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Research Paper

Measuring the Magnitude of Film Tourism as a Catalyst of the Indonesian Tourism Sector

A Case Study of Laskar Pelangi Film in Belitung Island

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ABSTRACT

The creative economy is a new paradigm to be reckoned with. Unfortunately, film as the priority sub-sector of Indonesia's Creative Economy failed to become one of the five sub-sectors with the largest multiplier effect to other sub-sectors of the creative economy. There is an immeasurable impact of film on the tourism sector which is known as film tourism. This research conducts empirical evidence on the case study of Belitung Island and the Laskar Pelangi film to measure the magnitude of the film tourism effect. The analytical method used in this study is the ARIMA (Autoregressive Integrated Moving Average) intervention modelling. The results of the intervention model show that the Laskar Pelangi film and the Kata Museum of Andrea Hirata have a significant direct effect on the tourist arrival in Belitung Island. Meanwhile, the influence of the Tanjung Kelayang Tourism SEZ was significant almost one year after it was established. The increase in tourist arrival due to Laskar Pelangi film tourism is two times higher than without the effect, indicating that the film tourism phenomenon is possible to become a new form of innovation that is effective as a catalyst for the future of Indonesia's tourism sector.

Keywords: Film tourism, ARIMA intervention, *Laskar Pelangi*.

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1. Introduction

The creative economy sector is a new paradigm to be reckoned with. In 2013, the creative and cultural industries generated US$ 2.25 trillion, or about three percent of the Gross Domestic Product (GDP) produced worldwide (EY, 2015). The United Nations (UN) emphasizes that what makes the creative economy sector different from other sectors is the role of creativity as an intangible stock of capital, thereby placing the same amount of opportunity between developed and developing countries to move optimally in this sector (United Nations [UN], 2008). Following President of Indonesia Joko Widodo's statement, Indonesia may find it challenging to compete in the development of sophisticated industries. However, there is an enormous opportunity in the creative economy sector due to its wealth of arts and cultural heritage (Badan Ekonomi Kreatif, 2019).

Based on the BPS Statistics, the creative economy sector in Indonesia shows a consistent development. The GDP of Indonesia's creative economy sector in 2016 reached 922.56 trillion rupiahs and contributed 7.44 percent to the GDP (Badan Pusat Statistik, 2018). Within six years, between 2010 and 2016, the GDP of the creative economy sector has almost doubled, with an average annual growth rate of 9.82 percent, higher than the rate of economic growth in the same period.

Presidential Regulation No. 72 of 2015 classified the creative economy in Indonesia into 16 subsectors. In the Strategic Plan of the Creative Economy Agency (*Badan Ekonomi Kreatif*) of Indonesia for the 2015-2019 period, it was explained that one of the strategies to strengthen the creative economy sector is the 'Top-Down' strategy, by forming superior and priority sub-sectors. The superior subsectors are culinary, fashion, and craft, which dominate the share of the total GDP in the creative economy. Meanwhile, the priority sub-sectors are considered capable of encouraging economic growth in other economic sectors. The priority sub-sector includes the film sub-sector, applications games, and music. Unfortunately, the priority sub-sector, the film, was not included in the five sub-sectors with the output that has the most significant impact on driving other creative economy sub-sectors (Badan Pusat Statistik and Badan Ekonomi Kreatif, 2018). The small contribution (Figure 1) also causes the national film industry to get less attention from the policymakers and not to be prioritized in realizing the national economic development.

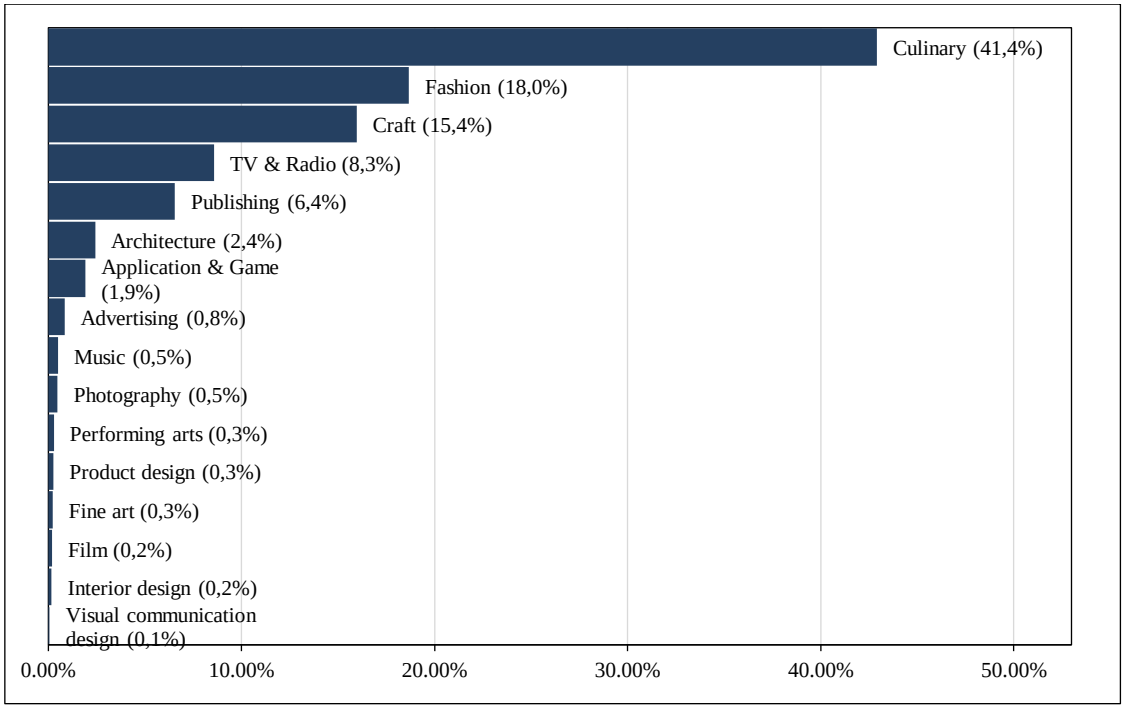

Figure 1. Share of the sub-sector to the GDP of the creative economy sector in Indonesia, 2016 ***Invalid source specified.***

There is an immeasurable impact of film on the tourism sector, which is known as film tourism. Ex-Deputy of Creative Economy Agency for Access to Capital, Fajar Hutomo, stated that there was a domino effect of the film sub-sector on the tourism sector which was not widely realized (Setyowati, 2016). Whereas film tourism has a positive effect on these destinations due to increased growth in their tourism arrivals once the location is used as the setting in the related film (O'Connor & Kim, 2014). However, several conditions are needed to make a film that ultimately has an impact on the tourism sector. The storyline of the film needs to involve the audience's emotional experience with the places depicted in the film (Niziol, 2009). In addition, the film's commercial success in the film market can also be an indication of the domino effect of film tourism (Phomsiri, 2015). Unfortunately, research on film tourism is still relatively rarely touched, even though there has been an increase in the last ten years (Beeton, 2016).

One of the Indonesian films that has raised the background of a place well and attracted a large audience is the *Laskar Pelangi* (Rainbow Troops) film, released in September 2008. *Laskar Pelangi* was a film produced by Miles Films from a novel adaptation by Andrea Hirata, which told the story of children's struggles to access education on Belitung Island in the 1960s (Miles Films, n.d.). The name Belitung Island was increasingly popular through the release of this film. Various tourist objects related to this film were later built, such as a replica of Muhammdiyah Gantong Elementary School and the *Laskar Pelangi* Gallery or the Kata Museum. Kata in Indonesian means' word,' used as the name of the museum by Andrea Hirata, and it is the first literary museum in Indonesia. The national government began to pay attention to Belitung Island by establishing the Tanjung Kelayang Tourism Special Economic Zone (SEZ) in Sijuk District, Belitung Regency, in 2016. This is a strong signal regarding the great opportunity for film tourism to be a catalyst for the future of the tourism sector, especially in areas that were not previously well-known as tourist destinations.

To prove the existence and opportunity of film tourism in Indonesia, this research conducts an empirical case study of Belitung Island and the *Laskar Pelangi* film to measure the magnitude of the film tourism effect. This study compares Belitung tourism to tourism film as an intervention and without intervention. For the research results to be more comprehensive, other things followed the release of the *Laskar Pelangi* film: the construction of the Kata Museum as a destination related to *Laskar Pelangi*, and the establishment of the Tanjung Kelayang SEZ, were also considered. The results of this study can become the basis for the government to start paying attention to film tourism.

Film Tourism

The phenomenon of creating a tourist attraction in a place or area that engages in the film-making process is known as film-induced tourism or film tourism (Roesch, 2009). Research on film tourism is still quite rare, even though there has been an increase in the last ten years (Beeton, 2016). One of the earliest studies is a paper written by Riley and Doren (1992) entitled "Movies as tourism promotion: a pull factor in a push location." The study was conducted on several American films shot in the United States and Australia. In their research, Riley & Doren (1992) described a significant increase in the number of tourist visits to a place used as a film background in descriptive statistical analysis, using time series data of tourist visits to these tourist attractions. They also mentioned an appeal in storylines from the film related to the places as the background. As a result, the number of foreign tourists from the United States visiting Australia increased.

Many countries have succeeded in capturing the existence and taking advantage of film tourism. Oxford Economics (2012) estimated that the United Kingdom (UK) film industry directly contributed around £1.6 billion to UK GDP in 2011. While there is limited robust statistical data quantifying the value of this impact, the available evidence suggests that around a tenth of the value of foreign tourism to the UK may be attributable to UK films. The phenomenon of film tourism in several regions has been shown in Hudson and Ritchie's (2006) study, where the increase of tourists occurred due to Braveheart movie released in 1995. Tourist visits to the Wallace Monument in Ochil Hill, Scotland increased by 300 percent in the first year after the film was released. In the Asia Pacific region, South Korea managed to capture and utilize the phenomenon of film tourism well. Based on data from the Korea Tourism Organization (KTO), of the three million Asian tourists who visited South Korea in 2004, most visited locations where

Korean television series or films were shot, such as those featured in the Winter Sonata movie, released in 2002 (Chan, 2007). Winter Sonata is one of the famous television series that started the phenomenon of the Korean Wave or Hallyu, where South Korean tourism and culture became very popular in other countries and succeeded in inviting foreign tourists to visit South Korea.

Unfortunately, the use of inferential statistical methods in providing empirical evidence regarding the impact of films on tourism has not been widely used. One of them is the research conducted by Corton & Ebrahimpour (2014) on the Dolphin Tale film produced by Warner Bros in 2011. Corton & Ebrahimpour examined the impact of the Dolphin Tale film on the number of visitors to the main shooting location, Clearwater Marine Aquarium in Florida. To calculate the impact of film tourism, Corton & Ebrahimpour compared the difference between the number of visitors before and after film release. They found that film tourism increased tourist visits to the location by 51 percent. This study also predicted the number of tourists who would come to the Clearwater Marine Aquarium by considering the Dolphin Tale film intervention. The study calculated the number of monthly visitors to Clearwater Marine Aquarium analyzed using the seasonal ARIMA model.

Tkalec et al. (2017) also conducted Data-driven research to examine the effect of the Game of Thrones (GoT) series on tourism in one of its shooting locations, Dubrovnik City, Croatia. The method used is a synthetic control approach by building an estimation of the tourist visit to Dubrovnik City if it was not the location for shooting GoT. Estimation was built using a model based on tourism data from other cities in Croatia, which were assumed not to be affected by the GoT film. The effect of the GoT movie is calculated based on the difference between the actual data and the synthetic control data, which assumes that the city does not receive the effects of the GoT. A positive effect was found for Dubrovnik City. It received sixty thousand more tourists every year because of GoT. However, three other countries, Istria, Dalmatia, and Zagreb, receive a more significant effect than Dubrovnik. These cities are major tourist destinations caused by the spillover effect.

Most research about film tourism uses primary data to find out the effect at a micro or individual level. This type of data is good for capturing how the film can influence tourists to visit the shooting location. Young and Young (2008) used the theoretical model of conditional probability to measure the contribution of a screen product to a destination visit. The result showed that 16 out of 100 tourists who visited Oxford were influenced by screen products and as many as 60 out of 100 tourists in London Eye. Analysis using ANOVA was also carried out to ascertain the effect of the film on the motivation of tourists. Rattanaphinanchai and Rittichainuwat (2018) found significant changes after tourists watched 'Lost in Thailand' and 'The Beach', where they had a higher motivation to visit the films' shooting locations in Thailand.

2. Methodology

This research studied tourist visits to Belitung Island, Indonesia. The dependent variable in this study is the total number of tourist visits to Belitung Island from January 2003 to December 2019 in monthly units. There are three intervention variables used consecutively: the *Laskar Pelangi* in September 2008, the construction of the *Laskar Pelangi* Gallery or Kata Museum in September 2012, and the establishment of the Tanjung Kelayang SEZ in March 2016. Data of the tourist visit to Belitung Island is an aggregate of the tourist visits data to Belitung Regency provided by the Government Tourism Office of Belitung Regency and tourist visits data to East Belitung Regency provided by the Government Culture and Tourism Office of East Belitung Regency.

The analytical method used to answer the objectives in this study includes descriptive analysis and statistical inference analysis, namely the ARIMA (Autoregressive Integrated Moving Average) intervention modelling. The main purpose of the ARIMA intervention modelling is to find out how an intervention influences data and forecast it by considering the effects of the intervention (Makridakis et al., 1997).

The general form of the intervention model can be described in a backshift notation (B) by the equation (Box and Tiao, 1975):

$$Y_t = \frac{\omega_s(B)B^b}{\delta_r(B)}\xi_t + N_t \quad (1)$$

where Y_t is observed value in the period of t. N_t refers to the ARIMA model for the data series before the intervention, while the notation $\frac{\omega_s(B)B^b}{\delta_r(B)}\xi_t$ in the equation describes the effect of the intervention event at a certain period in the intervention variable ξ_t (Box et al., 2008). ω and δ are intervention parameters in which ω indicates the magnitude of the influence given by the intervention and δ is the degree of decay of the gradual intervention effect (Box & Tiao, 1975). In general, there are two types of intervention variables ξ_t that can be used in the model, namely (1) step function, and (2) pulse function. The step function (S_t) describes an intervention that starts to occur at a certain time (T) and its existence tends to be permanent, while the pulse function (P_t) describes an intervention variable that only lasts temporarily.

$$S_t^{(T)} \begin{cases} 0 & t < T \\ 1 & t \geq T \end{cases} \quad (2) \qquad\qquad P_t^{(T)} \begin{cases} 0 & t \neq T \\ 1 & t = T \end{cases} \quad (3)$$

There are three intervention notations used in the intervention model: b, s, and r. The b notation is an order that describes when the effect of the intervention is significant. Order s shows a period of time after the intervention where there is a significant change (fluctuation) in the data, while order r identifies the gradual change in residual value (Lee et al., 2011). Statistical software was used to perform ARIMA intervention modelling in SAS University Edition.

In this study, the descriptive analysis was used to describe the condition of data on tourist visits to Belitung Island from January 2003 to December 2019. Furthermore, the ARIMA intervention model was developed to see and measure the effect of the *Laskar Pelangi* film, Kata Museum, and the Tanjung Kelayang SEZ on tourist visits to Belitung Island. The ARIMA intervention model formed in this study is multi-input model as follows:

$$Y_t = \frac{\omega_s(B)B^b}{\delta_r(B)}S1_t + \frac{\omega_s(B)B^b}{\delta_r(B)}S2_t + \frac{\omega_s(B)B^b}{\delta_r(B)}S3_t + \frac{\theta_q(B)\Theta_Q(B)e_t}{\phi_p(B)\Phi_P(B)(1-B^{Seasonal})^D(1-B)^d} \quad (4)$$

Where Si_t is the i-th intervention variable in the step function, with parameters ω_s, and δ_r. Whereas θ, ϕ, Θ, Φ are the parameters of the pre-intervention ARIMA model with orders (p, d, q). θ is a parameter of the order, q represents the lag of the past error used in the model, meanwhile ϕ is a parameter of the order p, the lag of the autoregressive process (how the past value of the data influences the present value). q is the order of the integrated process, differencing the data because of non-stationary problems. Θ and Φ are the parameters of Q and P, as well as p and q b for a seasonally adjusted model, $\mathrm{SARIMA(p,d,q)(P,D,Q)}_s$ with s seasonal lag. Following are the stages of conducting the ARIMA intervention model:

1. Grouping time-series data based on the time of interventions:
   a. Pre-intervention period: January 2003 – August 2008;
   b. First intervention period: September 2008 (the release of *Laskar Pelangi* film) – August 2012;
   c. Second intervention period: September 2012 (the opening of Kata Museum) – February 2016;
   d. Third intervention period: March 2016 (the inauguration of Tanjung Kelayang SEZ) – December 2019.
2. Testing the assumption of variance stationarity using the Box-Cox test and the average stationarity using Augmented Dickey-Fuller (ADF) test.
3. Formating pre-intervention ARIMA model for pre-intervention data.
4. Forecasting for the first intervention period uses the pre-intervention ARIMA model. Plot the residuals, namely the difference between the forecast result and the actual data of the first intervention period to determine the orders of b, s, and r in the first intervention model.

5. Formating first intervention ARIMA model for pre-intervention and first intervention period data.
6. Repetition for the second and third interventions, starting with forecasting to determine the orders of the next intervention period (step 4).

Model formation at the described stages includes model identification, parameter estimation, and the diagnostic test, including the residual independence test with the Ljung-Box test and residual normality test with the Kolmogorov- Smirnov test.

3. Result and Discussion

Based on Constitution No. 5 of 2003, Bangka-Belitung Island Province was divided, resulting in Belitung Island consisting of two regencies, namely Belitung Regency and East Belitung Regency. During 2003, there were 7,248 tourist visits to Belitung Regency and only 792 visits to East Belitung Regency. Accumulatively, there were 8,040 tourist visits to Belitung Island throughout the year. This grew to more than one hundredfold to 812,396 visits during 2018. Unfortunately, in 2019 there was a decline, where there were only 627,640 tourist visits to Belitung Island. A detailed increase in tourist visits to Belitung Island is displayed in the monthly period in Figure 2.

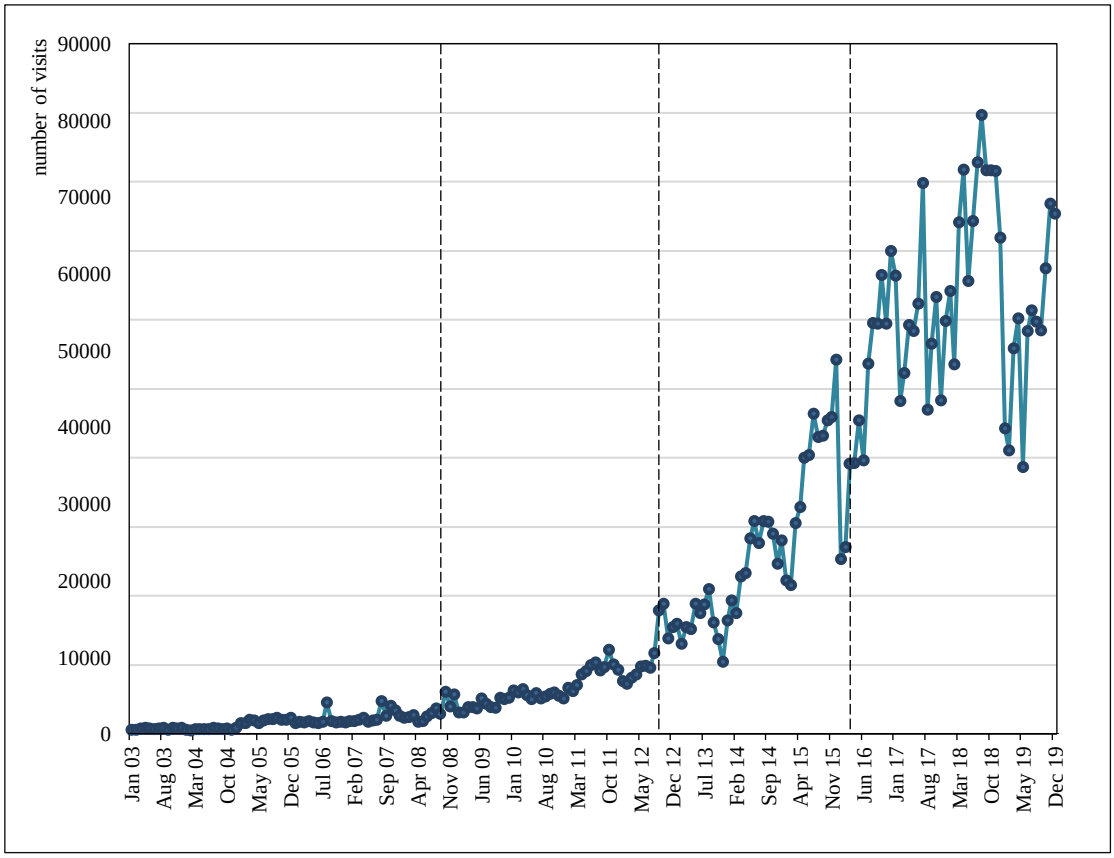

Figure 2. The development of the number of tourist visits to Belitung Island for the monthly period, 2003-2019 (Belitung and East Belitung Tourism Office)

Figure 2 shows that tourist visits to Belitung Island prior to the *Laskar Pelangi* film in September 2008 tended to be constant and grew very slowly. The number of tourists visiting Belitung Island every month during that time was never more than 5,000 people. More consistent growth was shown after *Laskar Pelangi* was released in theatres. In this condition, the *Laskar Pelangi* film shows an indication of intervention in tourist visits to Belitung Island. The number of tourists visiting Belitung Island following

the construction of the Kata Museum in September 2012 also tended to grow drastically, indicating another intervention to the tourist arrival. Tourism in Belitung continues to grow and has become the government's attention. After Tanjung Kelayang was designated as a Tourism SEZ in March 2016, the number of tourist visits in this period was more volatile. The central government's intervention has resulted in more policies and factors on a national level affecting tourist visits to Belitung.

3.1 ARIMA Intervention modelling

ARIMA Intervention modelling begins with the formation of a pre-intervention ARIMA model. This model estimates tourist visits to Belitung Island in a situation that is assumed to be unaffected by film tourism. ARIMA Pre-intervention modelling includes model identification, parameter estimation and residual diagnostic testing. Previously, the Box-Cox test was conducted. It resulted in the tourist visit data having a variance that was not constant, so it was necessary to carry out the Box-Cox transformation, namely the square of the natural logarithm.

$$Y_t = \ln(tourist\ visits_t)^2 \quad (5)$$

After the transformation is carried out, then the ADF test can be done. ADF test results on the first differencing data showed a p-value of 0.0000. With α of 5 percent, it can be stated that the first difference Y_t has been stationary. Furthermore, several ARIMA models have been identified based on ACF and PACF plots and consideration of the importance of seasonal elements in tourism (Cantis and Ferrante; 2011). After estimating the parameters and testing the diagnosis with α of 5 percent, there is only one model that fulfils the two diagnostic tests. namely $SARIMA\ (0,1,0)(0,1,1)_{12}$. It was a seasonal ARIMA model with a lag period of 12, showing the effect of a monthly pattern in a year. Estimated parameters and diagnostic testing models $SARIMA\ (0,1,0)(0,1,1)_{12}$are shown in Table 1.

Table 1: Parameter estimation and diagnostic testing of the pre-intervention ARIMA model

Parameter		Ljung Box test		Kolmogorov Smirnov test	
Coefficient	p-value	Lag	p-value	D	p-value
(1)	(2)	(3)	(4)	(5)	(6)
Θ_1 = 0,80515	<0,0001	6	0,3768	0,112842	0,0805
		12	0,6934		
		18	0,5841		
		24	0,0637		

Based on the stages of model identification and residual diagnosis testing, the selected pre-intervention ARIMA model was $SARIMA\ (0,1,0)(0,1,1)_{12}$. The RMSE of the model is 4.22186. The pre-intervention ARIMA Model equation can be written as follows:

$$Y_t = \frac{(1 - 0{,}80515B^{12})e_t}{(1-B)(1-B^{12})} \quad (6)$$

Forecasting was carried out using the pre-intervention model for the first intervention period. The difference between these two values forms a residual that can be used in the identification of intervention orders. A plot was formed based on the residual value with a limit of ± 2 times the RMSE value of the pre-intervention model.

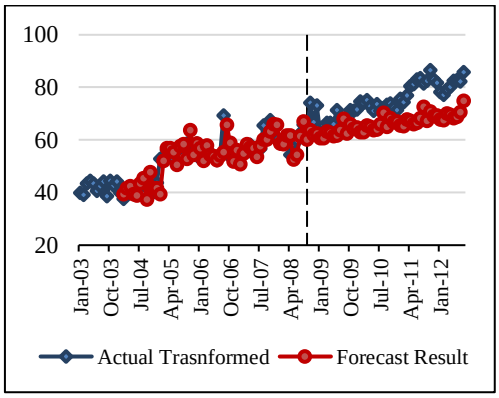

Figure 3. Forecasting results from the pre-intervention model

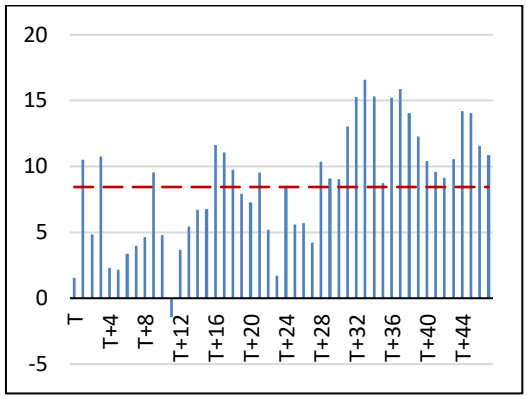

Figure 4. The residual value since T_1

T_1 in the first intervention variable is the month of the release of *Laskar Pelangi*, September 2008. Figure 3 shows that the pre-intervention model's prediction does not fit with the actual data of the first intervention. Figure 4 shows that the residual value for the first time exceeds 2 times the RMSE is at T_1+1, or one month after the release of the *Laskar Pelangi* film period. Thus, there is a possibility that the value of order b is 1. Based on the parameter estimate with α of 5 percent, the order of the first intervention is obtained, namely b = 1, s = 0, and r = 1. Diagnostic testing is carried out on this model, and the results show that the residuals are independent and normally distributed. The first ARIMA intervention model can be written as follows:

$$Y_t = \frac{(9{,}61441)B^1 S1_t}{(1 + 0{,}72647B)} + \frac{(1 - 0{,}79865B^{12})e_t}{(1 - B)(1 - B^{12})} \quad (7)$$

Where $S1$ is the first intervention variable, the *Laskar Pelangi* film which began circulating in theatres in September 2008. Order b in this model shows that the effect of the intervention can be felt significantly starting the following month, October 2008. This shows that the influence of the tourism phenomenon from the *Laskar Pelangi* film is felt directly or instantaneously. The existence of this influence tends to be permanent.

After the first intervention model is formed, forecasting is carried out on the data for the second intervention period and calculating the residuals. T_2 in the second intervention was the month when the Kata Museum was opened in September 2012. Then, a plot was formed based on the residual value with a limit of ± 2 × RMSE for the first intervention model.

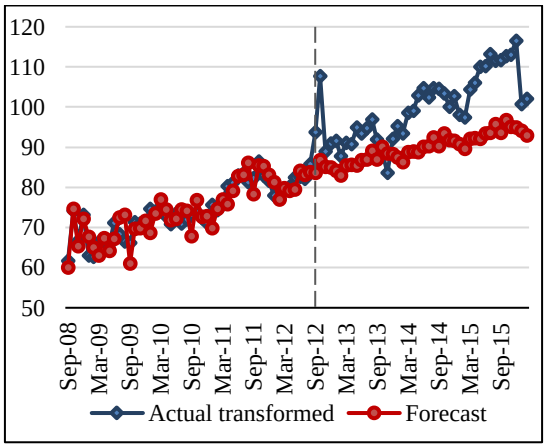

Figure 5. Forecasting results from the second intervention model

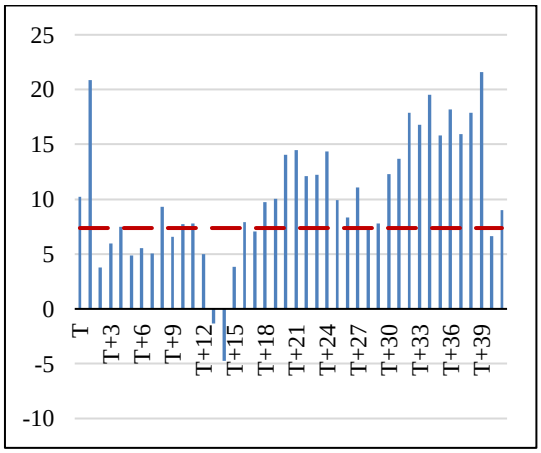

Figure 6. The residual value since T_2

Figure 5 shows that the first intervention model's prediction does not fit the second intervention actual data. Figure 6 shows the residual value in period T_2 itself has exceeded two times the RMSE in the same month, the Kata Museum was opened. This indicates that the order b in the second intervention is zero. With α of 5 percent in estimating the parameters, the order of the second intervention is b = 1, s = 1,2,40, and r = 0. Diagnostic testing is carried out on this model, and the results show that the residuals are independent and normally distributed. The second intervention ARIMA model can be written as follows:

$$Y_t = \frac{(9{,}62478)B^1 S1_t}{(1 + 0{,}75473B)} + (9{,}36943 + 13{,}33903B^1 - 15{,}26133B^2 - 13{,}25904B^{40})B^0 S2_t + \frac{(1 - 0{,}30000B^{12})e_t}{(1 - B)(1 - B^{12})} \quad (8)$$

The second ARIMA intervention model shows that the effect of the Kata Museum establishment is felt directly (instantaneously) in the same month that the museum was opened, namely September 2012. Then, this influence drastically strengthened in the following month, October 2012 but weakened again in November 2012. Temporary drastic increase in October 2012 suggests that other factors exacerbate this influence. According to the East Belitung Culture and Tourism Office, this is due to the 2012 Sail Indonesia activity because Manggar City is a stopover point. In addition, the East Belitung Fashion Carnival was held for the first time in October 2012.

After the second intervention model was formed, forecasting was carried out on the data for the third intervention period and calculating the residuals. T_3 in the third intervention was March 2016 where Tanjung Lesung was designated as a Tourism SEZ. Then, a plot was formed based on the residual value with a limit of ± 2 × RMSE for the second intervention model.

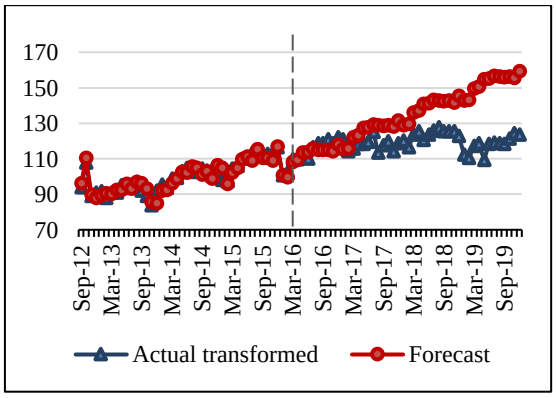

Figure 7. Forecasting results from the third intervention model

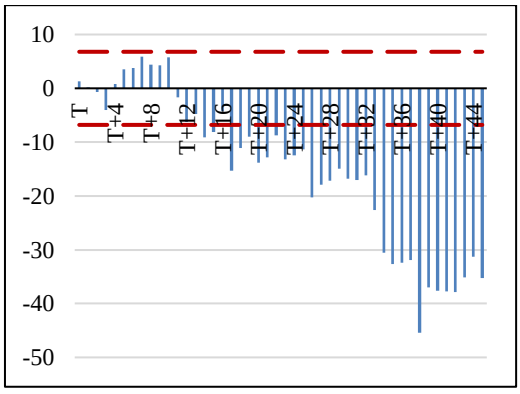

Figure 8. The residual value since T_3

Figure 7 shows that the second intervention model's prediction does not fit the third intervention actual data. Figure 8 shows that the residual value has begun to approach the ± 2 × RMSE limit for a long time since the T_3 period, namely from the T_3+6 to T_3+10 periods, as well as T_3+12 and so on. With α of 5 percent in estimating parameters, after trial and error, the significant order of third intervention was obtained, namely b = 10, s = 7,12,18, and r = 1. This result shows that the effect of this third intervention was only recorded 10 months after the event of the intervention, with instability in the following months based on the s orders result. Diagnostic testing is carried out on this model, and the results show that the residuals are independent and normally distributed. The third intervention ARIMA model can be written as follows:

$$Y_t = \frac{(9{,}65088)B^1 S1_t}{(1+0{,}75387B)} + (9{,}35857 + 13{,}30274B^1 - 15{,}30274B^2 - 10{,}65985B^{40})B^0 S2_t + \frac{(6{,}28573 - 12{,}84982B^7 + 9{,}59503B^{12} - 17{,}64057B^{28})B^{10} S3_t}{(1+0{,}28530B)} + \frac{(1-0{,}30689B^{12})e_t}{(1-B)(1-B^{12})} \quad (9)$$

The third ARIMA intervention model shows that the effect of the Tanjung Kelayang Tourism SEZ was significant ten months after it was established in January 2017. This explains that the determination of SEZ cannot have a direct effect but requires time and process in the framework of infrastructure and facility development through incentives, specifically, as regulated in law. This influence was felt to weaken starting in August 2017. The number of tourist visits to Belitung Island after this third intervention showed more fluctuation in a certain time since the Tourism SEZ was established. This means that the SEZ creates more factors affecting tourism activity on the Belitung Island. Because it is a central government policy, the impact may be at a national level and affect Belitung tourism. One of them is the regulation of airline ticket prices. According to the information from the Belitung Regency Culture and Tourism Office, the increase in the price of airline tickets to Belitung reduced the frequency of flights to Belitung Island due to decreased tourist interest. The expensive cost of tickets and transport gave an initial negative impression to some tourists (Ibrahim et al., 2019).

3.2 Measuring the Film Tourism Effect

The result of estimation in the form of transformation cannot be used directly to calculate the magnitude of the effect because it has a different scale. Data needs to be returned to its true scale to calculate the magnitude of the influence (Lee et al., 2011).

$$\widehat{\text{tourist visits}}_t = \exp\left(\sqrt{\widehat{Y}_t}\right) \quad (10)$$

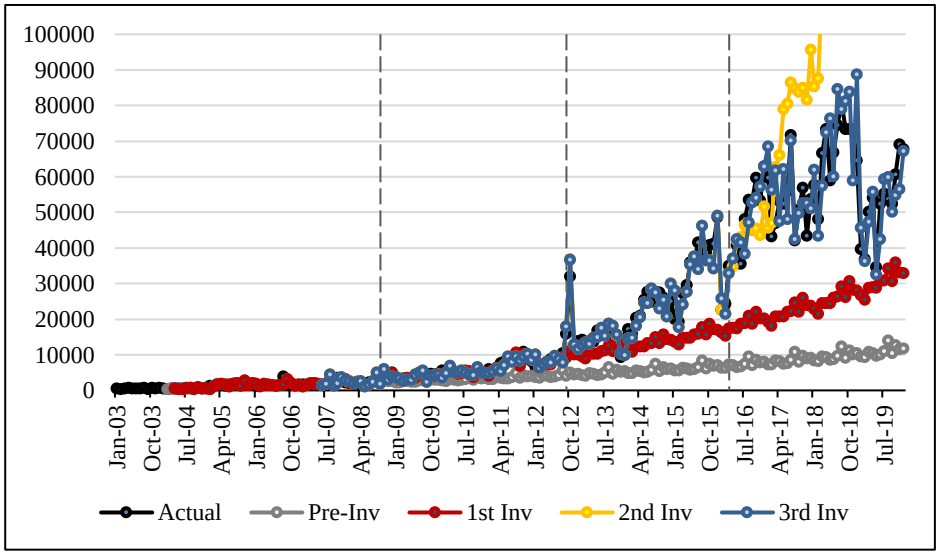

Figure 9. Estimation results and actual data on tourist visits to Belitung Island

Based on Figure 9, it can be seen that the release of the *Laskar Pelangi* film and the construction of the Kata Museum, in general, increased the number of tourist arrivals. This indicates that there was a contribution from the tourism film phenomenon in the *Laskar Pelangi* film and Kata Museum as destinations related to the film. Meanwhile, the Tanjung Kelayang SEZ in Belitung Regency also attracts a number of tourists visits even though there is a delay since its establishment due to high ticket prices and limited number of flights. Regrettably, the increase in airline ticket prices decreases the frequency of flights to Belitung because of declining interest in tourists to continue visiting Belitung Island. Furthermore, transportation issues, limited facilities in the tourist destination, and environmental damage are still problematic and leave a negative impression on Bangka Belitung (Ibrahim et al., 2019).

The phenomenon of film tourism until the end of the research period still shows its existence. The effect of the *Laskar Pelangi* film on tourist visits to Belitung Island was first felt one month later, in October 2008. It was found that the *Laskar Pelangi* film succeeded in increasing the number of tourist visits to Belitung Island to 2,770 visits or reaching 105.61 per cent compared to without intervention in October 2008. The influence of the Kata Museum intervention was felt in September 2012 when the museum opened, reaching 8,663 visits or 92.64 percent increase compared to without intervention. The effect of the Tanjung Kelayang SEZ in March 2016 on tourist visits to Belitung Island was significantly felt only in January 2017, an increase of 22,765 visits compared to without intervention, or by 49.66 percent. More influence changes occurred in the third intervention period, August 2017, January 2018, and May 2019, declining to 42,332 visits, 23,406 visits and 219,784 visits, respectively. The overall comparison based on modelling results for each intervention in estimating the number of tourist arrivals can be seen as follows:

Table 2: The impact of interventions to the tourist visits to Belitung Island

Period		Estimation results of the pre-intervention model	Estimation results of the pre-intervention model	Magnitude of impact	
(1)	(2)	(2)	(3)	(4)	(5)
First Intervention (T_1) = *Laskar Pelangi* Film					
T_1+1	Oct-2008	2.907	5.977	3.070	+105.61%
Second Intervention (T_2) = Gallery of *Laskar Pelangi* or Kata Museum					
T_2+0	Sep-2012	9,326	17,966	8,640	+92.64%
T_2+1	Oct-2012	11,145	36,850	25,705	+230.64%
T_2+2	Nov-2012	10,169	12,971	2,802	+27.55%
T_2+40	Jan-2016	16,293	25,994	9,701	+59.54%
Third Intervention (T_3) = Tanjung Kelayang SEZ					
T_3+10	Jan-2017	45,839	68,604	22,765	+49.66%
T_3+17	Aug-2017	84,915	42,583	-42,332	-49.85%
T_3+22	Jan-2018	85,474	62,068	-23,406	-27.38%
T_3+38	May-2019	252,349	32,565	-219,784	-87.10%

Conclusions

Based on the analysis conducted in this study, several conclusions can be drawn. In general, tourist visits to Belitung Island proliferated from 2003 to 2019, with fluctuations in certain periods. Based on the intervention model, the *Laskar Pelangi* film and the Kata Museum of Andrea Hirata have a significant direct effect on the tourist arrival to Belitung Island. Meanwhile, the influence of the Tanjung Kelayang Tourism SEZ was only felt significant almost one year after it was established. This shows that the film tourism phenomenon has a faster impact, and it is possible to become a new form of innovation that is effective as a catalyst for the future of Indonesia's tourism sector.

The creative economy actors in the film sub-sector are encouraged to partner with the government through the Ministry of Tourism and Creative Economy to create and utilize tourism films by making more regional-tourism-development-oriented films. This has the potential to give birth to new tourist areas with more diverse attractions. Local governments should take advantage of the film tourism phenomenon featuring their regions by building destinations related to the film as commercialization.

Any attention must be paid to developing the infrastructure and facilities around the destination. The government also needs to be careful in making further policies that will impact rising prices in the region, especially travel, accommodation, food and beverages, which can affect the interest of tourists. Future studies could explore other topics of film and tourism in other cases to identify the existence of the phenomenon of film tourism.

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