



# Impact of Covid-19 Pandemic on Economic Growth of the Tourism Sector in Indonesia

Mursalina, Raja Masbar, Suriani

*Faculty of Economic and Business, Syiah Kuala University, Banda Aceh, Indonesia*

*\*Corresponding author email: suriani@unsyiah.ac.id*

---

## Abstract

Indonesia has made the tourism sector one of its current development priorities. However, the Covid-19 pandemic has harmed various economic sectors, and the tourism sector is the most affected in Indonesia. As a result of policies carried out by various countries including Indonesia, such as lockdown, social distancing, and its kind, economic activity has slowed, tourist arrivals have decreased drastically, and investment has decreased due to the uncertainty caused by the pandemic. This study aims to examine the effect of the Covid-19 pandemic on tourist arrivals and investment (domestic and foreign investment) and its impact on the economic growth of the tourism sector in Indonesia. This study uses the path analysis method by using mediating variables, namely tourist arrivals, and investment paths. Panel data regression is used to regress the path analysis equation, with data series 2018q1 – 2021q2 and cross-sections in 22 provinces in Indonesia that have tourist entrances. The results showed that the variables of tourist arrivals and domestic investment of the tourism sector were able to mediate the impact of the Covid-19 pandemic on the economic growth of the tourism sector, but the foreign investment of the tourism sector did not significantly mediate this impact. The highest impact is through the tourist arrivals path, so the government needs to carry out policies to increase tourist arrivals again.

*Keywords:* Covid-19 pandemic, tourism, economic growth of the tourism sector, path analysis

---

## 1. Introduction

The tourism sector has an important contribution to the economy because it has a multiplier effect on other sectors. This effect stimulates the economy by increasing the added value of output, income, and labour (Statistics Indonesia, 2021). International tourism is recognized as having a positive effect on increasing long-term economic growth through various channels, that is (1) a foreign exchange earner; (2) spurring investment in new infrastructure and competition between local and foreign companies; (3) stimulating other economic industries; (4) creating jobs and increasing income; and (5) can lead to positive exploitation of economy's scale in national companies (Brida et al., 2011). To increase national economic growth, Indonesia has made the tourism sector one of the priority development programs contained in the Medium-Term Development Plan (called RPJM) for the period 2019-2024. According to Statistics Indonesia, the contribution of the tourism sector to the Indonesian economy in 2019 was 4.97%, an increase from 4.91% in 2018.

The virus outbreak that was detected at the end of 2019 called Coronavirus Disease 2019 (Covid-19) for the first time in the city of Wuhan, Hubei Province, China has shaken all social and economic sectors in various countries. This virus spread quickly to many countries, so the World Health Organization (WHO) declared this outbreak as a global pandemic on March 11, 2020. As of July 31, 2021, there were 197.26 million confirmed cases of Covid-19 in the world and 4.21 million people died (death rate 2.13%). Meanwhile, there were 3.41 million confirmed cases of Covid-19 in Indonesia and 94.12 thousand people died (2.76% death rate). The death rate in Indonesia is higher than the world's death rate.

To contain the spread of the virus, various countries including Indonesia have implemented various preventive policies, such as lockdown, Large-Scale Social Restrictions (PSBB), working/worshipping/schooling from home, ban on going home during Eid, social distancing, and the new normal. However, the policy of restricting human movement caused economic activity to weaken. According to Ozili & Arun (2020), the Covid-19 virus can paralyze economic activity in two ways. First, the spread of the virus encourages social distancing which causes the closure of

markets, offices, businesses, and various events. Second, the exponential rate of spread of the virus as well as increasing uncertainty about how bad the situation will be has resulted in a shift in investment to a safer direction among investors and international trading partners. A study by Inegbedion (2021) showed that the limitations of economic activity due to the implementation of lockdown during the Covid-19 pandemic have significantly affected economic growth in Nigeria. In Indonesia, many sectors have been affected since the beginning of the Covid-19 case, such as the tourism sector, taxation, trade, industry, oil and gas, and the Micro, Small, and Medium Enterprises sector (ITU, 2020).

Tourism is strongly influenced by disasters or crises that occurred in a region, such as the global economic crisis (Kapiki, 2011; Haque, 2016), swine flu in the UK (Page et al., 2012), SARS and Avian Influenza in several ASIA countries (Kuo et al., 2008; Pine and McKercher, 2004), the Tsunami that occurred in several ASIA countries (Jayasinghe et al., 2021), and the current global pandemic due to the Covid-19 virus (Foo et al., 2020; Uğur and Akbıyık, 2020; Rahma and Arvianti, 2020; Atmojo and Fridayani, 2021). Cetin (2020) stated that tourism was one of the first and worst-impacted industries globally by Covid-19.

Travel restrictions, cancellation of large events, and fear of travelling show that almost all aspects of life including the tourism sector have been affected by the Covid-19 pandemic. This resulted in a decrease in foreign tourist arrivals to Indonesia. Statistics Indonesia noted that foreign tourist arrivals have decreased significantly since 2020Q1, i.e., since the start of the global pandemic and the spread of the virus to several countries. However, foreign tourist arrivals have decreased sharply since 2020Q2 which reached 82% compared to the previous period, even until 2021Q2 it is still very low. Based on data from the World Travel and Tourism Council (WTTC), Indonesia has experienced considerable losses in the travel and tourism sector in 2020. The contribution of the travel and tourism sector to Indonesia's GDP has decreased by 46.6% compared to 2019, and a decrease in foreign tourist spending by 78.40%.

Mobility restrictions or lockdowns have an impact on trading activities with a significant loss value. This is a threat to investment in developing countries, including Indonesia. The Ministry of Investment stated that the impact on investment caused by Covid-19 was only felt at the end of March or early April 2020. The Institute for Development of Economics and Finance (INDEF) estimates that the Covid-19 outbreak could result in a loss of 127 trillion rupiahs in investment value. The tourism sector has been hit the hardest by falling investment values, particularly from China, which accounts for around 17% of total foreign investment in Indonesia (BKPM, 2020). The Covid-19 pandemic has caused people to choose carefully in buying goods and even investing, also affecting the capital market projections due to the uncertainty of the supply chain and when the pandemic will end. The United Nations Conference on Trade and Development (UNCTAD) stated that investment flow made by foreign investors decreased by 30-40% during the Covid-19 pandemic in various developing countries.

Economic growth is positively influenced by tourism (Habibi et al., 2018). However, the Covid-19 pandemic has harmed Indonesian tourism, and it has negative implications for Indonesia's GDP (Veyadi Purba et al., 2021). Data from Statistics Indonesia shows that Indonesia's economic growth contracted very deeply in 2020Q2, namely -5.32%, and it has put Indonesia in a recession. A very deep contraction of economic growth was experienced by several provinces that rely on the tourism sector for their economy, such as Bali, Kepulauan Riau, and West Java. Economic growth in the second quarter of 2020 in that province decreased drastically to -10.98%, -6.66%, and -5.98%.

When viewed by type of production, Indonesia's economic growth in 2020Q2, when the COVID-19 pandemic had the greatest impact, revealed that transportation and warehousing products experienced the greatest contraction, reaching -30.80%. Subsequently, there was a contraction of -21.97% in Accommodation and Food and Drink services, followed by a decline of -12.60% in Other Services. The three service products are also directly related and have the largest contribution to the tourism sector.

Empirical research on the impact of Covid-19 on tourism in various countries, including Indonesia, is still limited, such as Foo et al. (2020), Uğur and Akbıyık (2020), Rahma and Arvianti (2020), Atmojo and Fridayani (2021), and (Mulder, 2020) who conducted descriptive analysis and literature studies. Then research Fotiadis et al. (2021) perform forecasts on international tourism demand for the next 12 months. There are also limited articles discussing the economic growth of the tourism sector, which usually discuss the effect on economic growth in the aggregate. In addition, the research method using path analysis is still rarely used in analyzing tourism. Jayasinghe et al. (2021) used two types of analytical methods: Autoregressive Distributed Lag (ARDL) to determine the relationship between tourism (as measured by the tourist arrivals variable) and economic growth; and Autoregressive Integrated Moving Average (ARIMA) to determine whether the Asian Tsunami had an impact on tourist arrivals and GDP in aggregate. Škare et al. (2021) investigated the impact of a pandemic on the global tourism industry using Panel Structural Vector Auto-regression (PSVAR). Veyadi Purba et al. (2021) used simple regression to examine the impact of the Covid-19 epidemic on the tourism industry (transportation and hospitality) in Indonesia, as well as time series analysis to examine the decrease in the tourism sector and its implications for Indonesia's GDP.

This study proposed the impact of the Covid-19 pandemic on the economic growth of the tourism sector is very important, because the tourism sector in Indonesia is an economic sector that has the most severe impact. On the other hand, the tourism sector also has a multiplier effect on other economic sectors, such as industry, trade, and others. This research looks at the impact of the Covid-19 pandemic that can directly affect the economic growth of the tourism sector, but it can also indirectly affect through variables tourist arrivals and investment in the tourism sector path.

## **2. Literature Review**

### **2.1 Covid-19 Pandemic**

A pandemic is an outbreak of disease that arises on a large scale and spreads to several countries or across international borders, where this disease attacks humans on a large scale and takes many lives. Coronavirus Disease 2019 or abbreviated as Covid-19 is a variant of the SARS-Cov-2 coronavirus that causes infectious diseases and can cause death. The Coronaviruses (CoVs) are a large virus family that can cause respiratory diseases like the common cold or even more serious and rare diseases like Severe Acute Respiratory Syndrome (SARS) or Middle East Respiratory Syndrome (MERS), which were discovered in 2003 and 2012, respectively, and both have a high mortality rate (WHO, 2020).

Some people infected with the Covid-19 virus, only experience symptoms of mild to moderate respiratory illness that without the need for a special treatment can heal on their own. However, for some people, especially those who are older and have a history of congenital diseases such as diabetes, cardiovascular, chronic respiratory diseases, cancer, and others, they are likely to suffer from more serious illnesses and require special care. This virus can be transmitted through splashes of nasal fluids or droplets of saliva, even the newest variant of the virus is currently said to be able to spread through the air (WHO, 2021).

### **2.2 Impact of Covid-19 Pandemic**

Human habits and behavior have been changed as an impact of the Covid-19 epidemic. Various policies and measures to limit the movement of people have been taken by the government to prevent the number of infections and deaths. The policy has had a positive impact on the environment in terms of reducing pollution and improving air and water quality (Facciola et al., 2021). The Covid-19 pandemic, on the other hand, has so far resulted in a decrease in economic activity and there seems to be no sign of ending until now (Inegbedion, 2021).

According to Maliszewska et al. (2020), the Covid-19 pandemic has impacted the economy in 3 ways. The first is an impact on the macroeconomics, which is through a reduction in employment and capital, increased production costs, and a significant decrease in tourism which affects a country's GDP and exports. Second, the impact on trade, the deep shocks during the global pandemic harmed exports in all sectors and some destination countries. Third, the impact on sectoral output, which is the biggest shock is in the output of domestic services and tourism services.

### **2.3 Tourism**

UNWTO (2010) defines tourism as a travel activity carried out by a person outside his usual place of residence for a maximum period of one year and has a purpose for vacation, business, or other purposes other than work. The Ministry of Tourism and Creative Economy of the Republic Indonesia (2009) defines the tourism industry as a group of businesses supplying tourist needs where these businesses produce goods and/or services related to the tourism sector.

The development of tourism objects is determined by several things. According to Ahdinoto in Muljadi (2009), tourism has five types of components, including: (1) tourist attractions that can attract tourist visits; (2) Promotion and marketing; (3) Tourism market, which is information about tourism sending communities; (4) Transportation, which has a major impact on the number and location of tourism development; and (5) Tourist receiving communities that provide services in the form of accommodation and tourism support services.

### **2.4 Tourists**

Tourists are individuals who do tourism. A person is said to be a tourist if he travels outside the area of his residence for a maximum of 1 year and the main purpose of travelling is other than to earn income or work (UNWTO, 2010). Tourists consist of foreign tourists and domestic tourists. Foreign tourists visiting a country will increase the country's income, this is obtained from consumption expenditures by foreign tourists during their trip (Statistics Indonesia, 2019).

### **2.5 Investment**

Economic growth is related to growth in inputs, such as labour, capital, and improvements in technology. Capital is accumulated through savings and investment (Dornbusch et al., 2011). Investment refers to expenditures for

business expansion and new equipment that could increase the capital stock. Sukirno (2013) defines investment as an expenditure from investors or companies to purchase capital goods and production equipment to increase the economy's potential to generate products and services. Investment, as described by UU Nomor 25 Tahun 2007 regarding Penanaman Modal, is defined as a type of investment activity conducted in the Republic of Indonesia by both domestic and foreign investors. Therefore, there are two types of investment in Indonesia based on the source, namely Domestic Investment (DI) and Foreign Investment (FI).

One of the most important factors in economic growth is an investment. According to economic growth theory, capital is one of the factors of production that could increase GDP growth. According to Solow's theory, there are numerous ways to increase economic growth, one of which is by increasing investment. Morrissey & Udomkermongkol (2012) explains that financing to obtain investment can be done in three ways, namely debt financing, domestic financing, and foreign investment.

Foreign Investment has an important role in a country to support economic growth. One of the countries that use foreign capital as a source of financing for domestic development is Indonesia (Fathia et al., 2021). However, development financing through Domestic Investment is also important, so that the country does not depend too much on other countries. Foreign and domestic investment can either complement or replace one another in terms of increasing economic growth (Djulus et al., 2019). In a country where Foreign Direct Investment has a short run replacement relationship with Domestic Investment, when Foreign Direct Investment (FDI) influences economic growth, Domestic Investment (DI) usually has no such influence and vice versa. However, FDI, DI, and economic growth are mutually integrated in the long run (Lean & Tan, 2011).

## 2.6 Economic Growth of the Tourism Sector

Economic growth indicators can be used to evaluate a region's economic performance. Sukirno (2013) defines economic growth as the increase of economic activities that increase the number of goods and services produced. Changes in Gross Domestic Product (GDP) in percentage units are used to calculate economic growth. GDP is a country's economic activity in the aggregate which is summarized in a certain money value at a certain period. An increase in GDP shows an increase in the output produced in a country's economy.

Based on the results of the 2017 National Tourism Satellite Account (TSA) calculation by Statistics Indonesia, (2017), the contribution of tourism to the economy is determined by the value and structure of investment in tourism, then the structure and amount of tourist spending. Based on the results of the 2019 TSA, the structure of tourism demand or expenditure, both foreign and domestic, is dominated by accommodation services, food and drink services, and transportation services for passengers (Statistics Indonesia, 2021). Malba & Taher, (2016) explained that the hotel and restaurant sector, water transportation, air transportation, and other services are the main sectors forming the tourism sector that are obtained by calculations using the Input-Output table. In this study, the groups of Accommodation and Food and Drink Services, Transportation and Warehousing Services, and Other Services are used to form the GDP of the tourism sector.

## 3. Materials and Methods

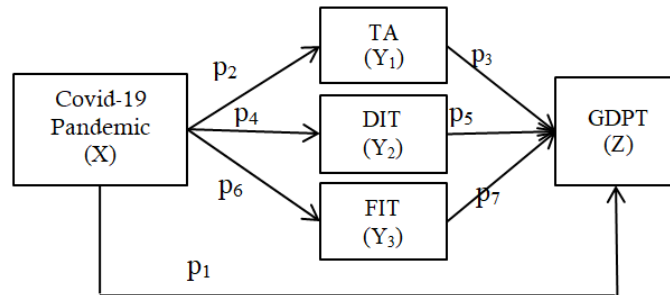
### 3.1 Materials

The data used in this research is quantitative secondary data. The source of data on tourist arrivals and economic growth is obtained from Statistics Indonesia (BPS), while investment data (domestic and foreign investment) is obtained from the Investment Coordinating Board (BKPM). This study uses panel data with cross-sections in 22 provinces in Indonesia that have entrances for foreign tourist arrivals. The time series is during 2018q1 - 2021q2, namely conditions before the pandemic (2018q1 - 2019q4) and during the pandemic (2020q1 - 2021q2) so that 308 units of observation were obtained in this study. Data processing by using Eviews software.

### 3.2 Methods

This study uses a method with path analysis. Path analysis is the development of multiple regression analysis to determine the causal effect between independent variables on the dependent variable, but in path analysis, the influence can be seen directly or indirectly (Retherford & Choe, 1993). Path analysis was used in this study using mediating variables. The mediating variables in this study are the number of tourist arrivals (TA) and investment in the tourism sector which consists of Domestic Investment (DI) and Foreign Investment (FI). To determine whether or not the mediating variables used in path analysis are significant, the Sobel test can be used. The Sobel test shows if mediating variable can significantly mediate the indirect relationship between the independent variable and the dependent variable (Baene, 2021).

To complete the path analysis model, this study uses the panel data regression method for regression between independent variables and dependent variables. Scarlett (2021) uses panel data from 46 countries to analyze the economic impact of tourism on economic growth to anticipate the recovery of the tourism sector after the Covid-19 pandemic. The panel data regression model for completing path analysis in this study can be written as below. All models are transformed into natural logarithms to smooth the data and avoid abnormal data distribution, making it simpler to analyze data where unit differences in each variable can be averaged to produce accurate estimates. So the natural logarithm is needed because the change in the value of the natural logarithm will be almost the same as the percentage change in the original value. The research path analysis can be seen in Figure 1.



**Figure 1.** Research Path Analysis

The equation model to determine the effect of the Covid-19 pandemic on the mediating variable is as follows:

$$\ln TA_{it} = \alpha_0 + \alpha_1 DC_{it} + e_{1it} \quad (1)$$

$$\ln DIT_{it} = \alpha_0 + \alpha_2 DC_{it} + e_{2it} \quad (2)$$

$$\ln FIT_{it} = \alpha_0 + \alpha_3 DC_{it} + e_{3it} \quad (3)$$

The equation model to determine the effect of each independent variable on the economic growth of the tourism sector (dependent variable) is as follows:

$$\ln GDPT_{it} = \beta_0 + \beta_1 DC_{it} + \beta_2 \ln TA_{it} + \beta_3 \ln DIT_{it} + \beta_4 \ln FIT_{it} + e_{4it} \quad (4)$$

Where:

$GDPT_{it}$  : Economic growth of the tourism sector (for the i-province and t-time)

$TA_{it}$  : Tourism arrivals (for the i-province and t-time)

$DIT_{it}$  : Domestic investment of the tourism sector (for the i-province and t-time)

$FIT_{it}$  : Foreign investment of the tourism sector (for the i-province and t-time)

$DC_{it}$  : Dummy Covid (for the i-province and t-time) (1 = during pandemic, 0 = before pandemic)

$\alpha_0, \beta_0$  : constant

$\alpha_i, \beta_i$  : parameter coefficient

$e_{it}$  : error term

In performing panel data regression, it is necessary to select the best model first, namely Common Effect Model (CEM), Fixed Effect Model (FEM), or Random Effect Model (REM). The Chow test is used to determine whether a model is a CEM or a FEM. The null hypothesis is CEM, and the alternative hypothesis is FEM. If REM is accepted, the Hausman test is used to choose between FEM and REM as a model. The alternative hypothesis is FEM, while the null hypothesis is REM. A Lagrange multiplier test is used to determine if CEM or REM models should be used. CEM is the null hypothesis, while REM is the alternative hypothesis.

#### 4. Results and Discussions

In model (1), the Chow test results show a p-value < alpha 5%, which is  $0.000 < 0.05$ , indicating that  $H_0$  is rejected and  $H_a$  is accepted, concluding that the chosen model is FEM. Then the Hausman test results show a p-value > alpha that is  $0.9295 > 0.05$ , which indicates that  $H_0$  is accepted, meaning that the selected model is REM. Furthermore, choosing between the CEM and REM models with the Breusch Pagan Lagrange Multiplier test, the results obtained p-value < alpha equal to  $0.000 < 0.05$ , which means rejecting  $H_0$  and accepting  $H_a$ , meaning that the selected model is REM. Likewise, for the selection of models (2) and (3), the selected model is REM (see Table 1).

In model (4), the results of the Chow test show that the p-value < alpha is  $0.000 < 0.05$ , which means that  $H_0$  is rejected and  $H_a$  is accepted. It can be concluded that the FEM model is better than the CEM model. Then Hausman test was carried out showing the results of p-value < alpha is  $0.000 < 0.05$ , which means  $H_0$  was rejected and  $H_a$

accepted, it was concluded that the FEM model was better than the REM model. So, the analytical technique used for model (4) is FEM. The results using the FEM model have been tested for classical assumptions, and there are no assumption violations.

**Table 1.** Best Model Selection Test

Models	Probabilities			Selection Model
	Chow Test	Hausman Test	Breusch Pagan LM Test	
Model (1)	0.0000	0.9295	0.0000	REM
Model (2)	0.0000	0.8261	0.0000	REM
Model (3)	0.0000	0.7623	0.0000	REM
Model (4)	0.0000	0.0000	0.0000	FEM

#### 4.1 Direct Effect

The regression results in the model (1) examine the effect of the Covid-19 pandemic (DC) on tourist arrivals (TA), and the panel regression equation is obtained as follows:

$$\text{LnTA}_{it} = 2.8944 - 5.2225\text{DC}_{it}$$

The P-value for the constant is smaller than the 5% significance level, which indicates that constant has a significant effect on TA. If Dummy Covid-19 (DC) variable is equal to zero or before the Covid-19 pandemic occurred, so the TA is 2.8944%. DC variable has a p-value <0.05 with a coefficient value -5.2225, which means that the DC variable has a significant negative effect on TA. When DC = 1 or during the Covid-19 pandemic, TA will decrease by 2.3281% (See Table 2).

**Table 2.** Panel Data Regression on Model (1)

Variables	Coeff.	SE	t-Stat.	Prob.
C	2.8944	0.5414	5.3458	0.0000
DC	-5.2225	0.2522	-20.7071	0.0000
R-squared	0.5843		F-stat.	430.1766
Adj. R-Squared	0.5830		Prob (F-stat.)	0.0000
Equation:	$\text{LnTA}_{it} = \alpha_0 + \alpha_1\text{DC}_{it} + e_{1it}$			

The regression results in model (2) examine the effect of the Covid-19 pandemic (DC) on Domestic Investment in the tourism sector (DIT), and the panel regression equation is as follows:

$$\text{LnDIT}_{it} = 11.2046 + 1.1249 \text{DC}_{it}$$

The p-value for the constant is smaller than the 5% significance level which indicates that the constant has a significant effect on DIT. If DC is equal to zero, then DIT is 11.2046%. The DC variable has a p-value < 0.05 with a coefficient value of 1.1249, which means that the DC variable has a significant effect on DIT but positively. When DC = 1, DIT increased by 12.3295%.

**Table 3.** Panel Data Regression on Model (2)

Variables	Coeff.	SE	t-Stat.	Prob.
C	11.2046	0.5308	21.1107	0.0000
DC	1.1249	0.2235	5.0325	0.0000
R-squared	0.0767		F-stat.	25.4051
Adj. R-Squared	0.0736		Prob (F-stat.)	0.0000
Equation:	$\text{LnDI}_{T_{it}} = \alpha_0 + \alpha_2\text{DC}_{it} + e_{2it}$			

Table 4 shows the regression results for model (3), which examines the effect of the Covid-19 pandemic on Foreign Investment in the tourism sector (FIT). Both constants and DC variables have a p-value < 0.05, meaning that these variables significantly affect FIT. The regression equation is obtained as follows:

$$\text{LnFIT}_{it} = 8.1880 - 0.5706\text{DC}_{it}$$

The constant value is 8.1880, meaning that when the DC variable is zero, the FIT is 8.1880%. The DC variable has a coefficient value of -0.5706, meaning that the DC variable has a negative effect on FIT. When the Covid-19 pandemic occurs (DC = 1), FIT growth will continue to increase, which is 7.6174%, but this growth slows down by 0.5706% than before the pandemic occurred.

**Table 4.** Panel Data Regression on Model (3)

Variables	Coeff.	SE	t-Stat.	Prob.
C	8.1880	0.5875	13.9368	0.0000
DC	-0.5706	0.2281	-2.5016	0.0129
R-squared	0.0201		F-stat.	6.2767
Adj. R-Squared	0.0169		Prob (F-stat.)	0.0128
Equation:	$\text{LnFIT}_{it} = \alpha_0 + \alpha_3\text{DC}_{it} + e_{3it}$			

Table 5 shows the results of regression on Model (4), which examines the influence of the COVID-19 Pandemic (DC), TA, DIT, and FIT variables on the economic growth of the tourism sector (GDPT). Partially, the constant variables, TA and DIT, have a significant and positive effect on GDPT, and the FIT variable has a positive but not significant effect on GDPT. GDPT is affected by the DC variable in a negative and significant way. Simultaneously, the independent variables have a significant effect on GDPT.

From the estimation results, the regression equation in the Fixed Effect Model is obtained as follows:

$$\text{LnGDPT}_{it} = 1.4098 - 0.0570\text{DC}_{it} + 0.0256\text{LnTA}_{it} + 0.0108\text{LnDIT}_{it} + 0.0027\text{LnFIT}_{it}$$

The constant value is 1.4098, if assumed that the variables TA, DIT, FIT is fixed before the Covid-19 pandemic occurred, GDPT grew by 1.4098%. When the Covid-19 pandemic occurs (DC = 1), the constant value becomes 1.3528, meaning that GDPT will increase by 1.3528%, lower than before the pandemic. This growth slowed by 0.0570% during the Covid-19 pandemic, assuming other independent variables were constant. It shows that the Covid-19 pandemic has a direct negative impact on the economic growth of the tourism sector in Indonesia. These results are by Deloitte (2020) and Inegbedion (2021) studies which showed that the Covid-19 pandemic harmed economic growth.

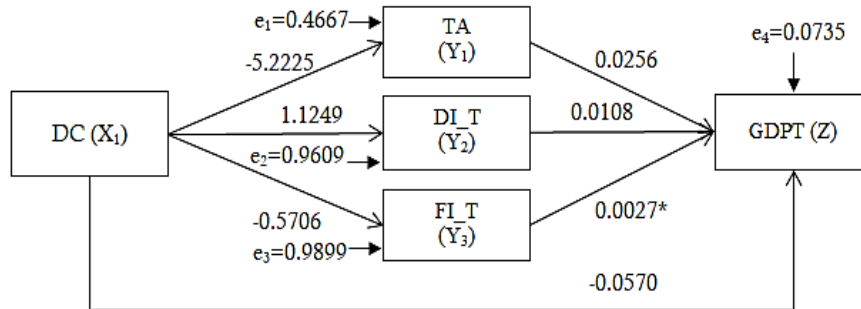
**Table 5.** Panel Data Regression on Model (4)

Variables	Coeff.	SE	t-Stat.	Prob.
C	1.4098	0.0298	47.3260	0.0000
DC	-0.0570	0.0146	-3.9028	0.0001
LNTA	0.0256	0.0019	13.3342	0.0000
LNDIT	0.0108	0.0024	4.5351	0.0000
LNFI	0.0027	0.0028	0.9657	0.3350
R-squared	0.9946		F-stat.	2090.7600
Adj. R-Squared	0.9942		Prob (F-stat.)	0.0000
Equation:	$\text{LnGDPT}_{it} = \beta_0 + \beta_1\text{DC}_{it} + \beta_2\text{LnTA}_{it} + \beta_3\text{LnDIT}_{it} + \beta_4\text{LnFIT}_{it} + e_{4it}$			

GDPT is affected by TA in a positive and significant way. GDPT will grow by 0.0256 % if TA increases by 1% (assuming all other independent variables are constant), and vice versa. GDPT is influenced by DIT in a positive and significant way. An increase in DIT by 1% (assuming other independent variables are constant), then GDPT will increase by 0.0108%, and vice versa. GDPT is positively influenced by FIT, however, the effect is not significant. If the FIT variable increases by 1% (assuming the other independent variables are constant), then GDPT will increase by 0.0027%.

### 4.2 Path Analysis Structure

From the results of panel data regression in Models (1), (2), (3), and (4) above, the path analysis is obtained as shown in Figure 2. From the figure, it can be seen that the coefficient value of the direct effect of Covid-19 pandemic on the mediating variables, namely TA, DIT, and FIT, then how the impact on GDPT is.



**Figure 2.** Path Analysis

Note: \* the coefficients not significant at alpha 5%

The coefficient values of direct and indirect effects of the Covid-19 pandemic on the economic growth of the tourism sector can be seen in Table 6. The direct effect of the Covid-19 pandemic on GDPT is -0.0570, the indirect effect through TA mediation is -0.1337, and the total effect is -0.1907. Indirectly, the impact of the Covid-19 pandemic on GDPT is greater through TA than directly. The impact caused by the Covid-19 pandemic will reduce GDPT by 0.1337% through a decrease in TA. Sobel's test shows that the p-value is 0.0000, smaller than the 0.05 significance level, which means that TA significantly mediates the effect of the Covid-19 pandemic on the economic growth of the tourism sector.

**Table 6.** Direct and Indirect Effects of Covid-19 Pandemic on Economic Growth in the Tourism Sector

Variables	Direct Effect	Indirect Effect			Total Effect	Effect of Mediating using Sobel's test (p-value<0.05)	
		Prob.	Conclusion				
DC	-0.0570	-	-	-0.0570	-	-	
TA	-0.0570	-5.2225	x 0.0256 =	-0.1337	-0.1907	0.0000	Significant
DI_T	-0.0570	1.1249	x 0.0108 =	0.0121	-0.0449	0.0008	Significant
FI_T	-0.0570	-0.5706	x 0.0027 =	-0.0015	-0.0585	0.3683	Not Significant

The decrease in tourist arrivals due to the Covid-19 pandemic will reduce the economic growth of the tourism sector in Indonesia. As a result of decreasing in tourist arrivals, people's income from tourist consumption during their visit to Indonesia will decrease. In addition, the income also decreases from tourism-related businesses such as accommodation, transportation, trade, industry, and others, and exports from the tourism sector also decrease, so that Indonesia's GDP will decrease. This is following the results of a previous study which found that the pandemic had a negative impact on the tourism industry and had implications for economic growth (Maliszewska et al., 2020; Mulder, 2020; Škare et al., 2021; Veyadi Purba et al., 2021).

The DIT variable significantly mediates the effect of the Covid-19 pandemic on GDPT. This is evident from the Sobel test where a p-value of 0.0008 is smaller than the 0.05 level of significance. The magnitude of the indirect effect of the Covid-19 pandemic on GDPT through the DIT mediation variable is 0.0121, and the total effect is -0.0449. The Covid-19 pandemic has had a positive effect on DIT. This could be because the domestic investment was only temporarily affected at the beginning of the Covid-19 pandemic in the second quarter of 2020, but in the third quarter of 2020, it increased again (BKPM, 2020). Along with the National Economic Recovery (PEN) program, especially in the tourism sector, including the development of 5 super-priority destinations and 5 priority destinations, construction of ports, roads, railways, bridges, ferry boat construction, airport development, tourism village development, and investment promotion. Thus, domestic investment has increased again.

DIT has a positive effect on GDPT, when DIT increases by 1%, GDPT will increase by 0.0121% when the Covid-19 pandemic occurs. To boost economic growth during the Covid-19 pandemic, the government can increase domestic investment in the tourism sector.



The Covid-19 pandemic has negatively impacted foreign investment in the tourism sector. This is following the statement from the Ministry of Investment that foreign investment is more impacted than domestic investment, where the largest foreign investment comes from China. According to Škare et al. (2021), exogenous factors (pandemic outbreaks, terrorism, natural disasters) or endogenous factors (financial and business cycles) will decrease tourism sector investment by about 15-20%.

FIT in this study has a positive effect on GDPT in Indonesia, but not significantly. This is similar to the results of Fayissa et al. (2008) which found that foreign direct investment (FDI) had a positive effect on GDP growth in Africa, but not statistically significant. In addition, as explained by Lean & Tan (2011) that a country where FI has a substitute relationship in the short term with DI, when DI influences economic growth, FI usually does not have that influence. The indirect effect of the Covid-19 pandemic on the tourism sector's economic growth through the FIT mediation variable is -0.0015. However, the FIT variable is not significant in mediating the indirect effect, this is evident from the Sobel test which has a p-value of 0.3683, which is greater than the 0.05% level of significance.

## 5. Conclusion

The Covid-19 pandemic has harmed almost all economic sectors, the tourism sector is the most affected economic sector in Indonesia. Based on the results of research and discussion, the Covid-19 pandemic has a negative and significant impact on tourist arrivals, foreign investment in the tourism sector, and economic growth in the tourism sector. The Covid-19 pandemic had a significant effect on domestic investment in the tourism sector, but positively.

Tourist arrivals were able to mediate the impact of the Covid-19 pandemic on the economic growth of the tourism sector. The decrease in tourist arrivals due to the Covid-19 pandemic will decrease the economic growth of the tourism sector in Indonesia. The impact of the Covid-19 pandemic on the economic growth of the tourism sector is significantly mediated through domestic investment in the tourism sector. When a pandemic occurs, domestic investment in the tourism sector will stay to increase, and economic growth in the tourism sector will also increase. This could be because the shocks experienced by investment only occur in the short term, at the beginning of the pandemic. However, foreign investment in the tourism sector has also been negative and significantly impacted by the Covid-19 pandemic. But this variable was not able to mediate the impact of the Covid-19 pandemic on the economic growth of the tourism sector. The tourist arrivals path has the highest indirect impact of the Covid-19 outbreak on the economic growth of the tourism sector. To increase the economic growth of tourism again, it should be by increasing tourist arrivals to Indonesia.

The government should determine policies that are responsive to the current state of tourism, both in the short and long term. The priority of tourism development in PEN 2021 is the development of supporting facilities and infrastructure in tourist destination areas, which requires long-term development to increase the economic growth of the tourism sector. The promotion of tourism investment needs to be increased to attract foreign and domestic investment in the tourism sector so that the increased economic growth of the tourism sector can be faster.

The response that must be accelerated is to reduce the spread of the virus, including by more stringently implementing health protocols, also implementing warnings or sanctions for the public and businesses that do not comply with health protocols. In addition, the government must be faster and progressive in vaccinating Covid-19 to the public, including entrepreneurs or workers in the tourism sector, so that it can generate confidence for foreign tourists to visit Indonesia. This study is expected to be one of the literatures that can be used in further research, especially in studying the impact of disasters or shocks on economic growth, including in the tourism sector.

## References

- Atmojo, M. E., & Fridayani, H. D. (2021). An assessment of Covid-19 pandemic impact on Indonesian tourism sector. *Journal of Governance and Public Policy*, 8(1), 1–9.
- Baene, C. W. (2021). Analysis of the Effect of Industrial Sector Exports, Foreign Investment Industrial Sector and Inflation on Indonesia Gross Domestic Product in 1983-2017. *International Journal of Public Budgeting, Accounting and Finance*, 4(1), 1-10.
- BKPM. (2020). *Pengaruh Covid-19 terhadap investasi di Indonesia*. <https://www.investindonesia.go.id/id/artikel-investasi/detail/pengaruh-covid-19-terhadap-investasi-di-indonesia>
- Brida, J. G., Punzo, L. F., & Risso, W. A. (2011). Research note: Tourism as a factor of growth - the case of Brazil. *Tourism Economics*, 17(6), 1375–1386.
- Cetin, G. (2020). Impact of Covid-19 on tourism industry. *Journal of Tourismology*, 6(1), 1-12.
- Deloitte. (2020). Economic impact of the COVID-19 pandemic on East African economies. *Economic Impact of COVID-19 at a*

*Glance*, 1(2), 55–60.

- Djulius, H., Wongyu, C., Juanim, J., & Santy, R. D. (2019). Nexus of foreign direct investment, domestic investment, and manufacturing industry value added in Indonesia. *Signifikan: Jurnal Ilmu Ekonomi*, 8(1), 1–8.
- Dornbusch, R., Fischer, S., & Startz, R. (2011). *Macroeconomics*. The McGraw Hill Companies, Inc.
- Facciola, A., Lagana, P., & Caruso, G. (2021). The COVID-19 pandemic and its implications on the environment. *Environmental Research*, 201, 111648.
- Fathia, N., Silvia, V., & Gunawan, E. (2021). Analysis of foreign investment determinants in Indonesia. *Economic Development Analysis Journal*, 3, 338–350.
- Fayissa, B., Nsiah, C., & Tadasse, B. (2008). Impact of tourism on economic growth and development in Africa. *Tourism Economics*, 14(4), 807–818.
- Foo, L. P., Chin, M. Y., Tan, K. L., & Phuah, K. T. (2021). The impact of COVID-19 on tourism industry in Malaysia. *Current Issues in Tourism*, 24(19), 2735-2739.
- Fotiadis, A., Polyzos, S., & Huan, T. C. T. C. (2021). The good, the bad and the ugly on COVID-19 tourism recovery. *Annals of Tourism Research*, 87, 103117.
- Habibi, F., Rahmati, M., & Karimi, A. (2018). Contribution of tourism to economic growth in Iran's Provinces: GDM approach. *Future Business Journal*, 4(2), 261–271.
- Haque, M. Z. (2016). The impact of economic crisis on tourism industry: a Bangladesh perspective. *International Research Journal of Engineering, IT & Scientific Research*, 2(1), 28-46.
- Inegbedion, H. (2021). Impact of COVID-19 on economic growth in Nigeria: opinions and attitudes. *Heliyon*, 7, e06943.
- ITU. (2020). Economic impact of COVID-19 on digital infrastructure report of economic experts roundtable organized by ITU. In *International Telecommunication Union* (Issue July).
- Jayasinghe, M., Selvanathan, S., & Selvanathan, E. A. (2021). The Asian Tsunami and Tourism Industry: Impact and Recovery. In *Economic Effects of Natural Disasters* (pp. 335-358). Academic Press.
- Kapiki, S. (2012). The impact of economic crisis on tourism and hospitality: Results from a study in Greece. *Central European Review of Economics and Finance*, 2(1), 19-30.
- Kuo, H. I., Chen, C. C., Tseng, W. C., Ju, L. F., & Huang, B. W. (2008). Assessing impacts of SARS and Avian Flu on international tourism demand to Asia. *Tourism Management*, 29(5), 917–928.
- Lean, H. H., & Tan, B. W. (2011). Linkages between foreign direct investment, domestic investment and economic growth in Malaysia. *Journal of Economic Cooperation and Development*, 32(4), 75–96.
- Malba, E., & Taher, I. M. (2016). Analisis input-output atas dampak sektor pariwisata terhadap perekonomian Maluku. *Bina Ekonomi*, 20(2), 213–229.
- Maliszewska, M., Mattoo, A., & Van Der Mensbrugge, D. (2020). The potential impact of COVID-19 on GDP and trade: A preliminary assessment. *World Bank Policy Research Working Paper*, (9211).
- Morrissey, O., & Udomkerdmongkol, M. (2012). Governance, private investment and foreign direct investment in developing countries. *World Development*, 40(3), 437–445.
- Mulder, N. (2020). *The impact of the COVID-19 pandemic on the tourism sector in Latin America and the Caribbean, and options for a sustainable and resilient recovery*. Santoago: United Nations publication
- Muljadi, A. J. (2009). *Kepariwisata dan Perjalanan*. PT. Raja Grafindo Persada.
- Ozili, P. K., & Arun, T. (2020). Spillover of COVID-19: impact on the global economy. *SSRN Electronic Journal*, 1-28. [https://mpr.a.ub.uni-muenchen.de/99850/1/MPRA\\_paper\\_99850.pdf](https://mpr.a.ub.uni-muenchen.de/99850/1/MPRA_paper_99850.pdf)
- Page, S., Song, H., & Wu, D. C. (2012). Assessing the impacts of the global economic crisis and swine flu on inbound tourism

- demand in the United Kingdom. *Journal of Travel Research*, 51(2), 142–153.
- Pine, R., & McKercher, B. (2004). The impact of SARS on Hong Kong's tourism industry. *International Journal of Contemporary Hospitality Management*, 16(2), 139–143.
- Rahma, V. S., & Arvianti, G. F. (2020). the impacts of Covid-19 pandemic in Indonesia and China'S hotel industry: how to overcome it? *Jelajah: Journal Tourism and Hospitality*, 2(1), 55-64.
- Retherford, R. D., & Choe, M. K. (1993). *Statistical models for causal analysis*. New York: John Wiley & Sons, Inc.
- Scarlett, H. G. (2021). Tourism recovery and the economic impact: a panel assessment. *Research in Globalization*, 3, 100044.
- Škare, M., Soriano, D. R., & Porada-Rochoń, M. (2021). Impact of COVID-19 on the travel and tourism industry. *Technological Forecasting and Social Change*, 163, 120469.
- Statistics Indonesia. (2017). *Neraca Satelit Pariwisata Nasional (Nesparnas) 2017*. BPS RI.
- Statistics Indonesia. (2019). *Statistik Pengeluaran Wisatawan Mancanegara 2019*. BPS RI.
- Statistics Indonesia. (2021). *Tourism Satellite Account Indonesia 2016-2019*. Badan Pusat Statistik.
- Sukirno, S. (2013). *Makroekonomi, Teori Pengantar*. Depok: Rajawali Pers.
- Uğur, N. G., & Akbıyık, A. (2020). Impacts of COVID-19 on global tourism industry: A cross-regional comparison. *Tourism Management Perspectives*, 36(September), 100744.
- UNWTO. (2010). *Role of the International Recommendations for Tourism Statistics 2008*. New York: United Nations Publication.
- Veyadi Purba, J. H., Fathiah, R., & Steven. (2021). The impact of COVID-19 on the tourism sector in Indonesia. *Riset : Jurnal Aplikasi Ekonomi*, 3(1), 389–401.
- WHO. (2020). The origin of SARS-CoV-2. *The Lancet. Infectious Diseases*. <https://www.who.int/publications/i/item/origin-of-sars-cov-2>
- WHO. (2021). *Health topic overview*. [www.who.int/health-topics/coronavirus#tab=tab\\_1](http://www.who.int/health-topics/coronavirus#tab=tab_1)