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Factors Influencing the Demand for Indonesian Tourism

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Abstract

Tourism has become one of the largest industries in the world, specifically in Indonesia, where it plays an important role in increasing foreign exchange (FE). Therefore, this study aims to analyze the factors influencing the demand for Indonesian tourism. It used secondary data between 2010 to 2020, with 16 countries selected as samples regarding the ranking of the highest number of tourists. These utilized data contained the following, (1) The number of foreign tourists, (2) National per capita income of the sample countries, (3) The exchange rate of foreign currencies against the rupiah, and (4) The price of tourism. Based on the analytical process, the estimation method also used panel data regression. Using the Fixed Effect model, the results empirically showed that national per capita income, rupiah exchange rate, and tourism prices affected the number of tourists.

Keywords: Tourism, Data Panel, Tourism Prices

1. Introduction

The Indonesian economy increased by 6.1% in 2010 according to multiple reports, higher than the previous year's development of 4.6%. This shows that the economy has continued to improve since that period, accompanied by the support of solid domestic demand and conducive external conditions. The global economic recovery initiated in the first half of 2009 was also continuously implemented in 2010, supported by the high industrial development in emerging market countries (Bank Indonesia, 2010). The following is an overview of the national economic development in 2013, 2018, 2019 and 2020, (1) In 2013, this development was influenced by global conditions, which did not meet the expectations and the support of the domestic unsupportive industrial structure. The dynamics of the global economy also negatively affected the nation's performance through a slow trend since the early quarter of the year. This slow development was observed at 5.8% for the whole year, from the 2012 growth of 6.2%. Meanwhile, the hotel and restaurant sub-sectors developed better due to the increased number of tourist arrivals and election activities in the second semester of 2013 (Bank Indonesia, 2013). (2) In 2018, the development was recorded at 5.17%, an increase compared to the previous year's growth of 5.07% and was the highest since 2013. The global economy during this period was also in a slowing trend with increased uncertainty (Bank Indonesia, 2018). (3) The slow global economy development influenced the 2019 Indonesian export performance decline. Irrespective of this unfavourable performance, domestic demand remained strong, supporting the stability of the country's good industrial growth at 5.02% (Bank Indonesia, 2019). (4) In 2020, the development was estimated to increase from 5.1-5.5%. However, inflation remained under control within the target of $3.0 \pm 1\%$ during

this period. The account deficit was also between 2.5-3% of GDP, where the capital and financial surplus remained large, subsequently supporting external stability (Bank Indonesia, 2020).

Tourism development plays an important role in promoting economic activities, improving reputation and welfare, as well as providing job opportunities. It also plays an important role in increasing the country's foreign exchange, by improving the number and average expenditure of external tourists (Ministry of Tourism and Creative Economy, 2012). In Indonesia, this development is subsequently observed from the number of tourist visitations, due to the increase from 5.506-6.234 million between 2007 to 2008, respectively. This is subsequently emphasized by a development of approximately 13.2%, which increased by about 1.4% to 6,324 million in 2009 (Nizar, 2011). In 2012, the number of these foreign visitors was 8.04 million (5.16% increase), compared to 2011 at 7.64 million (Ministry of Tourism and Creative Economy, 2012). In addition, the country was able to absorb about 0.72% of the total world tourist visitations in 2009. The contribution of this industry to the Gross Domestic Product (GDP) in only 2008 was also Rp. 153.25 trillion or 3.09% of the total GDP (BPS, 2014). In 2014, this condition greatly and majorly produced 4.01% of the entire GDP, with the foreign exchange and tourism workforce reaching US\$ 11.17 and 10.32 million people, respectively. In micro conditions, the number of foreign and domestic tourists was also 9.44 million and 251.20 million, respectively. According to the WEF (World Economic Forum), Indonesian tourism was competitively ranked 70th in the world (Ministry of Tourism and Creative Economy, 2014). The role of this sector in the country's GDP development and its responsibility as a foreign exchange export contributor also ensures economic importance.

In 2020, challenges have reportedly been observed for Indonesia, regarding the emergence of the COVID-19 pandemic. At the end of March, not long after the country detected the virus, the Ministry of Communication and Informatics launched PeduliLindungi, an application to track the spread of the disease. The crowdsourced application concept reportedly obtains information when installed on Android and iOS phones. The data obtained included the travel history for the past two weeks and the owner of the mobile number near a COVID-19 patient (Ministry of Communication and Information Technology, 2020). In this case, people need to be scanned on the protective application on their cellphones when visiting crowded environments such as shopping centres, tourist attractions, etc. This performance enables the traceability of every concerned individual, to determine whether or not they have met the vaccine requirements. Meanwhile, the condition of tourism during the pandemic has begun to improve, with the government (Ministry of Tourism and Creative Economy) updating the list of countries eligible for a visit visa on special tourist arrivals. This update emphasized a Circular Letter No IMI-0650.GR.01.01 of 2022, concerning the Ease of Immigration to Support Sustainable Tourism during the COVID-19 Pandemic. The DGI (Directorate General of Immigration) also provided the required facilities through an STC (Sustainable Tourism Concept) to optimize the immigration function as a community welfare-development facilitator and support government policies to broadly reopen the tourism sector. This focused on the principles of reciprocity and benefit, regarding the provision of free visit visas when arrivals are limited to specific foreigners (Ministry of Tourism and Creative Economy, 2022).

Therefore, this study aims to analyze the factors influencing the demand for Indonesian tourism. This is a development of Yunanto and Medyawati (2016) perspectives, although the observed difference emphasizes the analytical period of 11 years. In this case, the assessments of the results obtained are expected to be more adequate and comprehensive about the Indonesian tourism condition. All the utilized variables also emphasize the approaches of Abdurrahim (2014), which implemented the model of Munoz and Amaral (2000). These variables include (1) The number of foreign tourists, (2) The exchange rate of foreign currency against the rupiah, (3) The national per capita income, and (4) The tourism prices. The results obtained are also expected to empirically contribute to model developments and the formulation of government tourism policies.

2. Literature Review

According to Bakri (2007), income and tourism cost significantly affected the demand for natural tourism in Bantimurung. However, the educational perception of the availability of tourist facilities and the head of household work did not significantly influence this demand. Hanafiah and Harun (2010) also examined tourism demand in Malaysia using a modified Gravity model, regarding the analysis of various key economic factors such as income,

prices, exchange rates, consumer price index (CPI), population, economic crisis, movements, patterns, and changes of international tourist arrivals. In this study, the sample countries included Australia, Hong Kong, Indonesia, the United Kingdom, Thailand, Taiwan, and China, with the estimation method using panel data regression. The results showed that Malaysia depended on the tourism industry as an economic maintenance source, although it was experiencing an industrial crisis. Based on Thittongkham and Walsh (2010), political turmoil and crisis were the most effective principal factors influencing the attitudes of tourists. These were accompanied by epidemic diseases, economic situations, media, disasters, crime and war, technology, marketing plan, culture, education, environmental issues, demographic change, and other influential factors. The language was also another factor affecting the Thai tourism industry's competitiveness.

Nizar (2011) examined the influence of tourism on Indonesian economic growth, as well as analyzed the tourists and rupiah-foreign exchange in 2014 using the autoregressive vector model (VAR) and monthly time series data. From the results, economic and tourism developments (foreign exchange and the number of tourists) were affected, with the exchange rate having a reciprocal causal relationship. This indicated that the increase in foreign exchange and the number of tourists elevated (appreciate) the rupiah exchange rate for 3 and 8 months, respectively. The appreciation/depreciation of the rupiah also increased/decreased in the foreign exchange and tourist rates at different periods. In addition, a positive relationship and reciprocal influence were observed between the tourists and foreign exchange rates (Nizar, 2011). According to Ibrahim (2011), the factors influencing the flow of tourist arrivals to Egypt were analyzed, using the panel data regression. These factors included (1) The GDP per capita, (2) The CPI, (3) The volume of Egyptian trade with 8 sample countries, (4) The relative cost of living for tourists, and (5) The CPI of Tunisia as a competitor country. Nurhaida (2012) also analyzed the influential variables of Indonesian tourism demand. These variables included (1) The GDP per capita income of the foreigners' countries, (2) The foreign exchange rate against the rupiah, (3) The exchange rate of the substitute country, and (4) The Dummies of security conditions and promotion. The demand for this sector was measured by an indicator of the number of tourist visitations. Using the 2002-2009 panel data from 8 dominant countries, the exchange rate significantly affected this demand through the Fixed Effect regression model. Based on Santi, Oktaviani, Hakim and Kustiari (2013), the tourism investment, demand, and supply in Indonesia were considered and analyzed. In this case, the 1990–2012 series data were used through a simultaneous model (2SLS), which tested the impacts of investment and international trade on national economic development. Using the 2SLS (Two Stages Least Squares) method, the following conclusions were obtained, (1) tourist arrivals and expenditure, investment, CPI, total consumption, government spending, as well as export and import attraction, affected the national demand, (2) Present and previous investments, total consumption (previous year), and travel warning positively affected the national supply, (3) GDP was highly influential, irrespective of the effects of Indonesia and neighbouring countries' TP (tourism prices). In addition, the fiscal and monetary policy influenced the national economy.

Moorty (2014) examined tourism demand in Malaysia, using the gravity model and panel data in 2014. The results showed that the population, distance between countries, as well as border and cognate-language nations affected Malaysia's foreign exchange. Furthermore, Abdurrahim (2014) analyzed the role of national income, tourism prices, and the exchange rate on Chinese tourist visitations to ASEAN countries, during 2007-2014. Using the Fixed Effect model, China's national income significantly and positively influenced these visitations. Putri (2014) also evaluated the factors affecting tourism demand in Indonesia using 21 sample countries. The results showed that TP (tourism prices), national per capita income, exchange rates, and distances between countries affected the number of tourists. This study did not use a dummy variable as a controlling factor, considering the relatively high condition of the 6.1% economic development rate in 2010, compared to previous years. Based on Singagerda (2015), the Indonesian tourism investment, demand, and supply were analyzed. Using the 2 SLS method on a simultaneous model, the following results were obtained, (1) Tourist arrivals and expenditure, investment, CPI, consumption, government spending, as well as export and import attraction affected the national demand, (2) Investment, total consumption (previous year), and travel warning positively influenced the national supply, (3) GDP, as well as the Indonesia and competitor prices, were the most influenced variables, (4) Foreign investment significantly affected the development of tourism, and (5) The national supply and demand were impacted by international trade (goods/services).

Mariyono (2017) proved that distance significantly reduced the number of foreign tourists. This indicated that richer and larger countries improved the greater amount of foreigners visiting the country. However, the incidence of bomb attacks greatly reduced the number of these tourists. Irrespective of these conditions, visitors from western and ASEAN countries were still more likely to visit Indonesia than other nations. The trend of foreign tourists also increased after this significant reduction, indicating that Indonesian policy should provide a guarantee of safety toward the attraction of more arrivals. This was because increased visitations led to improved job development, GDP share, and economy. In Agesti (2017), six countries were examined between 2009-2015, using panel data analysis to identify the effects of the nominal exchange rate, CPI, GDP per capita, and population on tourism demand. This demand was subsequently measured by the number of foreigners visiting Indonesia, with the results showing that all variables were positively effective. Wakimin, Azlina, and Hazman (2018) also empirically proved that income, trade, TP (tourism prices), and carbon dioxide emission were the major determinants of the demand in five ASEAN countries, using a 44-year-old panel data and applying the Pooled Mean Group (PMG) approach. This approach subsequently performed better than the MG (Mean Group) estimator, due to its ability to identically constrain long-run coefficients. Besides, it also enabled the differences in short-run coefficients and error variances across groups. Regarding these results, income and trade significantly and positively affected tourism demand, with TP and carbon dioxide emissions negatively influential in these ASEAN-5 countries. These were good references for policymakers in these specific nations.

According to Preedatham, Vivatvanit, and Suksonghong (2018), the 2003-2015 panel data of six countries were obtained from various sources, with the random effects model appropriately implemented with the dataset. The coefficient estimates were then computed using the panel least square method. From the results, the substitute TP (tourism prices) and the number of crime cases were statistically significant in explaining the variation in Thailand's tourism demand. In this case, the major markets were sensitive to the prices and more likely to select low-cost residential destinations. Security and safety also influenced decision-making processes, regarding the visitation of a specific destination. Nahar, Adha, Azizurrohman, Ulfi, and Karimah (2019) subsequently analyzed *the determinants of international tourists in Indonesia using Random Effect Model. These determinants included (1) The GDP of the origin and destination country, (2) The origin country's exchange rate, (3) The free visa impact, and (4) The length of distance in Indonesia between 2006-2016. The results showed that all variables were statistically significant, with the GDP of origin and destination country, as well as free visa impact positively influencing the number of tourist arrivals. Meanwhile, the remaining determinants exhibited negative effects on international tourists. This confirmed that the government needs to aggressively promote the attraction of international tourists, by conducting important events, increasing visa-free nations, as well as maintaining the GDP in both origin and destination countries.*

Nguyen and Nguyen (2020) also obtained 17-year-old secondary data (2000-2016) from the World Bank database and the UNWTO website of 10 ASEAN countries. Applying the generalized method of moments through virtual measurement, "private investment", "economic sectors", "exchange rate" and "infrastructure" increased the tourism demand of an ASEAN country. This indicated that "foreign direct investment" and "inflation" were detrimental to tourist attraction. The positive role of "political stability" was also majorly observed in increasing tourist arrivals. Irrespective of these results, some limitations were still observed. Firstly, the attraction of tourists to a country often poses many challenges to its government. Although many documents previously confirmed the assistance of industry in promoting tourism, only a few studies investigated the roles of both the agriculture and manufacturing sectors. Secondly, only a few reports were found verifying the stability of the political system to the tourism demand in the ASEAN region, with PS (political stability) having the strongest impact. Based on Esquivias, Sugiharti, Rohmawati, Setyorani, and Anindito (2021), an autoregressive distributed lag (ARDL) model was used to investigate the roles of incomes, relative cost competitiveness, and substitution prices in tourism demand. The results showed that all the variables significantly affected tourism demand in Indonesia. Since China was normally appropriate, Malaysia, Singapore, Australia, Japan, and India were income elastic, indicating that tourism was a luxurious good. Malaysia and China were also price elastic, with Japan, India, Singapore, and Australia being less affected by changes in relative costs. From these results, substitute prices often motivated tourists to other destinations when cost changes are large. Plzáková and Smeral (2022) stated that tourism demand dramatically slumped in 2020 due to the economic crisis and the implementation of various containment measures, namely (1) closed hotels and restaurants, (2) travel agencies without business, (3) cancelled air transportation, and

(4) mobility and contact restrictions. All these measures caused industrial hardship, with the entire key markets suddenly disappearing pragmatically. Based on these descriptions, the following hypothesis was formulated: *The per capita income, exchange rates, and tourism prices affect the number of tourists.*

3. Research Method

The utilized 2010-2020 secondary data were obtained from the Central Statistics Agency (BPS), Bank Indonesia, World Bank, and International Monetary Fund (IMF). The complete performance of the variables is shown in Table 1.

Table 1: Research Variable

No.	Variable	Description
1.	Log_wis	Number of Tourists
2.	Log_GNI	Gross National Income (GNI per capita)
3.	Logex_rate	Exchange rate from 16 countries
4.	Log_hrg	Tourism prices

Based on the number of foreign tourist arrivals, data were obtained from BPS, with 16 countries selected as samples. These countries were ranked regarding the largest number of visits, namely Singapore, Malaysia, Australia, Japan, China, South Korea, United States, England, Philippines, Germany, Netherlands, France, Hong Kong, Thailand, India, and Russia. For Gross National Income (GNI) per capita in one million USD, data were obtained from the World Bank website. Meanwhile, tourism prices data were derived from the comparison of Indonesia's CPI with that of other countries. In this case, the CPI of the 16 selected samples was obtained from the IMF website, with the utilized model adopting the experimental modifications of Munoz and Amaral (2000). This model utilization emphasized the demand analysis for international tourism to Spain. The model from Garin and Munoz which was also adopted by Putri (2014) is as follows:

$$Ltour_{it} = \alpha + \beta_1 LGNP_{i,t} + \beta_2 LEX_{i,t} + \beta_3 LPR_{i,t} + \beta_4 D91_t + \mu_{it}$$

Where:

- $Ltour$ = a log of the number of nights spent in Spain by tourists from country i in the period t
- $LGNP_{i,t}$ = the log of the GNP of country i in time t
- $LER_{i,t}$ = the log of the Spanish exchange rate against the currency of country i in the period t
- $LPR_{i,t}$ = the log of the Spanish tourism prices index divided by the CPI of Country i in time t
- $D91$ = a dummy variable representing the events of the gulf war in 1991
- μ_{it} = an error variable

Although the utilized study model adopted the methods of Munoz and Amaral (2000), a dummy variable was not used. This unusability of the dummy emphasized the 2010 Economic Report, where Indonesia's economic growth reached 6.1% and the global economy was in a conducive condition (Bank Indonesia, 2010). This was subsequently the reason 2010 was selected as the initial analytical year. The utilized model is presented as follows:

$$Log_wis = \alpha + \beta_1 Log_GNI_{i,t} + \beta_2 Log_EX_{i,t} + \beta_3 Log_PR_{i,t} + \mu_{it}$$

The estimation method used a panel data regression to detect and measure the impacts undetected in pure cross-section or pure time-series information (Gujarati & Porter, 2012). Based on the analysis, the Mackinnon, White, and Davidson (MWD) method were initially used to determine whether the model was linear or log-linear. This was accompanied by the estimation process, which used the Common, Fixed, and Random Effects. In this case, the model selections between Common Effect and Fixed Effect as well as Fixed Effect and Random Effect were carried out through the Chow/Likelihood Ratio Test and the Hausmann Analysis, respectively. After obtaining the appropriate model, the classical assumption test was conducted, to ensure the realization of basic assumptions in the regression analysis. This includes the assumption of normality, as well as no autocorrelation, multicollinearity, and heteroscedasticity. For the final stage, the interpretation of the most suitable study model was conducted.

4. Result and Discussion

Based on the Ministry of Tourism Report (2014), the GDP generated from national tourism significantly increased yearly. This indicated that GDP of 261.06, 296.97, 326.24, 365.02, and 391.49 trillion rupiahs were acquired in 2010, 2011, 2012, 2013, and 2014 respectively. For the foreign tourists, a total of 7,582,908, 8,170,808, 8,266,268, 9,253,265, 10,697,787, 11,308,787, and 12,178,475 people were observed in 2013, 2014, 2015, 2016, 2017, 2018, and 2019, respectively. Figure 1 shows the number of foreign tourists from 2010 to 2020.

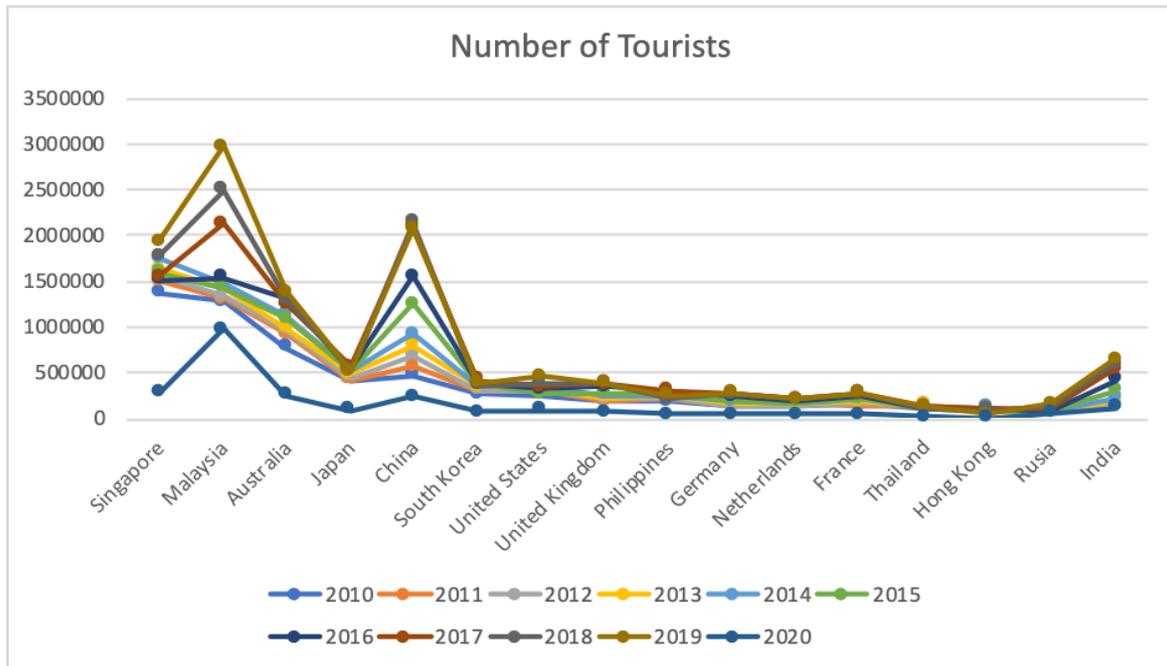


Figure 1: Number of Tourists to Indonesia from 16 Sample Countries

At the beginning of the study year, the foreign tourists in 2010 were 1,373,126 (22.49%), 1,277,476 (20.92%), 771,792 (12.64%), 469,365 (7.69%), and 418,971 (6.86%) from Singapore, Malaysia, Australia, China, and Japan, respectively. In the following years, these estimations relatively fluctuated although continuously increased, with a total of 12,178,475 homestays from 16 countries observed by the end of 2019. These values decreased drastically in 2020 (2,483,088 people) due to the COVID-19 pandemic, which restricted people from travelling and even leaving their homes. Figure 2 shows the GNI per capita of the 16 samples from 2010 to 2020.

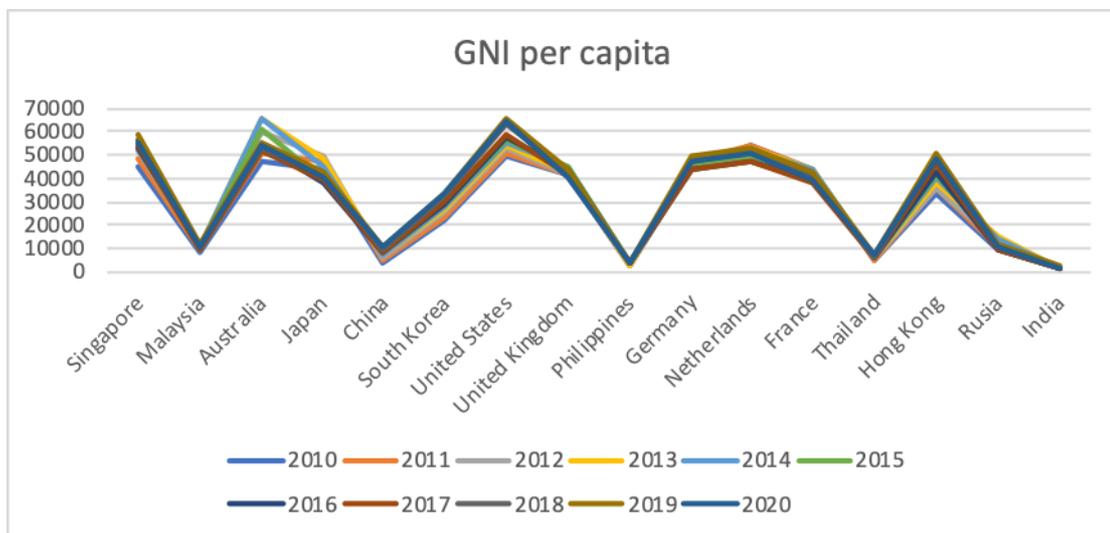


Figure 2: GNI per capita of 16 sample countries

According to Figure 2, the GNI per capita of East Asia and the Pacific showed an increasing trend in 2014, although some countries experienced slow processes. Compared with other ASEAN countries, only the GNI per capita growth of Indonesia recorded a contraction due to the data compiled by the World Bank. This reduced by 2.93% from US\$3,760 in 2013 to US\$3,650 last year, despite developing by 4.44% from US\$3,600 to US\$3,760 between 2012-2013. From these results, Indonesia was still included in the lower-middle-income category, with 50 other countries whose data were recorded by the World Bank. In the region with a positive tone, the performance of GNI was also against the trend of development, indicating the existence of other influential factors, such as the exchange rate. This was because of the GNI measurement in US dollars (Bisnis.com, 2015). In 2019, the GNI per capita was quite high for Singapore and Australia at 58390 and 54910, respectively, with the highest trend achieved by the United States at 65970. Figure 3 presents the currency exchange rate of 16 countries with the rupiah.

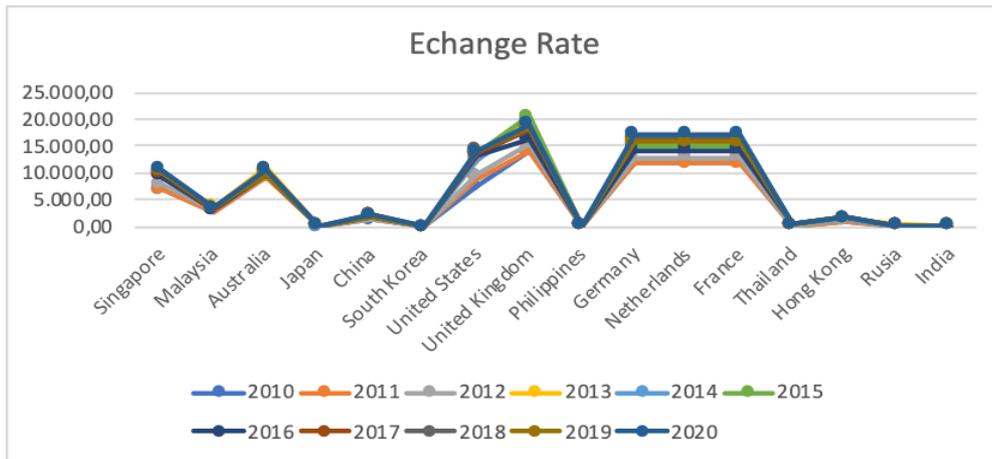


Figure 3: Currency Exchange Rates of 16 sample countries against the rupiah

Based on Figure 3, the exchange rate of the rupiah against the US dollar has continued to depreciate since 2010. This emphasized the estimations from 7,500 to almost 12,500 between 2010-2014. Besides this occurrence, the rupiah was also very weak against other hard currencies, such as the Japanese Yen, Singapore Dollar, and Euro. This condition subsequently applied to the eyes of other ASEAN countries, including the Malaysian Ringgit and the Thai Baht. In the 2014 Economic Report (Bank Indonesia, 2014), the rupiah depreciated by 1.7% to reach Rp11,876 per US dollar, lower than the 2013 depreciation that reached 20.8%. This led to the average weakness of the currency by 12.0%, accompanied by declining volatility. In 2019 and 2020, the rupiah exchange rate against the US dollar strengthened slightly and weakened at Rp. 13,901.00 and Rp. 14105.00, respectively. Figure 4 shows the CPI growth from the 16 sample countries.

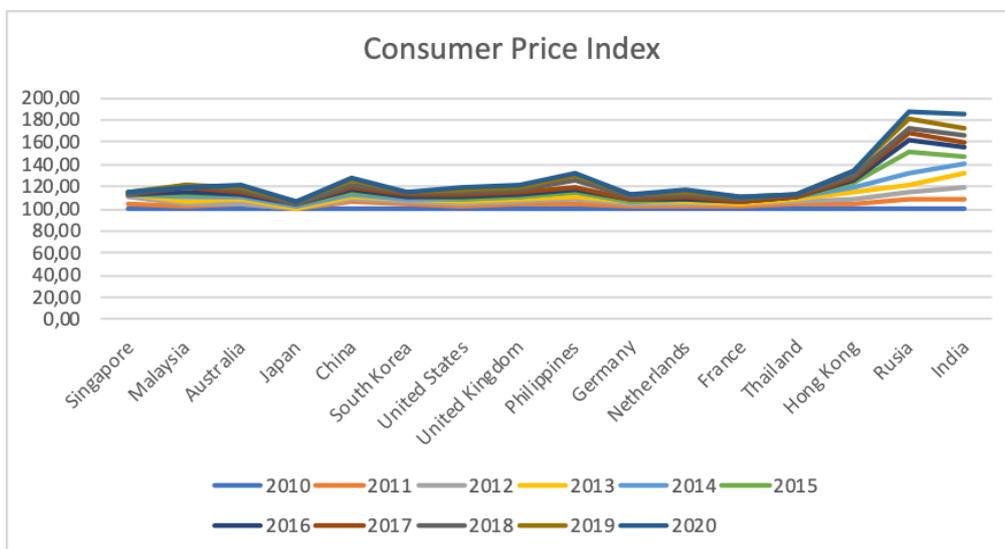


Figure 4: CPI of 16 Sample Countries

According to Figure 4, the CPI conditions were relatively stable during the study period, with Japan even experiencing minus inflation in 2010-2012. This was not in line with Indonesia, where the government issued several policies to control inflation. Various price adjustment policies were also issued to reduce the burden of subsidies, specifically in the energy sector. This was because these subsidies were likely to be transferred to financing development and more productive sectors. For specific customer groups, the government is gradually adjusting the price of 12 kg LPG and electricity tariffs (TTL). Furthermore, the policy of adjusting subsidized fuel prices began on November 18, 2014, with food price volatility causing overall inflation above the set target. In this case, the inflation rate reached 8.36% (yoy) in 2014, which was clearly above the set target (4.5±1%) (Bank Indonesia, 2014). The CPI condition did not change very much in 2019 compared to previous years, with only Russia and India experiencing an increase from 180.75 and 172.88 to 186.86 and 184.33.

Using the MWD method, the data were tested before the panel regression approach. In this process, linear regression was initially carried out to obtain the residual value, which was then stored (Res1=resid). This was accompanied by the formulation of a new variable, $F1=Y-Res1$. The linear log model regression was subsequently carried out to obtain another residual value (Res2=resid), with the formulation of a new variable, $F2=\log Y - Res2$. Furthermore, the potential new variables were $Z1=\log F1-F2$ and $Z2=\text{antilog}(F2 - F1)$, with subsequent regression carried out by inputting $Z1$ and $Z2$ in the linear and log-linear equation regressions, respectively. Based on the results, both linear and log-linear models exhibited similar features, with a high coefficient of determination, R^2 , for each equation at 0.890 and 0.897. A log-linear model was then used after this process, emphasizing the method adopted by Munoz and Amaral (2000).

In the panel data regression approach, the first step prioritized estimation through Common Effect. This was the simplest technique for estimating panel data, by only combining time series and cross-section parameters. The merger was also applied without considering the differences between time and individuals. This method is known as Common Effect estimation (Widarjono, 2007), with the panel data regression obtaining the following equations and p-values.

$$\begin{array}{l} \text{Log}_{wis} = 0.927 \log_{gni} + 0.709 \log_{ex_rate} - 55268.08 \log_{hrmpar} \\ \text{nilai } p \quad 0.0000 \quad 0.2093 \quad 0.5020 \\ R^2 = 0.0245 \end{array} \quad (1)$$

The next step emphasized the estimation of Fixed Effect (FE), which assumed the existence of differences in the equation intercept. This technique is often used to estimate panel data through dummy variables, to capture the differences within the intercepts. The definition of FE also prioritizes the differences between organizational intercepts, which are similar across time (time-variant). Moreover, the Fixed Effect model assumes that the regression coefficient (slope) remains between companies over time (Widarjono, 2007). From the classical assumption test, the model data were not free from heteroscedasticity, which was then resolved through FE estimation with cross-section weights (heteroscedastic estimator). The panel data regression obtained the following equations and p-values, using the Fixed Effect technique.

$$\begin{array}{l} \text{Log}_{wis} = 1.9934 + 0.4319 \log_{gni} + 0.8902 \log_{ex_rate} - 0.2268 \log_{hrmpar} \\ \text{nilai } p \quad 0.000 \quad 0.04100 \quad 0.0531 \quad 0.000 \\ R^2 = 0.806 \end{array} \quad (2)$$

To determine whether the model used Common or Fixed Effects, the Chow test was performed. This indicated that both the F-test and Chi-square were significant (p-value 0.0003 less than 5%), leading to the detection of a Fixed Effect. These results were supported by the R^2 value of the equation, which was 80.6%. The next step emphasized the estimation of Random Effect, which assumes a non-constant influence from the error term (Ekananda, 2014). The following equation and the p-value are obtained by the Random Effect of the panel data regression.

$$\begin{array}{l} \text{Log}_{wis} = 0.5968 + 5.0424 \log_{gni} - 0.1323 \log_{ex_rate} - 0.0142 \log_{hrmpar} \\ \text{nilai } p \quad 0.0167 \quad 0.3534 \quad 0.9446 \quad 0.0328 \\ R^2 = 0.0218 \end{array} \quad (3)$$

To determine whether the model used the Fixed or Random Effects, the Hausman test was carried out. This proved that the random cross-section was significant, with a p-value less than 5% at 0.0061. Therefore, this model used a Fixed Effect technique, as presented in Equation (2).

$$\begin{array}{l} \text{Log}_{wis} = 1.9934 + 0.4319\text{log}_{gni} + 0.8902\text{logex}_{rate} - 0.2268\text{log}_{hrmpar} \\ \text{nilai } p \quad 0.000 \quad 0.04100 \quad 0.0531 \quad 0.000 \\ R^2 = 0.806 \end{array}$$

Based on the regression equation, the Fixed Effect estimation with cross-section weights showed that all independent variables influenced the dependent factors. This confirmed that the GDP per capita, the foreign exchange rate against the rupiah and the tourism prices affected the tourists. The next step emphasized the analysis of the overall data. Before any estimation performance, the analysis of the classical assumptions needs to be importantly and initially carried out as a condition for panel data regression. From the normality test, the data obtained on the number of tourists, national income per capita, rupiah-foreign exchange rate, and tourism prices met the standard assumption of normality. This was accompanied by the multicollinearity test, which was conducted to determine whether or not a deviation from the classical multicollinearity assumption was observed. The results showed that the Tolerance and VIF values of the three variables were more and less than 0.10 and 10, respectively, indicating no multicollinearity problem in the regression model. Moreover, the heteroscedasticity test was used to determine whether or not inequality of variance from the residuals for all observations was observed in the regression model. This analysis was observed through the plot graph between variables and residuals. When a specific pattern is found, such as the dots on the scatterplot (wavy, widen, then narrowed), heteroscedasticity is stated to have occurred. However, this element does not exist when no clear pattern is observed, with the scattering points above and below zero on the Y-axis. Based on the results, the autocorrelation test value for DW was 1.209. This indicated the non-occurrence of autocorrection, as the DW value was between -2 and +2. Therefore, the appropriate study model used the Fixed Effect technique, as shown in Equation (2).

$$\text{Log}_{wis} = 1.9934 + 0.4319\text{log}_{gni} + 0.8902\text{logex}_{rate} - 0.2268\text{log}_{hrmpar}$$

These results were in line with Abdurrahim (2014), Moorthy (2014), Putri (2014), and Yakup & Haryanto (2019), where the number of tourists was influenced by national per capita income, exchange rates, and tourism prices. This was calculated by comparing the CPI of the tourists' country and Indonesia.

5. Discussion

5.1. Impact of per capita income, exchange rate, and tourism prices on the number of tourists-Fixed Effect Model

The average development of foreign visits to Indonesia reached 14% yearly between 2014-2018, before the COVID-19 pandemic. This was higher than the average development in 2009-2013, at 9% per year. According to the BPS, foreign tourist visitations were recorded at 6.32-8.8 million people from 2009 to the end of 2013, respectively. In 2018, this estimation had increased to 15.81 million people, 2.5 times more than the values recorded in 2009. These data led to a set target by the government, regarding the expectations of 18 million people this year (Widowati, 2019). The BPS also reported that the number of foreign tourist visitations to Indonesia reached 15.81 million people in 2018, indicating an increase of 12.58% compared to 14.04 million in 2017. This value was less than the target set at around 17 million foreign tourists. Furthermore, BPS stated that the 2018 foreign exchange target was achieved, with the number of tourists influenced by national income per capita. This was explained based on the visitation prediction of the tourists, which achieved the daily average expenditure. At 16 million, the calculation of USD 1,100 ASPA (Average Spending Per Arrival) becomes USD 17.6 billion (Finaka, 2018). This proved that the tourists' incomes often promoted them to travel for vacations or work matters. Therefore, residents with fairly high-income levels are always promoted to travel to other countries.

The exchange rate was very important in influencing the decision of tourists to travel, specifically the type between the countries of the foreigners and the tourism destinations. This showed that more information on travel costs between these destinations led to greater tourists' sensitivities to prices, as measured by the exchange rate. These

conditions emphasized the adjustment of tourists from high (depreciation) to low (appreciation) exchange rate (ER) countries. This is because ER is an essential determinant of tourism (Patsouratis, Frangouli, & Anastasopoulos, 2005). Comparing the CPI of the tourists' countries and Indonesia, the tourism prices negatively affected the number of visitors. This was in line with Yakup and Haryanto (2010), where the CPI negatively influenced the number of foreign tourists. Based on these results, a higher CPI level of 1% decreased the number of tourist arrivals by 1.122022% (Yakup & Haryanto, 2019). According to Choyakh (2009), the CPI was observed as the tourism prices of the destination country. The indirect use of this variable also included the effect of inflation. When a country experiences inflation, an increase is subsequently observed in the prices of goods and services, leading to the elevation of CPI. This elevation then increases prices relative to the foreigners countries, leading to a reduction in tourist arrivals (Yakup & Haryanto, 2019). In December 2019, the arrival of foreign tourists to Indonesia decreased by 2.03%, compared to a similar period in 2018. Meanwhile, the values increased by 7.52% when compared to November 2019. In 2019, the total visitations reached 16.11 million, an increase of 1.88% when compared to the values of a similar period in 2018 (15.81 million visits) (Badan Pusat Statistik, 2020). Based on this experimental period (2010 to 2020), the difference in the number of tourists occurred with the beginning of the COVID-19 pandemic in 2020. Regarding Figure 1, the visitations of tourists experienced a very drastic decline due to the emergence of the pandemic in February 2020. This proved that the restrictions on travelling and various community activities such as LSSR (Large-Scale Social Restrictions), greatly affected the number of visitations. These conditions were subsequently experienced by many countries in the world, where an appeal to stay at home was observed during the COVID-19 pandemic. This indicated the broad impact of the pandemic on the global tourism sector, specifically in Indonesia.

6. Conclusion

Based on the results, the tourism prices, the gross national per capita income of the tourists' countries, and the rupiah-foreign exchange rate affected the number of visitations to Indonesia. In this case, tourism played an important role in improving the Indonesian economy. Its roles in the country's GDP development and as a foreign exchange also strengthened the position of tourism as an industrial sector that needs constant attention.

Besides these results, some limitations were also observed, including the non-inclusion of control variables such as the global crisis. This was due to the vulnerability of the tourism sector to other categories (unpredictable influences). A more comprehensive and in-depth analysis is also needed, regarding the inclusion of dummy variables. This emphasizes the determination of changes in the factors affecting tourism demand in Indonesia.

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