Can "thousand rivers" reduce its poverty using its rivers?

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Abstract

West Kalimantan is one of the Provinces in Kalimantan island known as 'Thousand Rivers' province because it has many rivers, either small or big rivers, including Kapuas river, the longest river in Indonesia. According to Statistical Bureau (BPS), West Kalimantan has the poorest people among other provinces in Kalimantan with 405,510 people living in poverty and becomes the poorest province in Kalimantan with Rp337, 228 per capita per month. This paper uses panel data to analyze regression model of regencies and cities in West Kalimantan from 2011 until 2015. Authors find effects from geographical aspect to regional poverty, especially gross regional product depending on river, such as transportation and logistics, plantation, and forestry this model also sees the effects of unemployment on regional poverty. Authors use number of poor people, in this case we call Poverty as dependent variable, and Gross Regional Product in River, Gross Regional Product in Plantation, Gross Regional Product in Forestry, and Unemployment Rate in each regencies and cities as output. The result shows gross regional product in river has significant effects into poverty. It also shows negative relationship between gross regional products in river into poverty. Increases 1 million rupiahs of Gross Regional Product in River, Poverty will decrease 0.15%. However, increases 1 million rupiahs of Gross Regional Product in Plantation, Poverty will increase 0.02% , increases 1 million rupiahs of Gross Regional Product in Forestry, Poverty will increase 0.03% , increases 1 million rupiahs of Gross Regional Product in Mining and Quarrying, Poverty will increase 0.04%. Unemployment rate also has positive relationship with poverty, as long as decreases 1% of total unemployment, poverty will decrease about 0.28%.

Keywords: River; gross regional product; poverty

INTRODUCTION

According to (Unesco - United Nations Educational, Scientific and Cultural Organization, 2017) meaning of poverty divided into 2 interpretation, that are Absolute Poverty and Relative Poverty. Absolute Poverty refers to measures poverty in relation to the amount of money necessary to meet basic needs such as food, clothing, and shelter, and Relative Poverty defines poverty in relation to the economic status of other members of the society.

Poverty still becomes the biggest problem in developing countries, including Indonesia. Indonesia has approximately 263 million population who lived in 34 provinces and more than 27 million peoples lived under poverty line, which means almost 10% of population in Indonesia are poor people. West Kalimantan contributes for more than 405 thousands people and become the poorest provinces in Kalimantan Island. As a rivers island, authors sees if river in Kalimantan have a potential to increase West Kalimantan economic growth.

A famous Economist, (Kuznets, 1955) told his hypothesis, that in the early stage of economic development, income distribution would be worsen, which push the country into wider inequality, then improve as a wider segment of the population participated in the rising national income. An empirical study show if economic growth have contribution in reducing poverty. Economic growth can measured by survey mean income (consumption) and GDP per capita and statistically have strong influence for consumption, (Richard H. Adams, 2003).
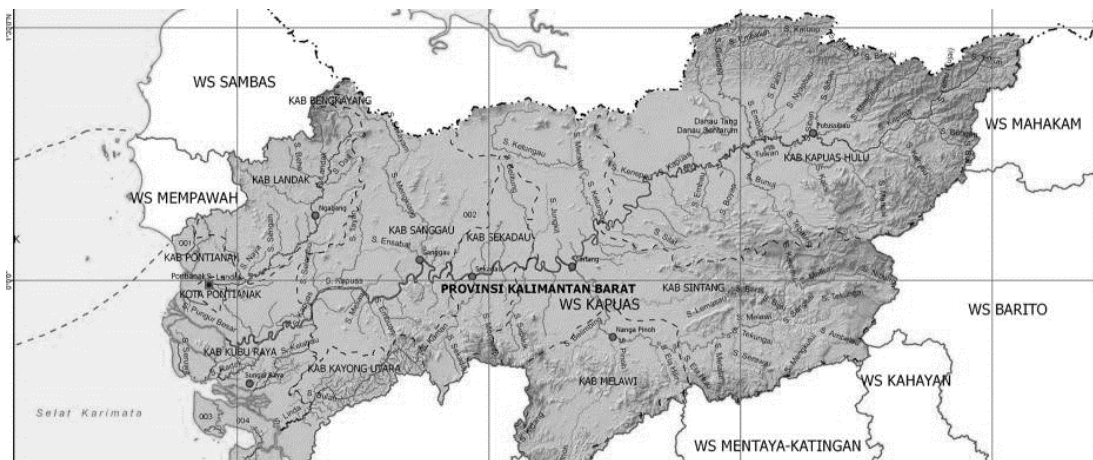

Figure 1. Map of kapuas river area
Source: Dewan sungai dan air nasional

West Kalimantan covers an areal of width 147.557 km2, where the residential area only 0.31 % from total land. With, 4,789 thousands inhabitants, we can see West Kalimantan have small population density or only 33 persons/km2 (Badan Pusat Statistik Provinsi Kalimantan Barat, 2016) West Kalimantan dubbed as "Province of Thousand Rivers", because it has hundreds of large and small rivers that are navigable (Pemerintah Provinsi Kalimantan Barat, 2015). One of the rivers is the Kapuas River, that is the longest river in Indonesia, reached 1,143 km, across 7 regencies and cities from Kapuas Hulu until Pontianak City.

These rivers play an important role in socio-economic activities of West Kalimantan society. These rivers have a main function as means of transpotation. Otherwise, these rivers serve as major source of drinking water in addition of rainwater in some regencies in West Kalimantan. Transportation of rivers and lakes accounts for 0.72 % of 4 % contribution of value added transportation and warehousing business in the formation of West Kalimantan economy during 2013-2015. As long as that, growth rate of transportation and warehousing business in West Kalimantan has decreased.

Nowadays, rivers has developed into tourism sector in several regency and city in West Kalimantan. In Pontianak City, Kapuas Square Park became one of the city's brands by utilizing the Kapuas Rivers as a tourist rides, while in Pontianak Regency or Mempawah Regency, "Robo Robo" ritual becomes the main attraction for tourism area.
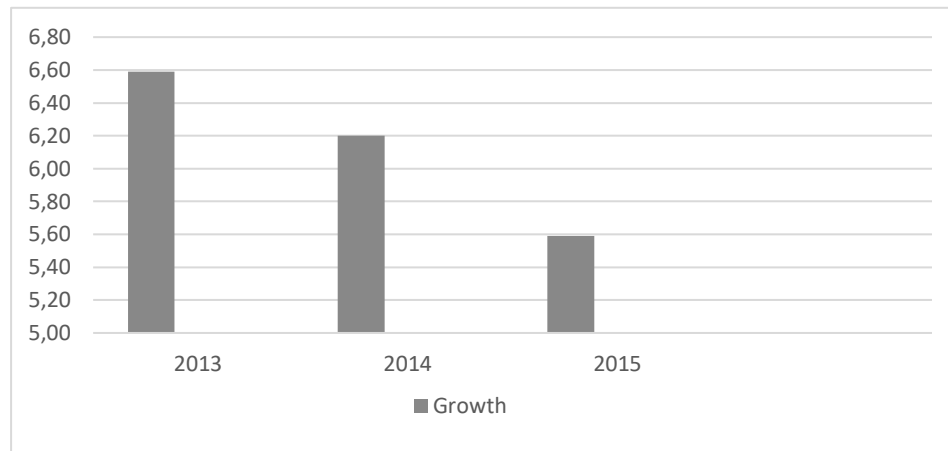
Figure 2.Growth of the transportation and warehouses of west kalimantan in 2013-2015
Source: Badan Pusat Statistik Kalimantan Barat 2016, edited by author

This is due to the rapid development of transportation modes. Beyond that there is still potential that can be developed through the utilization of river potential in West Kalimantan in eradicating poverty.

METHODS

Authors find effects from geographical aspect to regional poverty, especially gross regional product depending on river, such as transportation and logistics, plantation, and forestry this model also sees the effects of unemployment on regional poverty.

Authors used all data from Badan Pusat Statistik Provinsi Kalimantan Barat Tahun report of Gross Regional Domestic Product (GRDP) for all regencies and cities in West Kalimantan by employment in 2011-2015. There are 14 regencies and cities that exist in West Kalimantan that becomes the object of observation, they are Bengkayang Regency, Kapuas Hulu Regency, Kayong Utara Regency, Ketapang Regency, Kubu Raya Regency, Landak Regency, Melawi Regency, Pontianak Regency, Sambas Regency, Sanggau Regency, Sekadau, Regency, Sintang Regency, Pontianak City and Singkawang City.

Table 1. Data Description Using lPoverty as Input

Variables	Obs	Mean	Std. Dev	Min	Max
Poverty (lPoverty)	70	27071 (10.06587)	14164.74 (0.5424524)	9920 (9.202309)	58800 (10.9819)
Gross Regional Product in River	70	58.22809	120.6031	0	527.3416
Gross Regional Product in Plantation	70	869.9859	889.2323	0.0219	3112.085
Gross Regional Product in Forestry	70	136.0529	123.465	2.4203	459.4032
Gross Regional Product in Mining and Quarrying	70	324.0664	418.3549	0	1765.134
Unemployment Rate	70	3.976286	1.941863	0.31	9.44

Source: Badan Pusat Statistik Kalimantan Barat 2016, edited by author

From the data above, we can see that there is region or city that do not have income from river, which is Singkawang City. Besides that we can also see that there is city that does not have income from mining and quarrying. It happens because of geographical condition of the 2 cities. Plantation sector becomes the largest contribution in regional income in West Kalimantan, and the smallest comes from river sector. The average unemployment rate in West Kalimantan amounted to 3.98% lower than the average unemployment rate of Indonesia in 2011-2015 which amounted to 6.26% (Badan Pusat Statistik, 2017). The econometrics model that author uses can expressed as:

$$lPoverty_{it} = \beta 0 + \beta 1 Griv_{it} + \beta 2 Gpla_{it} + \beta 3 Gfor_{it} + \beta 4 Gmin_{it} + \beta 5 Unemrt_{it} + U_{it}$$

Authors were using panel data to regression model. With this method, we can find effect of these independent variables into Poverty in West Kalimantan.

DISCUSSION AND RESULT

Regression result shows that gross regional product in river and plantation as we see its p-value, significantly affecting poverty in 90% confidence level. Especially for river sector it can reduce poverty. On the other hand, the gross regional product of the plantation, forestry and mining and quarrying sectors increase the percentage of poverty slightly. In this case, the relationship between poverty and unemployment rate is positive. For most people, the loss of a job means a reduced living standard and physicological distress (Mankiw, 2010). So, an increase in unemployment rate can lead to an increase in number of poor people.

Table 2. Regression result

lPoverty	Coef.	Std. Err.	t	P>|t|
Gross Regional Product in River	-0.0015526	0.0008576	-1.81	0.076
Gross Regional Product in Plantation	0.0002352	0.0001096	2.15	0.037
Gross Regional Product in Forestry	0.0003402	0.0007555	0.45	0.654
Gross Regional Product in Mining and Quarrying	0.0003786	0.0003174	1.19	0.239
Unemployment Rate	0.0027559	0.0074484	0.37	0.713
_Constant	9.771698	0.1656554	58.99	0.000

Source: Badan pusat statistik provinsi kalimantan barat, edited by author

According to regression result, Gross Regional Product in river has significant effects into poverty. It also shows negative relationship between gross regional products in river into poverty. Increases 1 million rupiahs of Gross Regional Product in River, Poverty will decrease 0.15%. However, increases 1 million rupiahs of Gross Regional Product in Plantation, Poverty will increase 0.02%, increases 1 million rupiahs of Gross Regional Product in Forestry, Poverty will increase 0.03%, increases 1 million rupiahs of Gross Regional Product in Mining and Quarrying, Poverty will increase 0.04%. Unemployment rate also has positive relationship with poverty, as long as decreases 1% person of unemployment, poverty will decrease about 0.28%.

Why incease in Gross Regional Product in plantation, forestry, and mining causing an increase in poverty? It cause of most of company in West Kalimantan is not company from West Kalimantan itself. Most of them are palm and mining company from outside West Kalimantan. Land previously planted with plantation and forestry products such as sugar cane, corn and rubber. Must succumb to the palm oil development project. Many illegal mining activities on the banks of the Kapuas River actually makes its income runs to private sector.

CONCLUSION

West Kalimantan governnment have a program to give cultivation rights or HGU (Hak Guna Usaha) to open the access to increase West Kalimantan society welfare. With the improved allocation of revenues from the plantation, forestry and mining sectors, the potential from rivers in West Kalimantan will increase. The increase should be harmonized with improvements in transportations and logistics that can utilize rivers in that sectors.

In addition, restoration of the functions of Kapuas river and other rivers is necessary to increase the value of these rivers. According to (Maryono, 2015), there are 5 ways in river restoration, such as hydrilogical restoration, ecology, morphology, socioeconomic, and institutional and regulatory restoration. Hydrological restoration is done by monitoring quantity and quality of water, ecological restoration by monitoring the flora and fauna, morphology by looking at authenticity of the river, socioeconomic by view the benefits of river economically, and institutional focus on regulation to preserve the river sustainability.

Today, Kapuas river has become a tourist icon in Pontianak City. Government programs as well as the environmentally conscious community also contribute to increasing the value of the Kapuas river. Pontianak City government has strategy to achieve these goals by revitalizing rivers, restructuring road networks and utility systems, increasing intensity for downtown areas, revitalizing the historical value area that generally located around rivers and the application of green ports and industries.

However, rivers can contribute to eradicating poverty in West Kalimantan. Tourism potential, transportation, even as the main source of drinking water, has helped to raise the economic status of West Kalimantan society. Communities and local government should be realize and conserve the potential of rivers in West Kalimantan for the future.

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