the total expenditures in the state budget and local government budget. Unfortunately, the expenditures can not increase the regional competitiveness index throughout improving the quality of education.

Research conducted by Hidayati and Bawono (2020), a mean years of school is directly proportional to educational expenditures. It means, when the government increases educational expenditures, the mean years of school directly increases. The results of other studies conducted by Hasanah, Syaparuddin, and Rosmeli (2021); Pradipta and Dewi (2020) showed the same results, a mean years of school did not affect the components of economic development, such as economic growth, poverty, and unemployment. So, the government needs to focus on increasing the level of education

in the province, namely the mean years of school. It is because the education level can affect the absorption in the labor market, so unemployment will decrease.

The results of this study are not in line with the previous studies that education owned by the workforce can affect the regional competitiveness index (Ridwan, Hasanuddin, Amri, & Madris, 2017). Research conducted by Siskawati, Surya, and Sudeska (2021), when an area has a good quality of resources, such as a mean years of school tends to be high, the number of unemployed will decrease. Another study that examines the influence of a mean years of school conducted by Putriana and Aji (2022), educational factors have an influence on economic growth as one of the indicators of success in economic development.

Another component of human capital is the health sector. In this study, the health sector cannot affect the regional competitiveness index. In line with the previous study conducted by Fadillah and Setiartiti (2021), government spending on education and health factors can affect the component of economic development. This phenomenon is because of the government spending rate and the time dimension. The theory of government spending by Musgrave and Rostow said that the countries have three steps to economic development. This study indicates that the local government in provinces is the first step. They try to spend the money to build a lot of infrastructure, especially public facilities. But, on the other hand the local government cannot spend in another component, such as education and health sectors.

The results of the study in existing conditions showed differences in the results from previous studies, this can be explained because in this study using data on provinces in Indonesia with the low mean years of school. In addition, the time dimension used is 2019-2020, where educational conditions were constrained and the increase in school dropout rates due to the pandemic and government spending was not a priority to improve the education sector. So, to increase the regional competitiveness index in the province of Indonesia, the government needs to increase the expenditures in infrastructural, educational, and health sectors.

CONCLUSION

Government spending can be one of the components to carry out development both in terms of economic growth to increase competitiveness. Government spending in an effort to increase competitiveness, includes the development of supporting infrastructure, improving the quality of human resources in terms of education and economy. However, based on the regression of panel data obtained from the results of the study can be concluded. Infrastructure has no effect on the Regional Competitiveness Index, It means the infrastructure in the form of roads has no influence on increasing the competitiveness of each region. Regional competitiveness is influenced by several factors, not only infrastructure, but also the human capital components. First of human capital components is mean years of school, this component does not affect the Regional Competitiveness Index. This study implies that the duration of education does not guarantee the formation of a competitiveness. And the education spending carried out by the government can be said to have not focused on improving the quality of the education process. Another human capital component is health sector, this component does not affect the regional competitiveness index. This is because government spending has not focused on increasing the quality of health sectors in each region. This study concluded that the theory of government spending by Musgrave and Rostow, the countries have three steps to economic development. This study indicates that the local government in provinces is the first step. They try to spend the money to build a lot of

infrastructure, especially public facilities. But, on the other hand the local government cannot spend in another component, such as education and health sectors.

ACKNOWLEDGMENT
The author wishes to thank all of the people who helped this research, especially from Universitas Brawijaya and another stakeholder.

DECLARATION OF CONFLICTING INTERESTS
The authors declared no potential conflicts of interest

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