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Impact of Tourism Sector on Poverty Reduction in Indonesia: Study Case West Java Province

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Abstract – The goal of economic development should be to reduce poverty as well as promote growth. West Java's present rapid economic expansion but not being followed by a decline in poverty. The tourism sector ideally has a strategic role in development in West Java. Activities related to tourism that not only concentrate on offering services but also work as a bridge between the primary and secondary industries can boost the economy and lessen poverty. There aren't many empirical studies that examine how the tourist industry affects reducing poverty at the national and regional levels. Through by descriptive analysis and panel data methods were used in 27 regencies/cities in West Java from 2013 to 2019 to investigate this question. It was discovered that there was a link between the government spending for the tourist sector and the high school GER on poverty levels. The existence of the tourist industry as a base sector in a region and the high school GER as a proxy for tourism human resources are also recognized to have a major impact on lowering poverty in West Java, according to the Random Effect Model.

Keywords – panel data, poverty, tourism, west java,.

I. INTRODUCTION

Economic development tried to achieve better prosperity and welfare of society[1]. Indonesia with West Java Province in it being one of the biggest contributor on economic area and having the largest population in Indonesia has recorded quite good economic growth. In the last three years, West Java has always ranked in the top three in terms of economic contribution in Indonesia. Furthermore, in 2021 West Java has a growth value above the Indonesian average of 3.74 per cent. However, high growth has not been accompanied by good poverty alleviation in West Java Province. It is recorded through the Inclusive Economic Development Index that poverty in West Java Province in 2021 is at the bottom 4 compared to the national average. This ideally needs to be examined, especially when juxtaposed with empirical studies that show a relationship between economic growth and poverty levels. Ideally, economic development can overcome the problem of poverty, which is a development challeng[2].

The implementation of pro-poor growth as an effort to alleviate poverty through inclusive economic growth is one alternative. Tourism sector in particular can be a source of new economic growth. Several studies have shown that the tourism sector affects economic growth both on an international and regional scale. The tourism sector in West Java has a strategic role in development. The shift in the development paradigm that does not only focus on the production of goods but is expanded by the provision of services makes the tourism sector can be developed to support the economy [3],[4],[5]. The potential of the tourism sector is not only on a national scale but also at the regional level. This is illustrated by the contribution of the tourism sector to the economy in West Java. Referring to Central Bureau of Statistics data, accommodation and eating and drinking activities, which are proxies for tourism activities, are known to contribute to the economy every year and have increased over the past 10 years. It was recorded that 2020 was the highest distribution achievement for the accommodation and eating-drinking sector as a tourism approach of 2.92 percent or contributed as much as 60.845 trillion rupiah to GDPR. This illustrates the potential of the tourism sector which prioritizes aspects of sustainability both from an economic, social and environmental perspective [6]. The high economic growth in West Java should encourage efforts on poverty alleviation. Through the tourism sector that has the potential to be developed in West Java, it is expected to have an impact on poverty alleviation. This paper will analyze the relationship and impact of the tourism sector on poverty levels in West Java Province.

II. LITERATURE REVIEW

Various studies conducted in various countries show that the level of economic growth is a determinant of poverty reduction[7]. The problem of inequality that occurs slows down the alleviation efforts. In addition, the implementation of the pro-poor growth concept in various countries is still not optimal. The concept is ideally able to provide opportunities for the poor to increase their income through various businesses. The development of the

concept of pro-poor growth is adapted into the concept of pro-poor tourism which fully adapts the values and is implemented in tourism activities that are prevalent in various countries to reduce poverty levels [8], [9], [10].Aliansyah through his research states that tourism sector positively affects economic growth [11]. Through a panel data approach, it is known that government spending on the tourism sector and tourism activities significantly affect economic growth. However, in the context of poverty alleviation, not many studies have done so at the regional level. In relation to tourism economic activities that affect poverty reduction [8], through his research describe the relationship between tourism, poverty and economic development in developing countries. Using data from 69 developing countries in 1995 to 2012, it is known that tourism activities have a relative effect on reducing poverty in several countries that fall into the undeveloped category (per capita income below 3,400 USD per year). The study also said that the determination of the tourism sector in developing countries can be a solution to reduce poverty that occurs.

Corroborating this research, Riyanto *et al* [12] conducted a study of 34 provinces from 2011 to 2017 in Indonesia. The study found that tourism activities when they become a base in an area affect poverty reduction between 1.5 to 3.4 per cent. It is known that without tourism activities in Indonesia, Indonesia's poverty rate is estimated to be 4 per cent higher than the conditions that occur. Using panel data analysis, it was found that tourism contributed to addressing poverty depth (P1) from 2.04 to 1.21 and poverty vulnerability (P2) from 0.37 to 0.29 in 2016. The effect of tourism in the study shows that it is not only limited to reducing poverty in the lower middle group but also the upper middle group. But in this study found that gross enrollment rate at high school doesn't effective to poverty reduction. It can be concluded that tourism activities have an inclusive impact on development in the region. Furthermore, domestic tourist activities have a more significant influence on poverty reduction when compared to foreign tourists.

III. RESEARCH METHODOLOGY

This study uses secondary data in the form of panel data which is a combination of time series and cross section data. The cross section data used is data from districts / cities in West Java while the time series data is annual data from 2013-2021. The data sources used in this study were obtained from Central Bureau of Statistic (BPS), Ministry of Education and Culture (Kemendikbud), Ministry of Finance (Kemenkeu) and the Tourism and Culture Office of West Java Province (Diparbud). The analysis in this study was carried out using Microsoft Excel, Eviews 9 and QGis Desktop 3.22.6 software.

Table 1 Variables and Data Sources

No.	Variables	Data used	Source
1	POVERTY	Poverty rate (percent)	Central Bureau of Statistic
2	BASE_TOUR	LQ value of the tourism sector	Central Bureau of Statistic (processed)
3	APBD_TOUR	Regional revenues and expenditures budget (billion rupiah) on tourism	Ministry of Finance
4	PW	Number of tourism activist groups (groups)	Tourism and Culture Office of West Java Province
5	APK_SMA	Gross enrolment rate at senior high school level (percent)	Ministry of Education and Culture

The analysis method used in this research is descriptive analysis and panel data regression. Panel data regression is carried out by performing several stages of analysis. Panel data regression analysis uses three test methods to select the best model. In this study, it was determined that the method used was ordinary least square (OLS) with a random effect model. The research model used.

$$\text{POVERTY}_{it} = \beta_0 + \beta_1 \text{BASE\_TOUR}_{it} + \beta_2 \text{Ln}(\text{APBD\_TOUR}_{it}) + \beta_3 \text{Ln}(\text{PW}_{it}) + \beta_4 \text{APK\_SMA}_{it} + \varepsilon_{it}$$

Description:

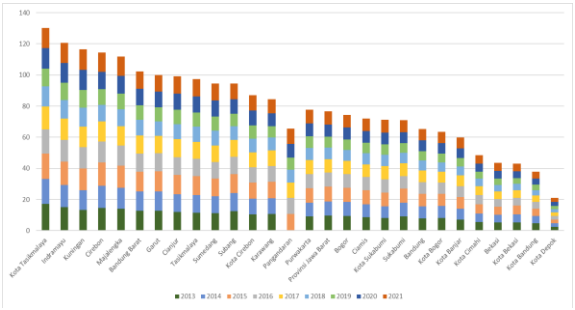
β_0	=	Constant (intercept)
β_1 - β_4	=	Parameters of each independent variable
POVERTY_{it}	=	Poverty rate (percent) of district i in year t
BASE_TOUR_{it}	=	Dummy variable of tourism base sector of district/city i in year t
LnAPBD_TOUR_{it}	=	Regional revenues and expenditures budget (Billion rupiah) on tourism in district/city i in year t (natural logarithm)
$\text{Ln}(\text{PW}_{it})$	=	Number of tourism activist groups in district/city i in year t (natural logarithm)
APK_SMA_{it}	=	Gross enrolment rate at senior high school level (per cent) of district i in year t

i	=	*Cross section* data *of* 27 regencies/cities in West Java Province
t	=	Years of research from 2013 to 2019
ε_{it}	=	*Error*

IV. RESULTS AND DISCUSSIONS

Through the descriptive analysis method, the relationship between variables representing the tourism sector and the regional poverty rate in West Java Province was examined. A *scatter plot* was used as a visualization to analyze the relationship between two variables that were spread into four quadrants. Regional revenues and expenditures budget on tourism, gross participation rate at the high school level or equivalent, and the number of tourism activist groups are used as variables on the X-axis while the poverty rate is used as a variable on the Y-axis.

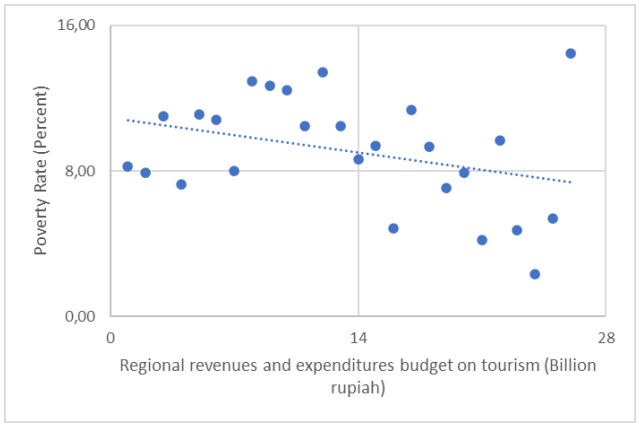
The data analyzed with the scatter plot is obtained from the average for each variable in the period 2013 to 2021. In addition, mapping was also done to see the geographical distribution of each variable. In general, the poverty rate in the districts/cities in West Java Province varies from region to region. In Figure 2, from 2013 to 2021, it is shown that the highest poverty is in the eastern region of West Java with Tasikmalaya City taking the first place. In 2017, the highest poverty rate in the area reached 17.2 percent. Furthermore, the regions with the highest poverty rates are Indramayu Regency in second place and Kuningan Regency in third place. In general, the three regions are connected to the Cirebon Raya and Pangandaran-Tasikmalaya-Garut-Cianjur tourism destination areas. Meanwhile, Bekasi City, Bandung City and Depok City recorded low poverty rates. When looking at tourism activities illustrated, it is known that the three regions with the lowest poverty rates tend to have high tourism potential.



Source: Indonesia Central Bureau of Statistic of West Java Province, 2022

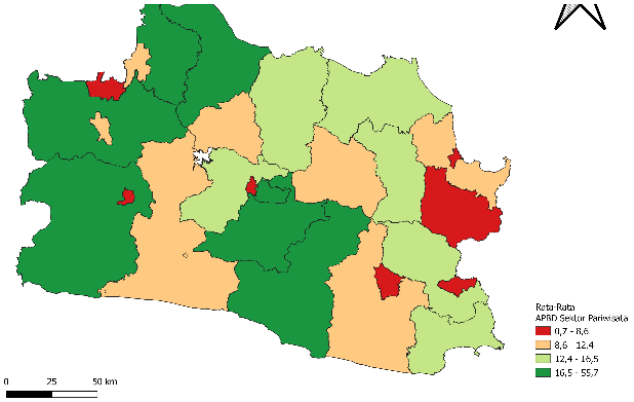
Figure 1 District/City Poverty Rates in West Java Province 2013-2021

Based on the results of the scatter plot to see the relationship between variables, Figure 2 shows that there is a negative relationship between government expenditure allocation on tourism and the poverty rate. In general, the 27 regions are spread out from quadrants 2 and 4, however, there are some regions that are in quadrant 1. Based on the calculations carried out, the relationship (correlation) between the two variables is -0.26. Furthermore, when viewed in Figure 3 which shows the average tourism sector budget allocation on the tourism sector in each region, government expenditure allocation on tourism is concentrated in the western part of West Java Province with Bogor Regency, Sukabumi Regency, Bekasi Regency, Karawang Regency which ranges from 16.5 to 55.7 billion Rupiah. In addition, the average tourism sector budget allocation is also high in Garut Regency, Bandung Regency and Bandung City with the same average value of government expenditure allocation as the previous region. Meanwhile, the regions with the lowest allocations are in Kuningan Regency and several cities, especially Tasikmalaya City, Banjar City in the eastern region of West Java Province with allocation values ranging from 0.7 billion rupiah to 8.6 billion rupiah.



Source: Indonesia Ministry of Finance, 2022

Figure 2 Scatter Plot Diagram of Government Expenditure Allocation on Tourism and Poverty Level

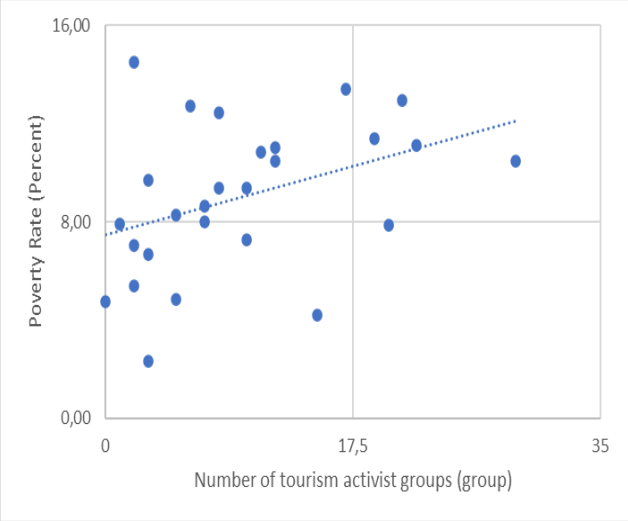


Source: Indonesia Ministry of Finance, 2022

Figure 3 Regional revenues and expenditures budget on tourism in West Java Province

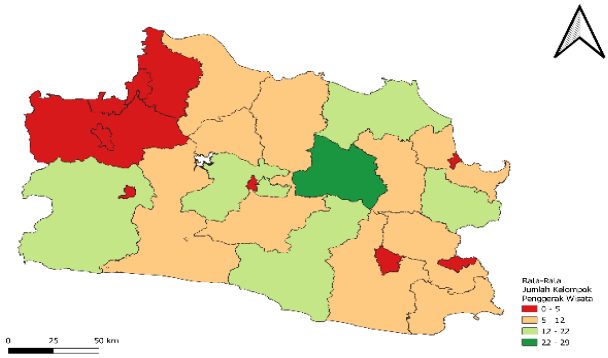
Furthermore, if the relationship between tourism activist groups and the poverty rate is analyzed, it can be seen that there is a positive relationship between the two variables. With a correlation value of 0.39, it is known that when there is an increase in the number of tourism drive groups, there is also an increase in the percentage of poor people. This, if examined further, is different from the initial assumption where the presence of tourism activists was thought to be negatively related to poverty reduction. However, when looking at Figure 4, it is known that each data in the sowing diagram tends to be tenuous, indicating a low relationship.

In addition, when referring to Figure 5, it is known that Sumedang Regency has a high number of tourism drive groups with 29 groups. While other regions tend to be in the range of 12 to 22 groups for each region. Regions with the lowest number of tourism drivers are in Bogor Regency, Bekasi Regency, Bogor City, Depok City, and Bekasi City ranging from 0-5 groups. The extent of the area developed with the tourism sector tends not to be proportional to the existence of existing tourism activist groups. Several studies conducted state that the nature of micro groups focus local destination on certain tourist attractions make the existence of tourism activist need to be increased for a wider area coverage.



Source: Tourism and Culture Office of West Java Province, 2022

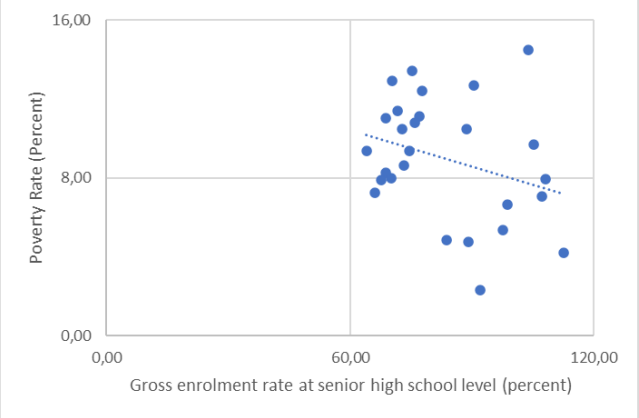
Figure 4 Scatter Plot Diagram of the Number of Tourism Activist Groups and Poverty Level



Source: Tourism and Culture Office of West Java Province, 2022

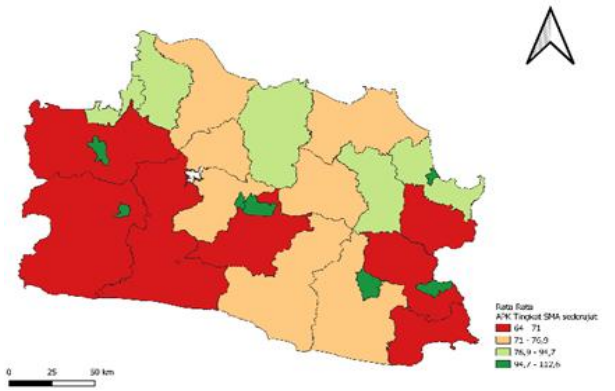
Figure 5 Mapping Number of Tourism Activist Groups in West Java

The next aspect analyzed is the relationship between the gross enrollment rate at senior high school level as an approach to human resources engaged in the tourism sector and the poverty rate. It is known based on the sowing diagram in Figure 6 that there is a negative relationship between the senior high school gross enrollment rate and the poverty rate with a correlation value of -0.303. Therefore, it can be said that when there is an increase in the achievement of the gross enrollment rate at senior high school or equivalent as a of tourism human resources, the poverty rate decreases. Better quality of human resources ideally encourage efforts to reduce poverty [13]. Furthermore, when examined in Figure 7, it is known that the gross enrollment rate is still quite low, especially in the southern region of West Java. It is noted that only urban areas have good gross enrollment rate at high school was achieve ranging from 94.7 per cent to 112.6 percent. This imbalance needs to be addressed to improve the quality of human resources, especially tourism in West Java.



Source: Indonesia Ministry of Education and Culture, 2022

Figure 6 Scatter Plot Diagram Gross Enrollment Rate at Senior High School and Poverty Level



Source: Indonesia Ministry of Education and Culture,

[2]Figure 7 Mapping Gross Enrollment Rate at Senior High School or Equivalent Level in West Java

The Effect of the Tourism Sector on Poverty Levels in West Java Province

Best Model Selection

The selection of the best model in panel data analysis is carried out through three stages, namely the chow test, Hausman test and LM test. The chow test is carried out in selecting the FEM or PLS model. In the chow test, the probability value of 0.0000 is smaller than the real level α (5%), meaning that there is enough evidence to reject H0. Therefore the FEM model is better than the PLS model. After doing the chow test, then we do the Hausman test. The results of the Hausman test obtained a probability value of 0.0896 greater than the real level α (5%), meaning that there is not enough evidence to accept H0 or the REM model is better than FEM. To strengthen the results, the LM test was conducted to see the best model between REM and PLS. Based on the Bruesch-Pagan value, it is known that the probability value is 0.0000 so that it can be said that the best model in this study is the Random Effect Model (REM).

Classical Assumption Test

The Random Effect Model (REM) is the best model for analyzing research data. Then it will be continued by testing the classical assumptions to fulfill BLUE (best linear unbiased estimator). The first test we do is the normality test. The normality test shows that the Jarque-Bera value is 3.9254 with a probability value of 0.1404 greater than 0.05 so it can be said that the data has spread normally. The second test is a multicollinearity test by looking at the correlation value between independent variables. It is known that there are no variables with high correlation (>0,8) so it can be said that the model is free from multicollinearity problems. Furthermore, the heteroscedasticity test can be seen in the results of the sum square resid value on weighted statistics of 99.06 smaller than the sum square resid value on unweighted statistics of 1765.03. This indicates that there is a heteroscedasticity problem that can be overcome in the model. The last test is the autocorrelation test, according to Baltagi this problem can be overcome by using weighting [14]. The model has used white period weighting so that the problem of heteroscedasticity and autocorrelation can be overcome.

Estimation Results of Impact of the Tourism Sector on the Poverty Level

Table 2 Results of Panel Data Estimation on the Role of Tourism in Poverty Reduction

Variables	Coefficient	Prob.
C	15.82052	0.0000
BASE_TOUR	-0.601166***	0.0071
Ln(APBD_TOUR)	0.070398	0.5037
Ln(PW)	0.023624	0.7385
APK_SMA	-0.083530***	0.0000
Weighted Statistics		
R-squared		0.54546
Prob(F-statistic)		0.00000
Sum squared resid		99.0633
Durbin-Watson stat		99.0633
Unweighted Statistics		
R-squared		0.087975
Sum squared resid		1765.031
Durbin-Watson stat		0.055818
Notes: ***) significant at 1% real level		

Based on the results in Table 2, it is known that two independent variables significantly affect to poverty alleviation are dummy variable for tourism base sector and gross enrollment rate at senior high school. Meanwhile, the government spending for tourism sector and the number of tourism activist groups have no significant effect on poverty reduction. The existence of the tourism sector as a base sector in a region has a significant effect on poverty reduction. Furthermore, it can be seen that when a region places tourism as a basic sector, it can reduce the poverty rate by 0.60 percent (ceteris paribus).

These results align with research conducted by Riyanto (2020) which states that at the national level, the tourism sector which is the basis of the province can reduce poverty. Furthermore, gross enrollment rate at senior high school variable which is a proxy for the quality of tourism human resources shows that if it is increased by 1 percent, it will affect to poverty reduction by 0.08 percent (ceteris paribus). In contrast to Riyanto's research in 2020 where the high school APK has a positive effect on increasing poverty, this study proves that the quality of human resources affects poverty reduction following previous studies [13]. In the research results, it is known that the variables of the tourism sector budget and the tourism driving group do not have a significant effect on reducing the poverty rate.

This can be further studied where according to Nurhidayah the low linkage between economic growth, and the low

linkage between sectors in alleviating poverty affects the inability of the APBD to alleviate poverty [15]. Meanwhile, the existence of tourism drivers that do not have a negative effect on poverty reduction according to Medina-Muñoz is caused by the activities of tourism drivers that tend to be small and are located in certain loci so that they tend to be not optimal[16].

VI. CONCLUSION

Based on the results and discussions, the conclusions that can be drawn are

1. The tourism sector is associated with poverty reduction. It is known that the APBD allocation for the tourism sector and the APK SMA equivalent as a proxy for tourism human resources are negatively related to poverty reduction.
2. Not only does it have a relationship, but the tourism sector also plays a role in poverty reduction. When a region places tourism as a base sector, it has an impact on poverty reduction by 0.60 percent. In addition, a 1 percent increase in the SMA APK affects a 0.08 percent decrease in poverty in West Java.

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