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From Pollution to Green and Low-Carbon Island Revitalization: Implications of Exhibition-Driven Sustainable Tourism (Triennale) for SDG 8.9 in Setouchi

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Abstract: After the severe industrial pollution from World War II, the Setouchi Sea areas and its islands (the Triennale hosting areas) experienced severe economic and population shrinkage. The target of SDG 8.9 is to promote "direct tourism GDP" and "tourism-related jobs" by devising and implementing policies (e.g., some Triennale and Biennale) for sustainable tourism. Triennale-driven tourism is an essential component of sustainable tourism and city revitalization, lasting almost 20 years in Japan. The current paper attempts an empirical analysis into the positive impacts of exhibition-driven sustainable tourism for SDG 8.9 in these rural islands (from pollution to green and low-carbon islands revitalization). The panel data of "pollution load of living environment items" by cities in Japan and "tourists, income, and population" from 14 areas in Kagawa were monitored using multiple methods, such as descriptive and inferential statistics (the one-way ANOVA test and Simple Linear Regression (SLR)). It is a new attempt to devise and implement policies and theories for a sustainable tourism-related industry and its SDGs. Therefore, the present findings offer meaningful implications in academia and industry, not only in Setouchi Sea areas but also for similar areas in and out of Japan.

Keywords: exhibition-driven tourism; Triennale; tourism economy; labor population; islands revitalization; sustainable development goals (SDGs); sustainable tourism; rural tourism

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1. Introduction

From the late 1940s, Japan's industry was mainly concentrated in the Pacific Rim. The Setouchi Sea areas with its islands (where the research object of this article is located) were one of the main pollution areas; in 2004 and 2005 this also included the red tide. Additionally, these islands are experiencing severe population shrinkage (worse than cities) [1]. The "Setouchi Triennale", held every three years since 2010, brings together the masterpieces of contemporary masters at home and abroad. Triennale is a proper noun that means an exhibition is held every three years. The "Setouchi Triennale", held every three years since 2010, brings new sustainable opportunities to these shrinking islands.

Sustainability became the primary focus for researchers, tourism policymakers, and destination marketing organizations [2]. Moreover, sustainable development has also been one of the main targets of the World Tourism Organization (UNWTO) (tourism with its

economic and social responsibility) [3]. No. 8.9 of the 17 Sustainable Development Goals (SDGs) is "*By 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products*". Therefore, this paper attempts to dig into the population "rising tide" evaluation models using Triennale-driven sustainable tourism to promote local SDGs.

However, some papers show that tourism is less sustainable (e.g., negative reactions to tourism growth in the Venice Biennale, which is one of the most extensive Triennale-driven tourism) [4]. However, the Sustainable Development Goals (SDGs) became key to the sustainability of the entire tourism industry [3]. Using multiple empirical methods, such as descriptive statistics and inferential statistics, is an attempt to resolve this "replication crisis". Descriptive statistics are more vivid. However, if a study needs evidence to show that there is an influence or a relationship between the variables rather than just describing the entire sample, then inferential statistics are required [5]. Descriptive statistical and inferential statistics are both critical [6].

As one of the responsible SDGs studies, a quantitative empirical analysis of a Triennale-driven (unlike the traditional conferences and exhibitions or festivals) tourism is a new attempt at the SDGs. After the economic recession in the 1990s, more than 120 art exhibitions aimed at revitalizing these areas through art and local resources (attracting tourists) began appearing throughout the Japanese territory. Therefore, the case of the Setouchi Triennale (ST) in Kagawa was selected for this empirical analysis. Kagawa is one of the essential art exhibition hosting areas in Japan. Figure 1 shows the logical framework. The purpose was based on the SDG No. 8.9: creating jobs and promoting local products by devising and implementing policies (e.g., Triennale-driven tourism: ST) to promote sustainable tourism. The following panel data were selected from the statistical yearbook and the county survey of Kagawa (1997–2019): tourist number (TN), industry incomes (II), Total/Tertiary industry/Per capita income (TI, TII, PCI), labor population (LP), and total labor population (TLP). The current paper used multiple methods, such as descriptive statistics and inferential statistics (Simple Linear Regression (SLR) and the one-way ANOVA test). The empirical hypotheses (H) about this article are as follows:

(1) H1: The Triennale-driven tourism has a positive impact on the tourist number (TN).
(2) H2: The Triennale-driven tourism has a positive impact on the industry incomes (II).
(3) H3: The Triennale-driven tourism has a positive impact on the labor population (LP).
(4) H4-1-1/2/3: The TN/II1/II15/II6/II8/II11 has a positive impact on the Total/Tertiary industry/Per capita income (II17/TII/PCI); H4-2: The Triennale-driven tourism has a positive impact on the SDG 8.9.1 "Tourism direct GDP as a proportion of the total GDP and in growth rate".
(5) H5-1: The N/II1/II15/II6/II8/II11 and the LP8/LP11/LP15 have a positive impact on the total labor population (LP17); H5-2: The Triennale-driven tourism has a positive impact on the SDG 8.9.1 "Number of jobs in the tourism industries as a proportion of the total jobs and growth rate of jobs . . . "
(6) H6: Triennale-driven tourism is one of the positive "policies to promote sustainable tourism that creates jobs and promotes local culture and products".

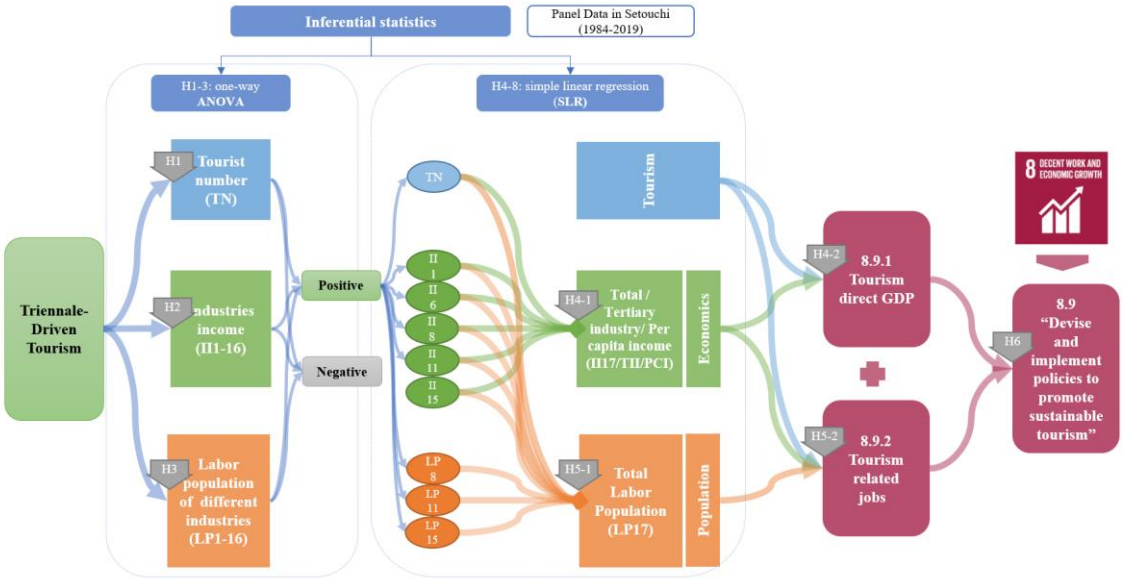

Figure 1. The logical model. Note: SLR = Simple Linear Regression; ANOVA =Analysis of variance; SDGs =Sustainable Development Goals.

2. Literature Review

2.1. Regional Revitalization: From Shrinking Islands to SDGs with Sustainable Tourism

Previous papers focused on Sustainable Development Goals (SDGs) within different contexts. Sustainable tourism means visiting places without or with less damage and positively impacting the environment, health, economy, and the technological methods. Akuraju et al. [7] studied the relationships between the SDG11 indicators between city populations and countries. Lee [8] showed the concept of a "sustainable tourism destination". Gonzalez–Garcia et al. [9] studied sustainability using socioeconomic and environment indicators. Estêvão et al. [10] also used the sustainable tourism socio-technical approach.

On the contrary, some papers show that tourism is less sustainable than expected. Hall [4] provided an anti-institutional perspective on sustainable tourism and development goals. Rutty et al.[11] found that there was less emphasis on the social and environmental impacts than on the positive economic impacts. Ahmad et al. [12] studied the correlations between the lower-middle-income economies and tourism. However, the World Tourism Organization (UNWTO) attached to sustainable tourism and its economic significance the Sustainable Development Goals (SDGs), which have become the focus of tourism's contribution to sustainable development and the entire tourism industry [13]. Although achieving this goal is still controversial, the empirical analysis for sustainable tourism needs more positive samples.

2.2. Policies to Promote Sustainable Tourism: Triennale-Driven Sustainable Tourism

"Exhibition-driven (Triennale)", unlike traditional conferences and exhibitions or festivals, means something is influenced by an exhibition [14]. Triennale is a concept that an exhibition is held once every three years. Wang et al. [15] studied the exhibition-driven trade (when this concept first appeared in 2014) of the Yiwu model (one of the largest retailing exhibitions and sales centers in the world). Cai et al. [14] found that measuring exhibition-driven tourism is a new and essential pattern for sustainable tourism and cities in Japan. Camarero et al. [16] analyzed loyalty, image, value, and the perceived quality in art exhibitions as the elements of brand equity. Andersen et al. [17] studied the image of an art exhibition in Denmark. They evaluated the state of the art exhibitions held in Spanish. Krag et al. [18], Prebensen et al. [19], and Lee et al. [20] studied the nature-based domestic tourism experiences in Japan. The nature-based, or green expertise, will give a new opportunity to the tourism industry after COVID-19 [21].

2.3. Triennale-Driven Tourism Direct GDP: Total/Tertiary Industry/per Capita Income

The exhibition event-related impact on economic growth has been studied in previous papers. Kim et al. [22] studied the overall exhibition industry's economic impact. Ying et al.[23] studied the correlations between the circular economy and the green exhibitions. Cai et al. [14] analyzed the influence of the exhibition industry on the sustainable local income development.

The earlier study of correlations between tourism and the total income was studied in many previous papers from the 1970s [24]. Saint Akadiri et al. [25] examined the role of real total income, globalization, and tourism on sustainable targets. The correlations between tourism and the tertiary industry income were studied in previous papers [26]. Li et al. [27] showed that on-screen tourism brought positive impacts on the tertiary industry but negative impacts on the primary and secondary industries. The correlations between tourism and the per capita income were studied in previous papers: Brau et al. [28] analyzed the relationships among growth, size, and tourism by controlling for the initial per capita income using panel data (1980–2003); Zaman et al. [29] studied the relationship between the economic growth and tourism development using hypothesis panel data (2005–2013); Hosany et al. [30] studied the measuring of the tourism experience economy concepts; and Sigala et al. [31] measured the development programs of the tourism economic impact using big data.

An event (e.g., exhibition) may significantly increase the local economic activity. Still, the net impact within the neighboring areas and cities may be more significant than the local (hosting areas) impact (e.g., the big/national effect often exceeds the small/state effect); the impact on the local/hosting areas may even be negative [32]. However, the impact format of these exhibitions was mainly related to the transactions [33]. Thus, accurately measuring the economic contribution of art exhibitions or Triennale-driven tourism is a challenge.

2.4. Triennale-Driven Tourism Related Jobs: Labor Population

The correlation between the population growth and the economic development is a constantly changing issue (different means in different periods) in demographic economics. One of the most influential studies is "Population" by Malthus [34]. Egidi et al. [35] studied the worldwide urban and city-size population trends from 1950 to 2030. However, there are few studies on the direct connections between exhibitions and populations. Cai et al. [14] found a positive correlation between Triennale-driven tourism and population. Prebensen et al. [36] and Y.-S. Lee et al. [37] studied the relationship between consumption with tourists perceiving value, satisfaction, and co-creation (co-artworks during the Triennale). Getz [38] studied the change in tourism and population with long-term impacts in the Scottish highlands. Khalid et al. [39] used empirical tests to show that the local community supports people, establishing successful sustainable tourism.

On the other hand, with the ageing Japanese society and the low fertility rate, urban shrinkage has had a negative impact on the sustainable development of Japanese cities. Mallach et al. [40] believed that Japan's urban shrinkage is due to demographic changes. Martinez–Fernandez et al. studied shrinking cities in Australia, Japan, Europe, and the USA, using the relationship between economic development, greening, revitalization, and social inclusion [41]. The shrinking Japanese population were from urban centers towards the countryside [42]. Although many scholars have conducted long-term and extensive research on population issues in various fields, this is still a critical issue.

3. Triennale-Driven Tourism in Setouchi (Kagawa): From Pollution to Green Islands

In the late 1940s Japan's industry was mainly concentrated on the Pacific Rim (the Pacific Rim Industrial Zone); especially Seto Inland (the Seto Inland Sea Coast) (the area where the research object of this article is located), Keihama (Tokyo—Yokohama), Nagoya (Nagoya-centric), Hanshin (Osaka–Kobe), and Kitakyushu's five major industrial areas. The Seto Inland Sea soon became a common sewer for these industrial sectors. Hiroshima, Yamaguchi, Osaka, Kagawa, Okayama, Hyōgo, Fukuoka, Ehime, and Ōita prefectures have

coastlines in Setouchi. The factory discharged untreated industrial wastewater into the inner sea at will (Chemical oxygen demand (COD) emissions are the sum of COD emissions in industrial wastewater and COD emissions in domestic sewage). After 1955 the Seto Inland Sea became more and more polluted. The original "red tide" was once every ten years (an effective measure to prevent red tides is to prevent nutrients (phosphorus) from entering the water body). From the 1970s Japan began to manage the Seto Inland Sea, and it took nearly 30 years to restore the Seto Inland Sea to a clean sea. Designated as a closed sea area by the Environmental Agency Notification No. 67 on 27 August 1992 (November 67) as a sea area with a fear of nitrogen and phosphorus in the sea water affecting marine plankton and causing remarkable growth. In 2004 and 2005, algae of unknown cause, including the red tide, caused damage to fishing, such as bottom seine fishing. Figure 2 shows that the environmental quality of Setouchi is one of the best areas (compared to neighboring cities and other cities in Japan with Phosphorus and COD).

Different human disturbances impacted the island's environment [43]. However, the Seto Inland Sea Islands were isolated islands that were forgotten due to the industrial pollution. However, art is similar to a magic key, connecting the scattered islands from pollution to green. From 1961 to 2019, especially after the recession in the 1990s, there were hundreds of Japanese art exhibitions with the purpose to revitalize a sustainable development within the host areas) [14]. From 2010 to 2019 (once every three years), more than 44,900,000,000 yen (economic ripple effect) were obtained during the hosting years, and more than 4,227,148 tourists visited the exhibition host areas. The creative city calls on people to take imaginative action on the development and management of urban life, showing how to plan, think, and creatively solve urban problems. Scholars strived to understand the potential of creative art and culture in a rural environment. However, more in-depth research will enhance our general understanding of the topic due to the early research stage of this issue. ST was hosted on 12 islands and two ports in 2010/2013/2015/2019 (Figure 3). ST stemmed from the county-level incentive mechanism that encourages regions to overcome the socioeconomic recession by relying on the particularity of their environment [14]. Cai et al. [14] showed that the Triennale positively impacted sustainable tourism in its hosting areas. However, there are almost no previous papers using a quantitative analysis for tourism to economy, and the population for the islands' Triennale revitalization.

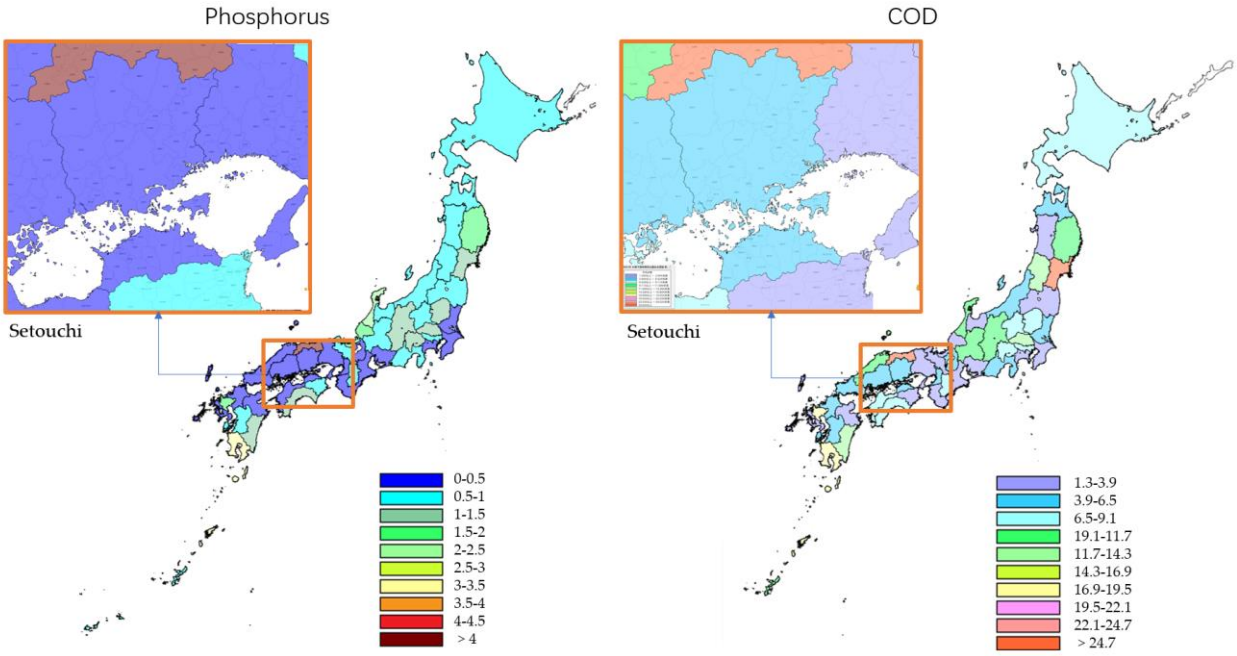

Figure 2. Pollution load of living environment items by cities in Japan 2018.

Figure 3. From pollution to green islands: the Triennale hosting areas with 12 islands and two ports. ST is hosted in 12 islands (Naoshima, Shodoshima, Teshima, Megijima, Syamijima, Ogijima, Inujima, Awashima, Honjima, Takamijima, Ibukijima, Oshima) and two ports (Takamatsu port, Uno port) in 2010/2013/2015/2019.

4. Methods

The current paper used descriptive combined with inferential statistics to study the relationship between the exhibition and tourism impacts. Descriptive statistics is a term for data analysis. It helps to express and summarize the preliminary images. Inferential statistics obtains data from the sample and infers the population and its characteristics from the example. This paper uses inferential statistics to combine correlation, Simple Linear Regression (SLR), and the one-way ANOVA test [44]. Descriptive statistics selects a group to be described and then describes it completely. For inferential statistics, the population defines and then designs a representative sample. Then the quantitative analysis of the model represents the overall characteristics. Descriptive statistical information expresses the essential characteristics of the data, such as the frequency changes. Then uses the inferential statistics to summarize the features that are beyond the scope of the existing data.

4.1. Panel Data

Panel data were used for empirical tourism research to analyze the tourism impacts [45], find the relationship between the art exhibitions and cultural tourism [46],

and also contains observations of the subjects over long periods [47]. This study collected data using the following: (1) Total/Tertiary industry/Per capita income; and (2) tourist numbers. Tables 1 and 2 show the following: (1) categorical data—the year before the exhibition-hosting (hereafter NO); (2) the hosting year of the ST (hereafter Y); and (3) the years between the hosting of the ST (hereafter B).

Table 1. Categorical variables (X1).

Abbreviation		Variables	Year	Name	Sources
X1	N	NO	Before 2010	the year before the hosting of the ST	ST Official website
	Y	YES	2010/2013/2016/2019	the hosting year of the ST	
	B	BETWEENNESS	2011/2012/2014/2015/2017/2018/	the year between the hosting of the ST	

Notes: Categorical (YES/BETWEENNESS/NO); NSY = Kagawa Statistical Yearbook; Compared with the previous year.

Table 2. Panel data: continuous variable (Y1/X2).

Types of Economic Activities Based on Japan	Local Tourism (1996–2019)	Local Economics (2006–2017)				Local Population (2006–2017)
Fisheries/agriculture	TN	II 1	PII	SII	TII	LP 1
Mining industry		II 2				LP 2
Manufacturing		II 3				LP 3
Electricity/gas/water/waste disposal		II 4				LP 4
Construction industry		II 5				LP 5
Retail		II 6				LP 6
Transportation/Postal industry		II 7				LP 7
Accommodation and food service industry		II 8				LP 8
Information and communication industry		II 9				LP 9
Finance/Insurance		II 10				LP 10
real estate business		II 11				LP 11
Specialization (science, technology, business service) industry		II 12				LP 12
Public affairs		II 13				LP 13
Education		II 14				LP 14
Health and social services		II 15				LP 15
Other services		II 16				LP 16
Total		II 17				LP 17

Note: TN = Tourist number, II = Industry income, PII = Primary industry income, SII = Secondary industry income, PCI = Per capital income, LP = Labor population.

4.2. The Descriptive Statistics

Descriptive statistics (DS) is visually and easy to understand [48]: it is used for statistical calculations along with the Pearson regression [49], studying the relationship between tourism and sustainability [50] and economics [51]. Research using descriptive statistics is more vivid. However, if a study needs evidence to show that there is an influence or relationship between the variables rather than just describing the entire sample, then inferential statistics is required [5].

4.3. The Inferential Statistics

Inferential statistics uses the one-way ANOVA test with correlation and Simple Linear Regression (SLR) [52]. The ANOVA test was used to determine whether there were any statistically significant differences between some independent (unrelated) groups [53]. In other words, inferential statistics allows accurate further inferences to be drawn from the data and used as samples in similar situations [6].

Step 1: The degrees of freedom (DF) for each component of the model (Equations (1) and (2)) are **DF** (**Factor**) = **r**–1, **F Error** = $\mathbf{n_T}$–**r**, **Total** = $\mathbf{n_T}$–1. The degrees of freedom for the denominator are $\mathbf{n_T}$–1. F-value means that the degrees of freedom for the numerator are **r**–1. $\mathbf{n_T}$ = total number of observations and r = number of factor levels. The mean squares (MS) calculation for the factor/error follows (SS = Sum of Squares; MS = Mean Square; and DF = Degrees of Freedom):

$$\text{MS Factor} = \frac{\text{SS Factor}}{\text{DF Factor}} \quad (1)$$

$$\text{MS Error} = \frac{\text{SS Error}}{\text{DF Error}} \tag{2}$$

Step 2: The Post hoc test is used for multiple comparisons with a control (Equation (3). n_i = number of observations in level i; r = number of factor levels; $\overline{Y}_i$= sample mean for the i^{th} factor level; n_T = total number of observations; α = probability of making α Type I errors; s = pooled standard deviation or sqrt (MSE):

$$\overline{Y_i} - \overline{Y_{ij}} \pm t\left(1 - \frac{\alpha}{2};\, n_i - r\right) s\sqrt{\frac{1}{n_i} + \frac{1}{n_j}} \tag{3}$$

Step 3: The average of the observations at a given factor level (y_{ji} = value of the j^{th} observation at the j^{th} factor level; n_i = number of observations at factor level i;) (Equation (4)).

$$\overline{x_i} = \frac{\sum_{j=1}^{n_i} y_{ji}}{n_i} \tag{4}$$

Figure 4 shows the sample of Mean Plots (e.g., X is categorical Y = YES/B = BETWEENNESS/N = NO).

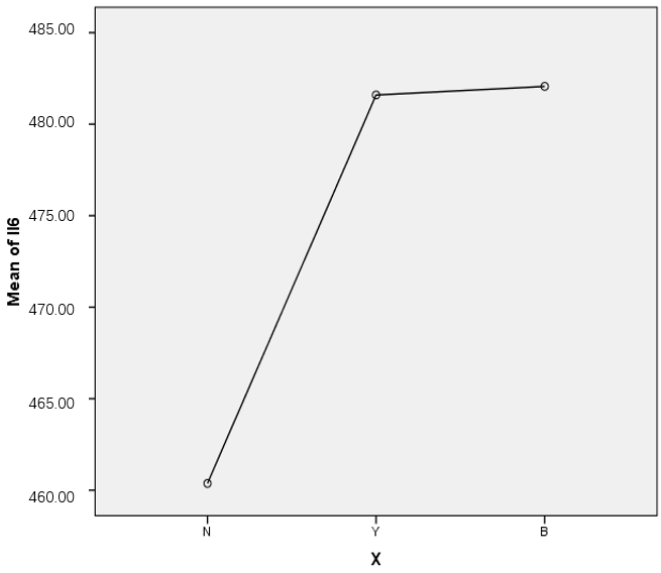

Figure 4. Sample of Mean Plots.

Step 4: The descriptive Standard deviation (SD) ($\overline{Y_i}$ = mean of observations at the i^{th} factor level; n_i = number of observations at the i^{th} factor level; and y_{ji} = observations at the i^{th} factor level) follows (Equation (5)):

$$s_i = \sqrt{\frac{\sum_{j=1}^{n_i}\left(y_{ji} - \overline{y_i}\right)^2}{n_i - 1}} \tag{5}$$

Correlation and the Simple Linear Regression (SLR) (equation 6,7, and 8): The paper used the SPSS26 (IBM, New York, NY, USA). Two random variables (X and Y) are tested in correlation [54]. If the *p*-value < 0.05, the analysis is significant for the next step. This formulae for slope (b) and the Y intercept (a) (Y = linearly related to x; r^2 = the proportion of the total variance (s^2) of Y that can be explained by the linear re-

gression of Y on x; 1-r^2 = the proportion that is not explained by the regression; thus, 1-r^2 = s^2xY/s^2Y):

$$b = \frac{\sum_{i=1}^{n}(x_i - \overline{x})(Y_i - \overline{Y})}{\sum_{i=1}^{n}(x_i - \overline{x})^2} \quad (6)$$

$$a = \overline{Y} - b\overline{x} \quad (7)$$

$$b = \frac{\sum_{i=1}^{n}(x_i - \overline{x})(Y_i - \overline{Y})}{\sqrt{\sum_{i=1}^{n}(x_i - \overline{x})^2 \sum_{i=1}^{n}(Y_i - \overline{Y})^2}} \quad (8)$$

Using Fisher's z transformation are constructed for r by confidence limits. The null hypothesis that r = 0 (i.e., no association) is evaluated using a modified t-test [55]). These belts represent the reliability of the regression estimate (the tighter the belt, the more reliable the estimate) [56].

5. Results and Discussion

5.1. The Descriptive Statistics

Figure 5 shows the economic ripple effect of the ST from 2013 to 2019 (there were no records in 2010). The ripple effect is often used colloquially to mean a multiplier in macroeconomics [57]. Tamura et al. [58] studied a small Japanese town with spatial population distribution patterns with environment and infrastructure costs. However, the infrastructure costs are not a SDGs engine. The ST was hosted in Kagawa (island areas) with no need for a more extensive infrastructure. The promotion of a positive affect to visit is the main driving force for destination planning and development [59]. The Polynomial regression (divided into two stages: 2013–2016 and 2016–2019) shows that tourism direct economics has entered a sustainable growth state since 2013.

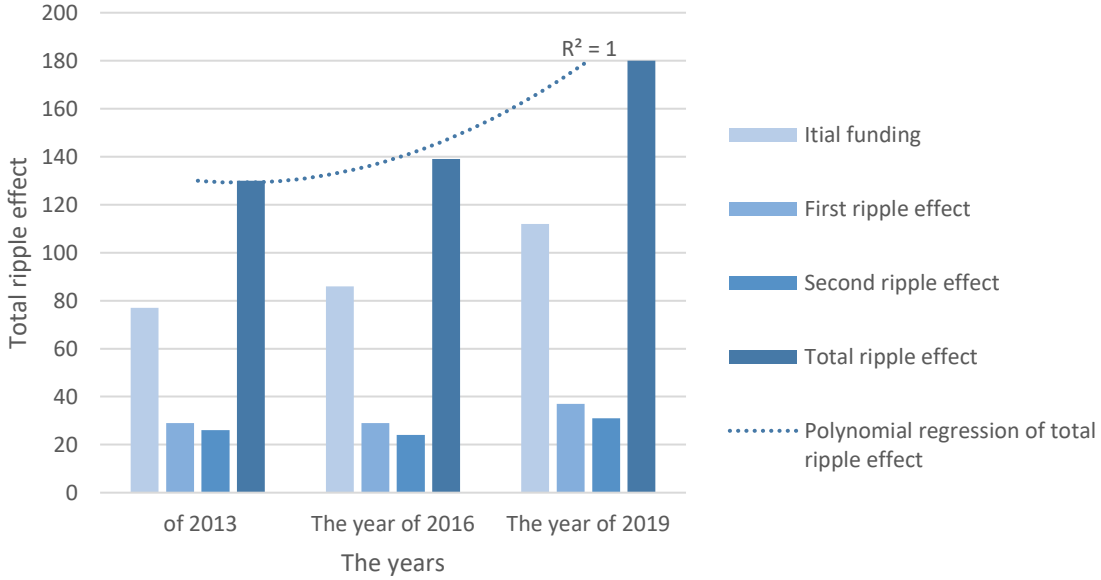

Figure 5. The economic ripple effect of ST in Kagawa. Note: The ripple effect (based on related calculation table in Kagawa) is often used colloquially to mean a multiplier in macroeconomics.

Figure 6 shows the changes in the number of tourists and the growth rate in Kagawa. Figure 7 shows the theorist's number of different islands. The polynomial regression (divided into three stages: 1985–1986, 1987–2008, and 2009–2019 show that these changes can be divided into three phases: (1) It was a tourist downturn period before 1996. The Seto Bridge was opened in 1986; (2) It was a tourist fluctuation period. The number of tourists fluctuated from 1997 to 2009; meanwhile, the growth rate also began to fluctuate. In 1998, the Mingshihai Bridge was opened; and (3) It was a period of sustainable positive growth

for tourist numbers. The walking tour of Kagawa started in 2009 (only once). Since 2010 (the first hosting year of the ST), the number of tourists increased for a long time with a slight fluctuation, at the same time the growth rate is a smooth and sustainable fluctuation. Before the Triennial was held, only traffic infrastructure improvements (such as the opening of the bridge) increased the tourist number for one year. The first tourism trekking event significantly increased the tourist number (no longer relying on infrastructure) in 2009. When compared with other years, the Triennial had a positive correlation with the increase in the number of tourists.

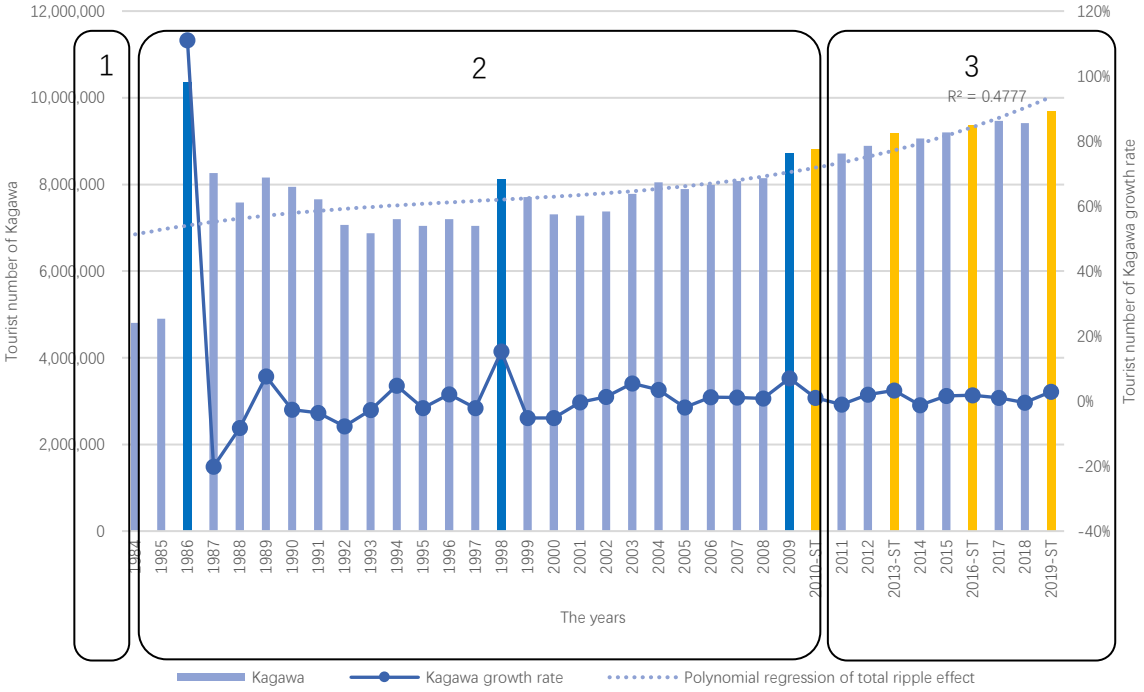

Figure 6. Tourist number and its growth rate of ST from 1994 to 2019.

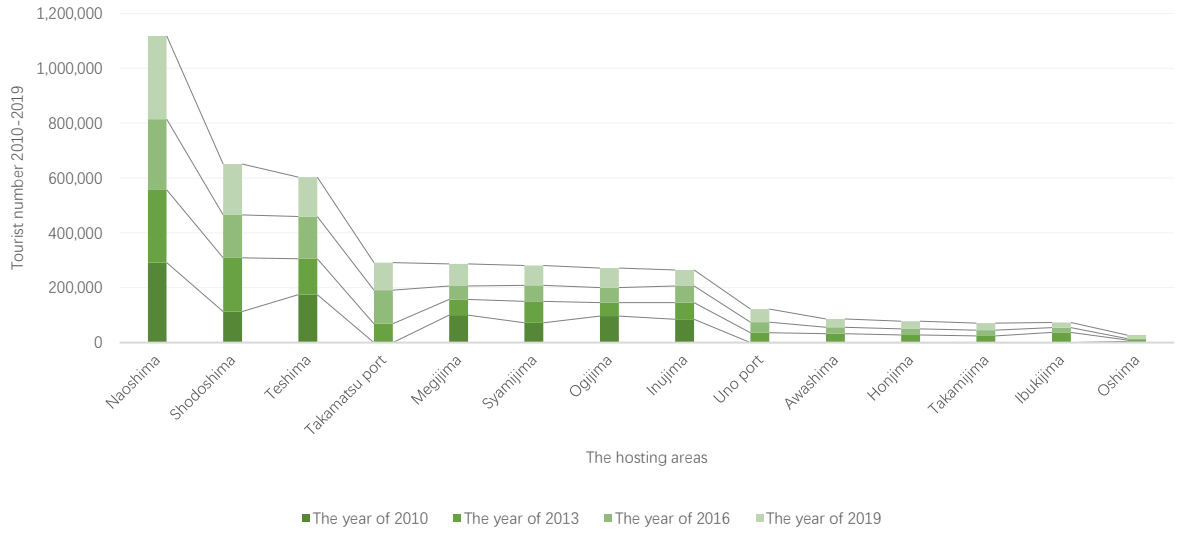

Figure 7. Tourist number of different islands of ST from 2010 to 2018.

5.2. The Inferential Statistics: One-Way ANOVA

First, Table 3 shows that the p value (<0.05) of the 22/33 items fitted significantly with the one-way ANOVA test. Second, these items were selected for the testing of

the multiple comparisons using LSD (Table 4), the mean plots (Figures 8 and 9), and descriptive (Table 5). H1: The Triennale-driven tourism has a positive impact on the tourist number (TN). H2: The Triennale-driven tourism has a positive impact on industry incomes (II1/2/6/8/9/10/11/13/15/16); The mean of hosting years (Y) and the betweenness (B) is higher than the years before the hosting (N) with items II1/6/8/11/15. H3: The Triennale-driven tourism has a positive impact on the labor population (LP1/2/5/6/8/9/10/11/12/14/15). The mean of the hosting years (Y) and the betweenness (B) is higher than the years before the hosting (N) with items LP8/11/15.

Table 3. ANOVA.

		Sum of Squares	df	Mean Square	F	Sig.		Sum of Squares	df	Mean Square	F	Sig.
BG		11,717,126	2	5,858,563	33.217	**0.000**	LP1	68,235,414	2	34,117,707	14.153	0.002
WG	**TN**	3,703,860	21	176,374				21,696,287	9	2,410,699		
To		15,420,985	23					89,931,701	11			
BG		105,415,269	2	52,707,634.4	4.886	**0.037**	LP2	46,525	2	23,263	7.563	0.012
WG	**II1**	97,080,066	9	10,786,674.0				27,684	9	3076		
To		202,495,335	11					74,209	11			
BG		1,150,806	2	575,403.1	6.442	**0.018**		59,486,059	2	29,743,030	18.293	0.001
WG	**II2**	803,878	9	89,319.7			LP5	14,633,563	9	1,625,951		
To		1,954,684	11					74,119,623	11			
BG		1,235,103,035	2	617,551,517.6	4.774	**0.039**		339,869,979	2	169,934,989	8.423	0.009
WG	**II6**	1,164,231,820	9	129,359,091.1			LP6	181,576,898	9	20,175,211		
To		2,399,334,855	11					521,446,877	11			
BG		18,842,164	2	9,421,082.1	4.599	**0.042**		827,279	2	413,640	0.372	0.699
WG	**II8**	18,434,840	9	2,048,315.5			LP8	9,996,065	9	1,110,674		
To		37,277,004	11					10,823,345	11			
BG		467,551,295	2	233,775,647.6	7.449	**0.012**		44,876	2	22,438	4.696	0.040
WG	**II9**	282,442,143	9	31,382,460.3			LP9	43,007	9	4779		
To		749,993,438	11					87,883	11			
BG		4,388,525,106	2	2,194,262,553.2	6.807	**0.016**		36,7405	2	18,3703	4.436	0.046
WG	**II10**	2,901,122,905	9	322,346,989.4			LP10	372,682	9	41,409		
To		7,289,648,011	11					740,088	11			
BG		2,340,911,361	2	1,170,455,680.5	4.814	**0.038**		798,200	2	399,100	11.823	0.003
WG	**II11**	2,188,261,404	9	243,140,156.0			LP11	303,795	9	33,755		
To		4,529,172,765	11					1,101,995	11			
BG		375,011,289	2	187,505,644.7	6.323	**0.019**		10,529,993	2	5,264,996	4.516	0.044
WG	**II13**	266,908,127	9	29,656,458.5			LP12	10,492,256	9	1,165,806		
To		641,919,416	11					21,022,249	11			
BG		3,546,320,361	2	1,773,160,180.6	13.694	**0.002**		447,658	2	223,829	10.688	0.004
WG	**II15**	1,165,344,224	9	129,482,691.5			LP14	188,478	9	20,942		
To		4,711,664,585	11					636,136	11			
BG		2,506,741,190	2	1,253,370,595.0	13.988	**0.002**		225,214,030	2	112,607,015	11.458	0.003
WG	**II16**	806,443,243	9	89,604,804.8			LP15	88,447,920	9	9,827,547		
To		3,313,184,433	11					313,661,950	11			

BG = Between Groups, EG = Within Groups, To = Total.

Table 4. Post hoc tests- multiple comparisons by LSD.

(I)	(J)	DV	MD(I-J)	Std. Error	Sig.	DV	MD(I-J)	Std. Error	Sig.	DV	MD(I-J)	Std. Error	Sig.	DV	MD(I-J)	Std. Error	Sig.
Y	N	TN	1496 *	238	0	II9	−12,547 *	4279	0.017					LP9	−117	53	0.054
Y	B		136	271	0.62		1063	4091	0.801						19	50	0.716
B	N		1360 *	205	0		−13,610 *	3758	0.006						−136 *	46	0.017
Y	N					II10	−39,867 *	13,713	0.017	LP1	−4767 *	1186	0.003	LP10	−308	155	0.079
Y	B						1104	13,112	0.935		444	1134	0.704		90	149	0.561
B	N						−40,971 *	12,044	0.008		−5211 *	1042	0.001		−397 *	137	0.017
Y	N	II1	7752 *	2508	0.013	II11	28,907 *	11,909	0.038	LP2	−121 *	42	0.019	LP11	506 *	140	0.006
Y	B		5335	2399	0.053		−1130	11,387	0.923		16	41	0.696		−62	134	0.655
B	N		2417	2203	0.301		30,037 *	10,460	0.018		−138 *	37	0.005		568 *	123	0.001
Y	N	II2	−651 *	228	0.019	II13	−12,377 *	4159	0.016	LP5	−4515 *	974	0.001	LP12	−2024 *	825	0.036
Y	B		10	218	0.965		−865	3977	0.833		321	931	0.738		−60	789	0.941
N	N		−661 *	200	0.009		−11,512 *	3653	0.012		−4836 *	855	0		−1964 *	724	0.024
Y	N	II6	21,224 *	8687	0.037	II15	34,695 *	8691	0.003	LP6	−10,026 *	3431	0.017	LP14	366 *	111	0.009
Y	B		−470	8306	0.956		−2722	8310	0.751		1851	3280	0.586		−65	106	0.556
B	N		21,694 *	7630	0.019		37,417 *	7633	0.001		−11,876 *	3013	0.003		430 *	97	0.002
Y	N	II8	1947	1093	0.109	II16	−31,425 *	7230	0.002	LP8	687	805	0.416	LP15	8413 *	2394	0.007
Y	B		−945	1045	0.389		−1253	6913	0.86		314	770	0.693		−1161	2289	0.624
B	N		2892 *	960	0.015		−30,172 *	6350	0.001		373	707	0.61		9574 *	2103	0.001

* The mean difference is significant at the 0.05 level. *. The mean difference is significant at the 0.05 level. DV = Dependent Variable, MD = Mean Difference.

Table 5. Descriptive.

	N		Mean	Std. Deviation	Std. Error		Mean	Std. Deviation	Std. Error		Mean	Std. Deviation	Std. Error		Mean	Std. Deviation	Std. Error
N	4	TN	8232	331	165	II9	104,091	7476	3738					LP9	7250	22	11
Y	3		9118	284	164		91,544	4429	2557						7133	87	50
B	5		9066	289	129		90,481	4346	1943						7114	81	36
Total	12		8801	502	145		95,283	8257	2384						7164	89	26
N	4					II10	208,741	30,168	15,084	LP1	31,363	1704	852	LP10	12,484	4	2
Y	3						168,875	8291	4787		26,596	1682	971		12,176	279	161
B	5						167,771	2886	1291		26,151	1353	605		12,086	233	104
Total	12						181,704	25,743	7431		28,000	2859	825		12,241	259	75
N	4	II1	49,575	259	129	II11	380,594	18,481	9241	LP2	516	47	24	LP11	4842	252	126
Y	3		57,327	2796	1614		409,501	12,725	7347		394	75	43		5347	141	81
B	5		51,992	4507	2015		410,631	14,489	6480		378	49	22		5409	136	61
Total	12		52,520	4291	1239		400,336	20,291	5858		428	82	24		5205	317	91
N	4	II2	4649	274	137	II13	198,952	4758	2379	LP5	43,637	1792	896	LP12	31,677	1640	820
Y	3		3998	407	235		186,575	8780	5069		39,122	1106	638		29,653	534	308
B	5		3988	248	111		187,440	3346	1497		38,801	799	357		29,713	680	304
Total	12		4211	422	122		191,061	7639	2205		40,493	2596	749		30,353	1382	399
N	4	II6	460,370	12,185	6092	II15	311,217	5069	2535	LP6	94,850	1660	830	LP14	18,022	140	70
Y	3		481,594	7512	4337		345,911	14,099	8140		84,824	6478	3740		18,388	206	119
B	5		482,064	12,308	5505		348,633	13,141	5877		82,973	4727	2114		18,453	106	47
Total	12		474,715	14,769	4263		335,480	20,696	5974		87,395	6885	1988		18,293	240	69
N	4	II8	110,014	356	178	II16	205,758	14,445	7223	LP8	25,701	967	483	LP15	55,425	2124	1062
Y	3		111,960	2572	1485		174,333	6772	3910		26,388	1225	707		63,838	4180	2413
B	5		112,905	1098	491		175,585	4709	2106		26,074	1024	458		64,999	3161	1414
Total	12		111,705	1841	531		185,330	17355	5010		26,028	992	286		61,517	5340	1542

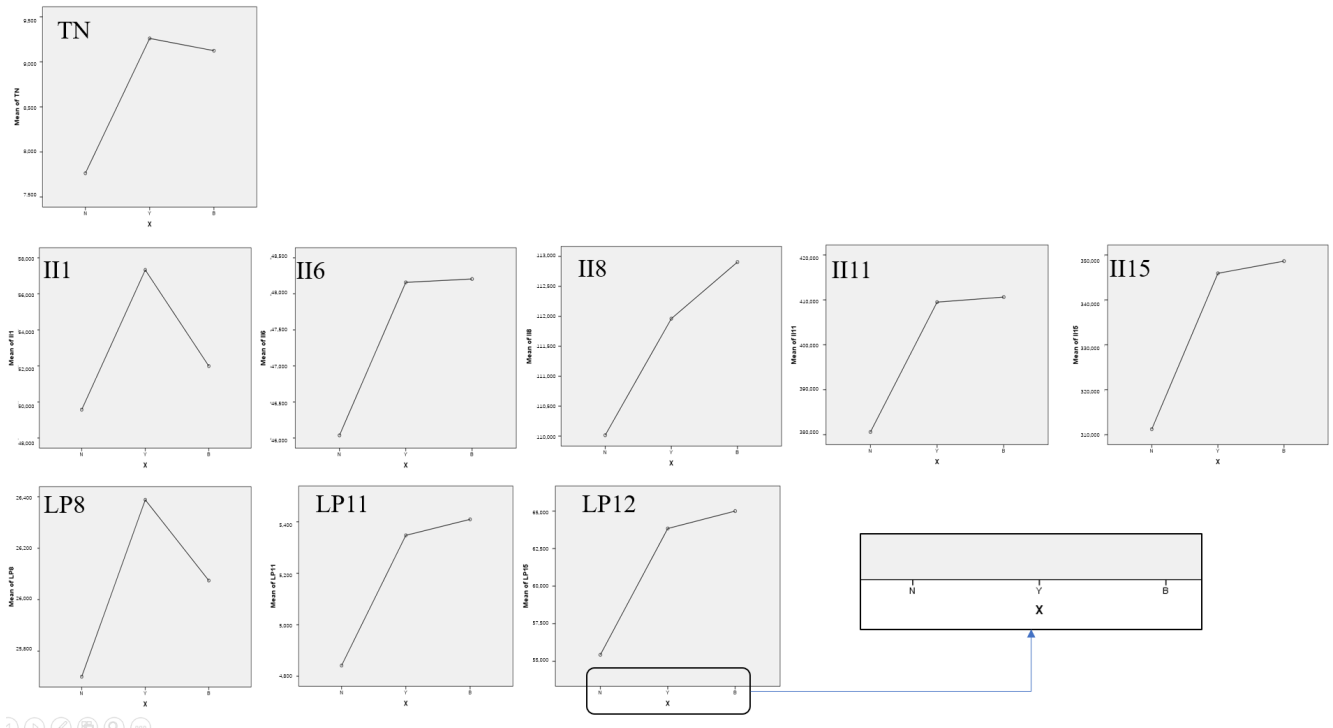

Figure 8. Mean Plots (Positive growth).

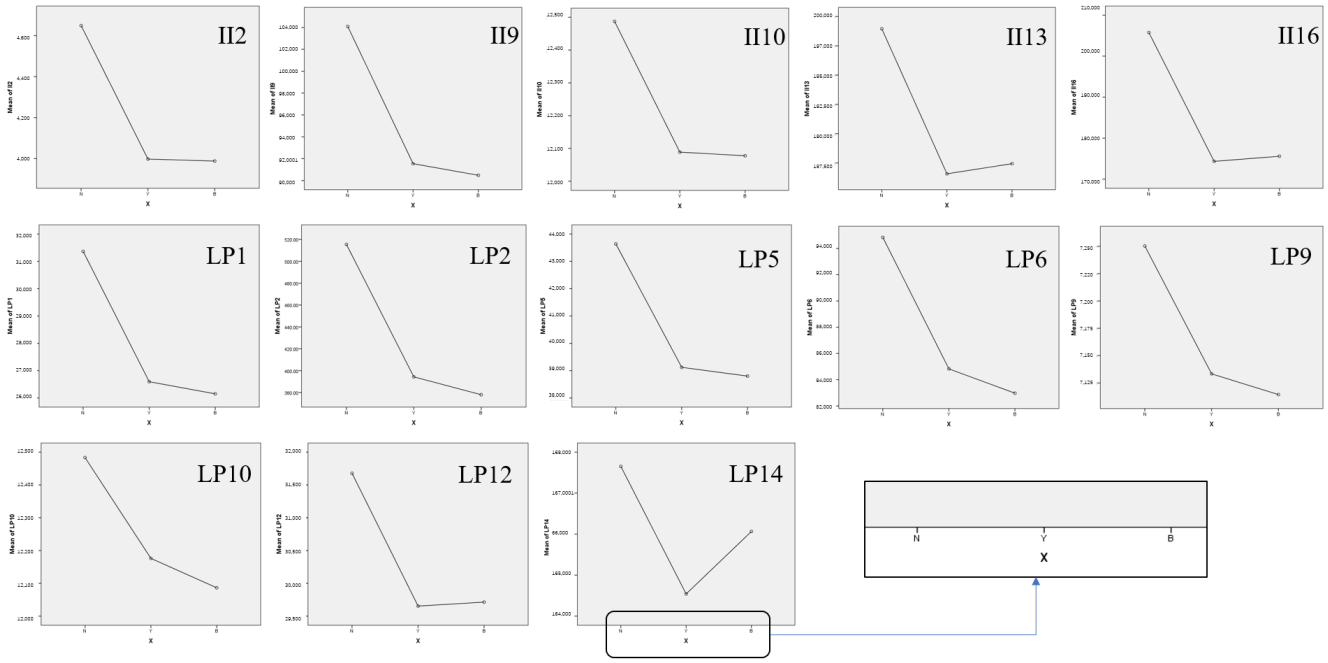

Figure 9. Mean Plots (Negative growth).

The Inferential statistics: Simple Linear Regression (SLR). First, the SLR is used to test the relationship between the hosting areas and the Kagawa areas. The p value is < 0.05, which shows that the results are significant (Tables 6 and 7; Figures 10 and 11). The adjusted R square is 0.715/0.992/0.745 (R2 > 0.7 shows that the correlation is stronger and positive). It shows that TN/II1/II15/II6/II8/II11 have positive impacts on II17/TII/PCI. That is to say, the tourist number in the hosting areas has a positive impact on the Kagawa areas. The impact of Triennale-driven tourism goes far beyond the hosting areas. On the other hand, the adjusted R square is 0.963 (R2 > 0.5 shows that the correlation is stronger and positive). It shows that TN/II1/II15/II6/II8/II11 and LP8/LP11/LP15 have positive impacts on LP17. That is to say, tourism and its economic impact in the hosting areas have a positive impact on the Kagawa areas. The impact of Triennale-driven tourism goes far beyond the hosting areas. Thus, it shows that H4–1/2/3: The TN/II1/II15/II6/II8/II11 have a positive impact on the Total/Tertiary industry/Per capita income (II17/TII/PCI). H5: The N/II1/II15/II6/II8/II11 and the LP8/LP11/LP15 have positive impacts on the total labor population (LP17).

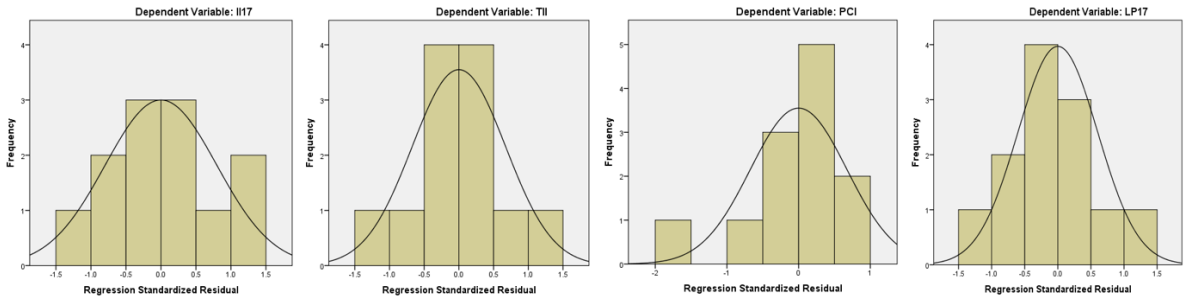

Figure 10. Histogram.

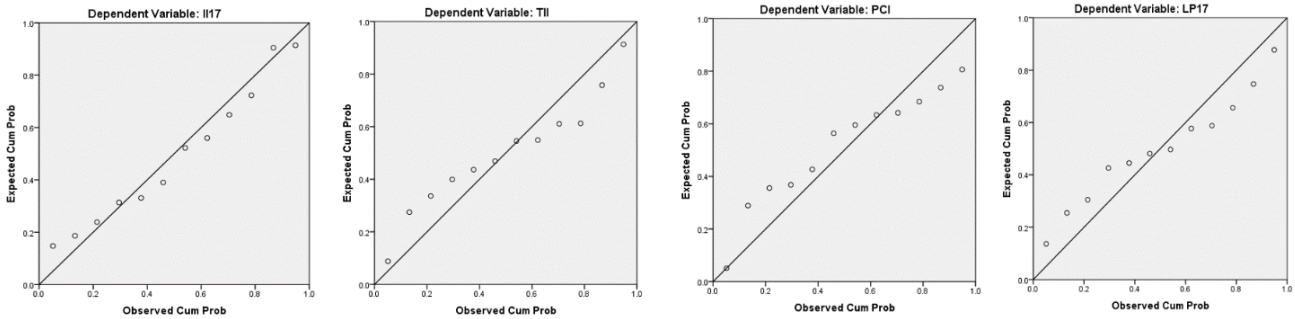

Figure 11. Normal P–P plot regression standardized residual.

Moreover, H6: The Triennale-driven tourism has a positive impact on SDG 8.9.1 "Tourism direct GDP as a proportion of the total GDP and in the growth rate". H7: The Triennale-driven tourism has a positive effect on SDG 8.9.1 "Number of jobs in tourism industries as a proportion of total jobs and growth rate of jobs . . . " H8: The Triennale-driven tourism is one of the positive "policies to promote sustainable tourism that creates jobs and promotes local culture and products."

Table 6. SLR: Model Summary.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
a	0.943 [a]	0.889	0.756	46,206.400	0.889	6.673	6	5	0.027
b	0.982 [a]	0.964	0.922	18,835.367	0.964	22.538	6	5	0.002
c	0.940 [a]	0.884	0.745	45,015.48309	0.884	6.347	6	5	0.030

[a] Predictors: (Constant): TN/II1/II15/II6/II8/II11, Dependent Variable: II17. [b] Predictors: (Constant): TN/II1/II15/II6/II8/II11, Dependent Variable: TII. [c] Predictors: (Constant): TN/II1/II15/II6/II8/II11, Dependent Variable: PCI.

Table 7. SLR of TN4/5/21 and TN0: Model Summary.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	0.997 [a]	0.993	0.963	1914.32402	0.993	32.740	9	2	0.030

[a] Predictors: (Constant): TN/II1/II15/II6/II8/II11, and LP8/LP11/LP15, Dependent Variable: LP17.

5.3. Implications for Theory

Matjaž [60] claimed that "a healthy society depends on individuals keeping in mind the broader picture, hence deciding to act for the common good." The target of SDG 8.9 is to promote "direct tourism GDP" and "number of jobs in tourism industries" by devising and implementing policies (e.g., exhibition-driven tourism/Triennale) for sustainable tourism. Triennale-driven tourism (unlike traditional festivals or conferences and exhibitions) is an essential component for sustainable tourism and city revitalization, which lasted for almost 20 years in Japan. The previous research on its impact was limited (especially the lack of a comprehensive study of SDGs within local economic and population changes).

5.4. Implications for Practitioners and Policy Makers

The current paper shows the positive impacts of exhibition-driven tourism using quantitative analysis. The changes in the world have exceeded our expectations. Therefore, a new evaluation of exhibition-driven tourism must be established. Although this process may be controversial, this study adds to our knowledge regarding exhibition-driven tourism and its impact on the tourism industry. This paper's findings will help guide operators/practitioners in the tourism industry to obtain market research support aimed

at improvement measures. Moreover, these findings also play a policy support role for governmental or non-governmental policymakers in the tourism industry.

5.5. Limitations and Future Research Directions

The factors affecting the economy and population are very complex. Therefore, the current study has certain limitations. For example, we only conducted empirical research on two art events from three perspectives in this study. The scope must be expanded in further investigations. Moreover, similar and different impacts related to rural art events and urban art events on tourism are essential research directions for the future with sustainable development goals in mind.

6. Conclusions

From the result, an event may significantly increase the local economic activity. Still, the net impact within the neighboring areas and cities may be more significant than the local (hosting areas) impact (e.g., the big/national effect often exceeds the small/state effect), and the impact on the local/hosting areas may even be negative. Moreover, the local economic activity will also change the local population.

The current paper attempts to empirical analyze the Triennale-driven sustainable tourism with SDG 8.9 in these islands. The panel data of tourists, income, and population in Kagawa were monitored by multiple methods, such as descriptive and inferential statistics (the one-way ANOVA test and Simple Linear Regression (SLR)). It is an attempt to sample (for similar areas in and out of Japan) and to devise and implement policies for sustainable tourism SDGs. It attempts to "connect academic and practitioner worlds" with art exhibition creation tourism. Thus, the present findings offer meaningful implications in both academia and industry.

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Data Availability Statement: Data are available on request due to restrictions, e.g., privacy or ethics. The data presented in this study are available on request from the corresponding author. The data are not publicly available due to comments from the authors.

Conflicts of Interest: The authors declare no conflict of interest.

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