

Does Rural Tourism Really Improve Public Welfare? An Empirical Evidence from Desa Wukirsari

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Abstract. This study examines the impact of rural tourism on the public welfare of Desa Wukirsari. We use monthly income and consumption expenditure as a proxy for welfare and categorize it based on people's jobs into five categories, i.e., craftsman, entrepreneur, laborer, employee, and farmer. We conduct a non-parametric test for the data because of the violation of the normality assumption. The results show that both the people's income and consumption expenditure increase as of Desa Wukirsari became rural tourism. We also find the same conclusions based on people's jobs. These results empirically prove that the welfare of the people of Desa Wukirsari improved after rural tourism. The people of Desa Wukirsari can utilize their resources to improve their quality of life.

Keywords: rural tourism, Desa Wukirsari, public welfare, non-parametric test.

1 Introduction

The tourism sector is a leading sector that is determined as an essential sector to be developed in synergy through a sustainable tourism approach. Not only that, but the tourism sector has also become the most significant industry. It is currently proliferating after being integrated with other industries that have a trickle-down effect on different industries. Synergy is needed between the preservation of culture and nature to support development [1].

According to [2], the tourism industry is directed to make regions that have tourist objects more advanced and able to create positive externalities. An externality is a loss of profit arising from the relationship between one economic activity and another.

The tourism sector shows consistent growth from year to year. According to UNWTO records (2020), there was an increase in foreign tourists in 2019 to 1,461 million people from 2009 during the crisis, namely 892 million people. In academic literature, the impact on the economy of the tourism sector is evident. It is found that there is a positive effect of tourism on economic growth in both the short- and long-run for developing and developed countries. In other words, international tourism is an essential driver for economic growth [3].

It can be seen in Table 1 that the number of foreign tourist visits in Indonesia in the last three years has increased. In the year 2020, until May, BPS recorded that there were 2.93 million foreign tourist arrivals. This figure decreased by 53.36 percent from the same period in 2019. The decline in the number of foreign tourist visits will affect foreign exchange earnings. Central Bureau of Statistics stated that in 2015, the tourism sector created foreign exchange worth of USD 12.23 billion, an increase from USD 11.17 billion in 2014.

Table 1. The number of foreign tourist visits to Indonesia.
Period of January-May, 2017-2020.

Year	Number of visits	% Change
2020	2,929,377	-53.36%
2019	6,281,409	1.25%
2018	6,203,794	12.57%
2017	5,511,107	24.29%
2016	4,433,932	7.48%
2015	4,125,233	

Source: Central Bureau of Statistics (BPS).

Recently there has been a new concept of tourism, which has given birth to a new interest in tourism known as rural tourism (village tourism). In several European countries, rural tourism is a relatively important sector of the tourism industry [4]. In Indonesia, the government developed the concept of rural tourism to be adapted. Rural tourism in Indonesia is a program established by the government that involves the local community to manage according to their village potential. Referring to data from the Central Statistics Agency in 2018, there are 1,734 tourist villages in Indonesia and the highest position with 875 tourist villages spread across the island of Java-Bali.

Desa Wukirsari is a village located in Bantul Regency, Special Region of Yogyakarta, and has become an area of rural tourism. In 2006, Desa Wukirsari suffered from the earthquake that hit the Special Region of Yogyakarta. However, the people who live there immediately rise from adversity and then form batik groups and empower women [5]. A peculiarity of Desa Wukirsari is the tradition of making handmade batik (drawn by hand), which has been preserved from generation to generation and has become a pioneering handmade batik in Bantul Regency. Not only that, but Desa Wukirsari has also won many titles, such as the title of "The Best of the Best Desa Wisata" in 2019, first place in Special Region of Yogyakarta in 2016, and sixth place in the 2014 national level competition. Also, Desa Wukirsari has held the MURI record for the longest handmade batik in Indonesia. This shows the existence of proper management and coordination between residents. However, there are still many people who are not aware of the importance of nature-related tourism and selling tourism services.

This study aims to find positive externalities in the form of the impact of rural tourism on the welfare of the community of Desa Wukirsari. The rest of the papers is organized as follows. Section 2 provides information about descriptive statistics of the variables and empirical research with a quantitative approach. Section 3 presents the estimation results using two methods. Section 4 concludes.

2 Research Methods

2.1 Data

This study used a sample of 134 respondents who were all residents of Desa Wukirsari. We distributed questionnaires to residents and obtained data in the form of monthly income and consumption expenditures. The descriptive statistics of these variables are explained in the next section. Also, we managed to group respondents according to their occupation, gender, and latest education. Table 2 summarizes the characteristics of the respondents in this study.

Table 2. Respondents' characteristics based on their jobs, sex, and latest education.

Variables	Categories	Freq.	% of Freq.
Job	Batik craftsman	59	44.03
	Entrepreneur	21	15.67
	Laborer	21	15.67
	Employee	18	13.43
	Farmer	15	11.19
Total		134	100.00
Sex	Male	60	44.78
	Female	74	55.22
Total		134	100.00
Education	Never went to school	14	10.45
	Elementary school	42	31.34
	Junior High School	55	41.04
	Senior High School	16	11.94
	Undergraduate	7	5.22
Total		134	100.00

Most of the respondents are batik craftsmen, which is 44.03% of 134 respondents. The second most are respondents who are entrepreneurs and laborers. Most of the respondents who are entrepreneurs live by opening food stalls and managing a trip for the tourists. Also, respondents who work as laborers are farm and factory workers. A farmworker carries out his/her duties to manage agricultural land owned by a farmer. The area of Desa Wukirsari is still dominated by farmland and makes people choose to work as farm laborers.

Then the fourth-highest number is respondents who become employees. We combine respondents who work as private employees and civil servants into one category, that is, employee. The reason is that they receive income regularly, which tends to be fixed most of the time. Regardless of rural tourism where they live in, it should not change their income nor consumption behaviors.

The least respondents are farmers. A farmer has his/her own farm. They grow rice, sugar cane, cassava, and others to sell. They can divert the jobs, planting and managing agricultural land to farmworkers. In return, a farmworker will get a wage from the farmer. The agricultural products are then sold or consumed by the landowner himself.

The percentage of respondents who are farmers is the smallest in this study. This is because a lot of agricultural lands have been converted into an area for the needs of rural tourism activities, such as outbound. Most of them who were farmers turned their agrarian land into buildings or land for the needs of rural tourism. They also switched professions to become a trip organizer or else.

Out of 134 respondents, 55.22% of them are female. This characteristic is common in Yogyakarta and Indonesia, where female dominates the population. In respect of education, 10.45% of the respondents never went to school. Most of these respondents are oldsters. They thought education was not so essential for them. They would get married early and settled down instead. Only 17.16% of the respondents can complete their senior high school education.

2.2 Methods

This research is empirical research with a quantitative approach. To prove an increase in well-being, we used a paired-samples t-test. The t-tests assume that the data follow a normal distribution and also that the spread of the data (variance) is uniform either between groups or across the range being studied [6]. In testing the difference between two samples, it is assumed that each sample comes from populations that have normal distributions with the same standard deviation. Such as this test is also known as a parametric test. On the other hand, non-parametric tests do not require the data to follow a particular distribution [6].

We first test for normal distribution of the data using statistical analyses, such as Shapiro-Wilk and Jarque-Bera tests. Shapiro-Wilk test is the most potent normality test among the Anderson-Darling test, Liliefors test, and Kolmogorov-Smirnov test [7]. [8] also recommends the Shapiro-Wilk test for distributions with short tails, especially if the shape is binomial. Nevertheless, the Jarque-Bera test is superior in power to its competitors for symmetric distributions with medium up to long tails and for slightly skewed distributions with long tails [8].

We then conduct both parametric and non-parametric tests, such as the paired-samples t-test and Wilcoxon Signed-Rank (WSR) test. We conduct paired-samples t-test for normally distributed data. The reasons we also perform the non-parametric analysis are that the data do not follow a normal distribution, and for some groups, the sample size is considered small [9].

3 Results and Discussion

From 134 respondents, it was found that the average income of Desa Wukirsari residents was IDR 1,023,843 per month, with monthly consumption expenditures of IDR 909,030 before Desa Wukirsari became a rural tourism area. After becoming a rural tourism area, the residents' average monthly income and consumption expenditure have increased more than doubled to IDR 2,138,358 and IDR 1,860,672, respectively.

On average, the most significant increase in income occurred in the entrepreneur group, where their income increased by 123.03%. Meanwhile, the rise in consumption expenditure was not as significant as the increase in income, which was only 98.99%. This happened because after becoming a rural tourism area, Desa Wukirsari had many tourist visits, both domestic and foreign. The number of tourists who visit increases the number of transactions, especially at food stalls and tour travel services; thus, the income of residents who work as entrepreneurs increases. An increase in monthly consumption expenditure has accompanied the rise in residents' income. This indicates that the welfare of the residents of Desa Wukirsari, who work as entrepreneurs, has increased.

On the other hand, the lowest increase in income was in the employee group, which was only 76.14%. The moderate growth in income for the employee group is also consistent with the increase in expenditures, which amounted to only 73.90%. When compared to other groups, the employee group is the group with the lowest increase in welfare measured by income and expenditure. The increase in their income mostly came from an increase in salary.

We test for normality distribution of the data using two methods, Shapiro-Wilk statistic, and Jarque-Bera statistic. Tables 3 and 4 show the results of the tests.

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Table 3. Descriptive statistics for variable income.

	Income before						Income after					
	Overall	Batik craftsman	Entpre	Laborer	Employee	Farmer	Overall	Batik craftsman	Entpre	Laborer	Employee	Farmer
N	134	59	21	21	15	18	134	59	21	21	15	18
Mean	1,023,843	721,864	1,447,619	869,048	2,040,000	853,056	2,138,358	1,584,237	3,228,571	1,913,810	3,593,333	1,732,222
Median	900,000	600,000	1,500,000	800,000	2,000,000	877,500	1,825,000	1,450,000	3,000,000	1,800,000	3,000,000	1,600,000
Max.	3,000,000	2,000,000	3,000,000	1,500,000	3,000,000	1,500,000	7,000,000	3,000,000	6,000,000	3,000,000	7,000,000	2,800,000
Min.	150,000	150,000	200,000	450,000	800,000	450,000	500,000	500,000	1,000,000	1,290,000	2,000,000	1,000,000
Std. Dev.	638,509	371,778	750,746	241,079	711,939	243,426	1,175,849	667,068	1,489,343	478,179	1,354,077	521,102
Skewness	1.429	1.114	0.644	0.429	-0.561	0.531	1.578	0.587	0.379	0.978	1.027	0.623
Kurtosis	4.636	4.286	2.800	3.765	2.337	4.190	5.900	2.503	2.303	2.974	3.627	2.418
Shapiro-Wilk												
Statistic	0.843	0.903	0.920	0.921	0.902	0.903	0.863	0.936	0.940	0.884	0.905	0.940
Prob.	0.000	0.000	0.088	0.092	0.103	0.065	0.000	0.004	0.218	0.017	0.113	0.293
Jarque-Bera												
Statistic	60.569	16.266	1.485	1.158	1.061	1.908	102.587	3.999	0.929	3.346	2.881	1.418
Prob.	0.000	0.000	0.476	0.561	0.588	0.385	0.000	0.135	0.629	0.188	0.237	0.492

Table 4. Descriptive statistics for variable consumption expenditures.

	Consumption expenditures before						Consumption expenditures after					
	Overall	Batik craftsman	Entpre	Laborer	Employee	Farmer	Overall	Batik craftsman	Entpre	Laborer	Employee	Farmer
N	134	59	21	21	15	18	134	59	21	21	15	18
Mean	909,030	617,966	1,419,048	755,238	1,736,667	757,778	1,860,672	1,376,780	2,823,810	1,690,476	3,020,000	1,555,556
Median	800,000	500,000	1,000,000	800,000	1,800,000	800,000	1,700,000	1,200,000	2,500,000	1,600,000	3,000,000	1,500,000
Max.	3,500,000	1,800,000	3,500,000	1,000,000	2,900,000	1,500,000	5,500,000	3,000,000	5,500,000	2,800,000	5,500,000	2,800,000
Min.	60,000	60,000	500,000	300,000	700,000	360,000	500,000	500,000	500,000	1,000,000	1,500,000	900,000
Std. Dev.	620,410	340,870	838,820	215,235	677,829	284,741	1,037,060	656,809	1,363,783	508,581	1,040,741	528,285
Skewness	1.756	1.042	1.084	-0.558	0.078	0.573	1.288	0.645	0.285	0.508	0.703	0.821
Kurtosis	6.391	4.067	3.206	2.452	2.302	3.845	4.729	2.541	2.117	2.441	3.370	3.038
Shapiro-Wilk												
Statistic	0.826	0.903	0.867	0.911	0.936	0.899	0.895	0.933	0.955	0.952	0.945	0.922
Prob.	0.000	0.000	0.008	0.058	0.332	0.056	0.000	0.003	0.423	0.374	0.451	0.139
Jarque-Bera												
Statistic	133.053	13.468	4.148	1.353	0.320	1.522	53.758	4.603	0.967	1.177	1.320	2.024
Prob.	0.000	0.001	0.126	0.508	0.852	0.467	0.000	0.100	0.617	0.555	0.517	0.363

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Using both Shapiro-Wilk and Jarque-Bera statistic, it is found that the distribution of income data are not normally distributed for both overall data of income before and after rural tourism has been implemented. The same results also found in the distribution of consumption expenditures for overall data. Grouping the data based on people's jobs, we find that the majority of data are normally distributed, except for batik craftsman.

The non-parametric test is called for if the normality assumption is not met. Although without using statistical analyses, it is obvious that most of the non-normally distributed data are heavily skewed. Most of the group samples also have very limited observations. These are the reason we use the Wilcoxon Signed-Rank (WSR) test [10] for examining the difference between before and after for both income and consumption expenditure. The use of a non-parametric test is because the overall data do not show normal distribution. However, the data grouped by jobs indicate a normal distribution, i.e., entrepreneur, laborer, employee, and farmer.

Table 5. Results of the WSR test on income and consumption expenditures.

	Overall	Batik craftsman	Entre	Laborer	Employee	Farmer
Income before and after						
N	134	59	21	21	15	18
T ^{a)}	8,911	1,770	210	231	120	171
Z ^{b)}	-10.013	-6.684	-3.930	-4.022	-3.415	-3.728
Sig. ^{c)}	0.000	0.000	0.000	0.000	0.000	0.000
Consumption expenditures before and after						
N	134	59	21	21	15	18
T ^{a)}	8,903	1,770	218	231	120	171
Z ^{b)}	-9.731	-6.683	-3.548	-4.018	-3.415	-3.726
Sig. ^{c)}	0.000	0.000	0.000	0.000	0.000	0.000

Notes: a) Sum of ranks. b) Standardized test statistic. c) Asymptotic significance (2-tailed).

Residents' income is compared before and after Desa Wukirsari became a rural tourism area. Using overall data, on average, the people of Desa Wukirsari earned more after (Mdn = IDR 1,825,000) than before (Mdn = IDR 900,000) rural tourism. A WSR test indicated that this difference was statistically significant, $T = 8,911$, $Z = -10.013$, $p < 0,001$. For batik craftsman group, on average, the residents of Desa Wukirsari, whose jobs are batik craftsmen, also earned more after (Mdn = IDR 1,450,000) than before (Mdn = IDR 600,000) rural tourism. A WSR test indicated that this difference was statistically significant, $T = 1,770$, $Z = -6.684$, $p < 0,001$.

Furthermore, according to consumption expenditures, we also found that on average, the residents of Desa Wukirsari consumed more after (Mdn = IDR 1,700,000) than before (Mdn = IDR 800,000) rural tourism. A WSR test indicated that this difference was statistically significant, $T = 8,903$, $Z = -9.731$, $p < 0,001$. Similar results also found in the group of batik craftsman in which they consumed more after (Mdn = IDR 1,200,000) than before (Mdn = IDR 500,000) rural tourism. A WSR test indicated that this difference was statistically significant, $T = 1,770$, $Z = -6.683$, $p < 0,001$.

Similar results also found in entrepreneurs, laborers, employees, and farmer groups. Each group showed that the difference between income earned before and after rural tourism was

statistically significant. Also, each group showed that the gap between consumption expenditures before and after rural tourism was statistically significant.

To verify that the results from the non-parametric test are robust, we conduct a paired-sample t-test. A Paired-sample t-test is a parametric method used to examine the difference between two related samples. In this section, we conduct a paired-sample t-test on entrepreneur, laborer, employee, and farmer groups. These variables are chosen because the data are normally distributed. Thus we exclude craftsman groups and overall data because of the violation of normality assumption.

Table 6. Results of paired-samples t-test on income and consumption expenditures.

	Entpre	Laborer	Employee	Farmer
Income after – before				
N	21	21	15	18
Mean	1,780,952	1,044,762	1,553,333	879,167
Std. Dev.	983,168	383,896	903,064	389,963
SE. Mean	214,545	83,773	233,170	91,915
Lower	1,333,420	870,015	1,053,233	685,243
Upper	2,228,485	1,219,509	2,053,433	1,073,091
t	8.301	12.471	6.662	9.565
df	20	20	14	17
Sig. ^{a)}	0.000	0.000	0.000	0.000
Consumption expenditures after – before				
N	21	21	15	18
Mean	1,404,762	935,238	1,283,333	797,778
Std. Dev	1,156,493	417,524	524,291	434,830
SE. Mean	252,367	91,111	135,371	102,490
Lower	878,333	745,184	992,991	581,542
Upper	1,931,191	1,125,293	1,573,676	1,014,014
t	5.566	10.265	9.480	7.784
df	20	20	14	17
Sig. ^{a)}	0.000	0.000	0.000	0.000

Notes: ^{a)} Significance (2-tailed test).

Table 6 shows that the mean difference between income after and before rural tourism in the entrepreneur group is IDR 1,780,952. According to the t-test, this difference is statistically significantly different from zero. Meaning that the income of entrepreneur in Desa Wukirsari has increased after became rural tourism. Similar results also appear on group laborer, employee, and farmer, with a mean difference of IDR 1,044,762; IDR 1,553,333; and IDR 879,167, respectively.

As of consumption expenditures, we also found that the mean difference between after and before rural tourism was statistically significantly different from zero on the group entrepreneur, laborer, employee, and farmer. The results on the WSR test appeared that for the group entrepreneur, laborer, employee, and farmer showed that the differences were statistically significant for both income and consumption expenditures. It indicates that the results in Table 6 confirm the WSR test.

A series of tests conducted above indicate that there is an improvement in the welfare of Desa Wukirsari residents. The welfare measured by monthly income and consumption expenditures is found to be statistically significantly increased.

4 Conclusion

This study aims to empirically prove the improvement in the welfare of the people of Desa Wukirsari after becoming a rural tourism area. Furthermore, we classify them by occupation to see an increase in the welfare of people who work as batik craftsmen, entrepreneurs, laborers, employees, and farmers. We use primary data taken directly from a sample of 134 residents using a questionnaire.

Based on the Wilcoxon Signed-Rank test, we found that, on average, the people of Desa Wukirsari earned and consumed more after than before rural tourism. This result is also evident in the batik craftsmen group. The WSR test was carried out because the data on income and consumption expenditure of the batik craftsmen group and the overall data were not normally distributed.

In other occupational groups, namely entrepreneurs, laborers, employees, and farmers, we also found an increase in income and consumption expenditure of the residents after Desa Wukirsari became a rural tourism area. These results were obtained through the WSR test and supported by the paired-samples t-test.

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