



Vol. 3 No.1 June 2022

e-ISSN: 2722-5062

DOI : 10.20473/ajim.v3i1.36922

HOW DO TRADE, INFLATION, EXCHANGE RATES, AND INFORMATION TECHNOLOGY INFLUENCE INTERNATIONAL TOURIST VISITS IN INDONESIA?

Jihan Nabila Zahara^{a*}, Asma' Munifatussa'idah^b

^{a,b} Magister Sains Ekonomi Islam, Universitas Airlangga, Surabaya

*Corresponding e-mail :jihannabilazahara@gmail.com

ABSTRACT

This study aims to determine the short-term and long-term effects of trade, inflation, exchange rates, and information technology on international tourist visits in Indonesia. This study uses a quantitative approach within the Vector Error Correction Model (VECM) technique. The data used in this study are annual time series data of Indonesia trade, inflation, exchange rate and information technology on 1991-2019 period. The data used in this study were sourced from World Bank, International Monetary Fund (IMF), and Central Statistics Agency data. The results of the VECM research in the short term show that the variables of trade and information technology have a significant positive effect on international tourist visits. Meanwhile, inflation and exchange rates have a significant negative effect on international tourist visits. Then the results of VECM research in the long term show that variables of trade and information technology have a significant positive effect on international tourist visits. Meanwhile, inflation has a significant negative effect on international tourist visits. This study bring any literature contribution to future study that macroeconomics variables (trade, inflation) and information technology can influence the rise and fall of tourist visits to Indonesia. Practical contributions also brought by this study as recommendations to increase international tourist visit in Indonesia for government and tourism stakeholder.

Keywords: International Tourist Visits, Trade, Inflation, Exchange Rates, Information Technology.

1. Introduction

Tourism is one of the strategic sectors that needs to be utilized optimally, because it has an important contribution as a source of foreign exchange earnings. Unlike other industries, tourism is based on a demand-side concept. The right indicator to show the demand side is the component of tourism receipts and tourist visits (Gül, 2013). International tourism receipts are expenditures of foreign tourists entering the domestic economy, including payments to national airlines for international transportation. Meanwhile, the definition of international tourist arrivals is the number of tourists visiting a country other than the country of residence, for a period of not more than 12 months with the

main purpose of visiting. The tourist data used refers to the number of visits, not the number of people who travel, so people who travel during a certain period are counted as new visits (UNWTO: 2021).

Tourism sector has become one of the main contributions to economic growth in both developed and developing countries. One of them is Indonesia, which has natural and cultural wealth that can attract tourists to visit Indonesia. Indonesia's natural wealth consists of oceans, mountains, beaches, and land, while cultural wealth includes historical heritage, diversity of customs, traditions and ethnic groups. If this wealth is developed and managed properly and optimally, it can become a tourist destination that provides great benefits for the country. Based on *World Travel & Tourism Council Annual Report (2020)* in 2019 Indonesia was in the 20th position out of 185 countries that had the largest contribution to GDP from the tourism sector. Evidenced by data from the Ministry of Tourism and Creative Economy shows that since 2013 the tourism sector has been in the fourth position after oil and gas, coal, and palm oil as the country's foreign exchange earner. Meanwhile, the performance of the tourism industry sector, based on *The Travel & Tourism Competitiveness Index (TTCI, 2019)* who assesses related to tourism sector development policies, in 2019 Indonesia experienced an increase of 5 ranks to occupy the 40th position out of 140 countries.

Tourism potential and achievements that are owned cannot simply add value to the development of Indonesian tourism, if it is not accompanied by efforts to attract tourists to be interested in visiting and enjoying various existing tourist objects. A tourist destination is truly competitive if its ability to increase tourist spending and attract more tourist visits than competing destinations, which in turn will increase foreign exchange earnings for tourism. (Crouch & Ritchie, 1999).

Graph 1.
International Tourist Visit in 1991-2019



Source: World Bank (2019)

Based on Graph 1, during 1991-2019 international tourist visits to Indonesia showed fluctuations that tended to increase. When viewed from the entrance gate for international tourist arrivals, air gates are the most popular compared to sea gates and land gates. Based on Badan Pusat Statistik (2019) data, the highest number of tourist visits through air entrances was in 2018 with 10.8 million tourists dominating 64% of the number of international tourist visits. In 2018 there was an increase in July-August due to the implementation of the largest sporting event in Asia which took

place from 18 August-2 September in Jakarta-Palembang (Kompas.com, 2018). Meanwhile, in 2019, the number of international tourist arrivals continued to increase, reaching 16.1 million tourists, which were divided into three entrances, namely the airport by 9.8 million tourists (61%), the sea gate by 4.1 million tourists (26%), and the sea gate by 2.1 million tourists (13%).

There are potentials and challenges as well as Indonesia's efforts to increase tourist interest, it is necessary to do research on the variables that influence the increase in the number of international tourist visits so that they are interested in visiting Indonesia, with the variable Trade (Alola et al., 2019; Soofi et al., 2018), Inflation and Exchange Rate (Nimanussornkul & Do, 2017), and Information Technology (Al-Mulali et al., 2020; (Kumar & Kumar, 2019) influencing tourist visits. However, there are differences in the findings of previous studies that the inflation variable has no effect on tourism visits (Haseeb et al., 2019), as well as on the information technology variable which also has no effect on international tourism receipts because infrastructure development and the availability of information technology in a country cannot fully encourage tourism growth (Wang, Zeng, & BI, 2019).

Based on the explanation of the problem and the gaps in the results of previous research, the researcher will use the variables of Trade, Inflation, Exchange Rates, and Information Technology as variables that affect the number of international tourist visits in Indonesia. As far as the researcher's knowledge is concerned, there are still few discussions related to the determination of international tourist arrivals in Indonesia, so it is hoped that the research results can contribute to being a reference for literature, especially in the tourism sector. The formulation of the problem in this research is is there any influence of Trade, Inflation, Exchange Rate, and Information Technology on International Tourist Visits in Indonesia in 1991-2019.

2. Literature Review

2.1 Theoretical Foundation

International Tourist Visit

Based on World Tourism Organization (WTO), international tourism acceptance can be measured by the number of international tourist visits. Tourist visits reflect the number of individuals or the volume of tourists entering from one country to another. Each tourist trip from each individual is counted as a new visit to the destination country and increases the number of tourist visits for that country. International tourist visits are determined by the volume of tourists who visit, for a period of not more than twelve months with the main purpose being for tourist, recreational, business or trade visits. (data.worldbank.org).

The large number of tourist visits reflects the amount of tourism receipts in a country. In the majority of developed and developing countries, foreign tourist visits greatly contribute to increasing the country's economic income in the tourism sector. The tourism industry will be related to the economic sector, so it will have an impact on economic growth (Yalçinkaya et al., 2018). Through the tourism industry, it will open up the economic path of a country to be wider. Where, the greater the acceptance of tourism in a country, the greater the inter-connections between countries, such as trade cooperation, investment finance, and also the dissemination of local cultural knowledge (unwto.org). Based on this explanation, this study uses a proxy for the number of international tourist visits per year using data.worldbank.org.

Trade

Trade (TR) is defined as the exchange of goods and services or money that provides benefits and is based on the voluntary will of each party (Diphayana, 2018). Trade between countries is also known as international trade, namely the number of exports and imports of goods and services measured as part of Gross Domestic Product (GDP) (data.worldbank.org). Export is the activity of selling goods and

services from within the country to abroad. Import is the activity of buying goods and services from abroad into the country. So that with the existence of export and import activities there will be capital flow activities, both incoming and outgoing due to the movement of exchange of goods or services between countries. (Purba & Suryani, 2021)

There are three main factors driving international trade, namely: (1) the availability of goods and services, a country will import goods or services, if the goods or services in question cannot be produced or do not meet the amount of domestic demand, (2) price differences, when price comparison of a product of another country is cheaper (valued in domestic currency), then importing the product will be much more profitable than producing it domestically, (3) product differentiation, where a country exports as well as imports products from the same sector (intra- industry trade/IIT) due to consumer tastes (Tampubolon, 2020). International trade becomes an important thing because it needs to be realized that no single country in the world is able to fulfill all its needs without doing trade or business with other countries. (Diphayana, 2018). This research uses a proxy for measuring the number of exports and imports of Indonesian goods.

Inflation

Inflation (IN) is a condition where the price of goods and services in a country increases in general, which takes place continuously (Mankiw, 2018). Inflation can mean a decrease in the value of money for goods and services in general in society, because an increase in the price of goods and services affects the decrease in the value of money in the economy. Inflation is generated from the percentage rate of increase in consumption prices (CPI) of a number of goods and services which in general (bps.go.id). Inflation is caused by several things, namely supply pressure, which occurs when the price level increases in trading partner countries, and government intervention on the prices of certain commodities. And inflation is caused by demand, because the flow of aggregate demand is faster than the flow of production (Putong, 2003).

According to Al-Maqrizi inflation reflects socio-economic events that occur when prices in general experience continuous increases, in aggregate within a certain period of time. Inventories of goods during inflation will also experience scarcity and society will have to spend more to consume the same goods (Rozalinda, 2017). Inflation can be measured based on the Consumer Price Index (CPI), which is the percentage change in the average price of consumers to obtain goods and or services that can be changed at certain intervals, or in years (data.worldbank.org). The CPI is estimated as a series of proportional changes in the price of one consumer good and service from period to period with constant quantity and characteristics (Mankiw, 2018). Inflation in this study is measured by inflation proxy based on CPI using bps.go.id data.

Exchange rate

The exchange rate (ER) of a currency or what is often referred to as the exchange rate is the price of one unit of foreign currency in the domestic currency or it can also be said that the price of the domestic currency against foreign currencies (Simorangkir & Suseno, 2005). For example, the exchange rate (ER) of the Rupiah against the US Dollar (USD) is the price of one US dollar (USD) in Rupiah (Rp), or it can also be interpreted as the price of one Rupiah against one USD. If the exchange rate is defined as the value of the Rupiah in a foreign currency, it can be formulated as follows:

$$ER \text{ IDR/USD} = \text{Rupiah needed to buy 1 US dollar (USD)}$$

In this case, if ER increases, it means that the Rupiah is depreciating, while if ER decreases, the Rupiah is experiencing appreciation. In a fixed exchange rate system, the local currency is fixed against the foreign currency. While in a floating exchange rate system, the exchange rate or the exchange rate

can change at any time, depending on the supply and demand for foreign exchange relative to the domestic currency (Simorangkir & Suseno, 2005). In this study, the Exchange Rate (ER) variable uses a proxy for measuring the dollar against the rupiah.

Information Technology

Information technology (IT), in the economic sector, contributes in encouraging the process of innovation, adoption of new technology, and encouraging increased productivity. Improved technology and digitization can lead to higher social and economic inclusion and a better quality of life. In addition, information and communication technology can also increase development in various sectors, one of which is the tourism sector (Afërdita & Mihane, 2015). Information technology in the tourism sector will change the structure of the tourism industry, both domestically and internationally. In addition, it also changes the paradigm of tourists regarding the ease of getting information such as destination places and travel transportation (Neidhardt & Werthner, 2018).

Information and communication technology that is flexible in nature will be easy to apply to the tourism industry. Where the use of information and communication technology in transportation services, promotions, and digital payments will be faster and more efficient (Hojeghan & Esfangareh, 2011). Information and Communication Services that are faster and more precise and can be accessed anytime and anywhere, are a solution to get the information needed so that it can assist in the business activities of tourism companies and synergize with government policies in the tourism sector (Sari & Yalia, 2019). Information Technology in this study uses the proxy of Technology, Information and Communication Services for Indonesia's export activities (ICT Service Exports) based on data.worldbank.org.

2.2 Relationship Between Variables

Trade against International Tourist Visits

If Trade increases, then Tourist Visits increase. This is because the transaction of goods/services between countries raises consumer interest in the exporting country (product manufacturer) and stimulates them to visit the country. When Indonesia conducts trading activities with other countries, products from Indonesia will arrive in that country. The high intensity of export activities from Indonesia makes these products familiar to the people of importing countries, thus indirectly making Indonesia better known to the public. After getting to know Indonesia, an interest in Indonesian products will eventually lead to an interest in visiting Indonesia.

This is in accordance with research conducted by Leitão (2010) mentions that international trade activities can be linked to immigration. The existence of trade products that enter the country of origin of tourists as well as a form of promotion and introducing product-producing countries. which eventually raises the interest of the people of the importing country to visit the exporting country. The research of Shahbaz et al.(2017) found that trade stimulates tourism flows thereby increasing the number of tourism receipts in the country. While research by Alola et al. (2019) found that the more stable the economic condition of a country, the more significant it has on the development of tourism, especially tourist destination countries. Then the research hypothesis proposed is:

H1. Trade affects International Tourist Visits

Inflation on International Tourist Visits

If inflation increases, then tourism visits will decrease. This is because an increase in inflation causes an increase in the cost of living which in turn causes a decrease in purchasing power, so that

inflation has a negative effect on tourism inflows. The increase in prices for goods and services in general will have an impact on increasing the cost of living for visiting tourists, such as travel and lodging costs, so that it will reduce the number of tourist visits entering from other countries. Thus, it can be said that the higher the cost of living in a tourist destination country, which is reflected by the inflation rate, will reduce the interest of tourists visiting the country. This is proven in research Meo et al.(2018) that the inflation variable affects the number of international tourist visits. Based on this explanation, the proposed hypothesis is;

H2. Inflation affects International Tourist Visits

Exchange Rates for International Tourist Visits

If the exchange rate (dollar against rupiah) increases, it will have an effect on increasing the number of tourist visits in Indonesia. This happens because an increased exchange rate means the domestic currency is depreciating, so the amount of money received by tourists will be more. Utami & Hartono (2016) explained that the lower the exchange rate of the destination country will increase the interest of tourists to visit and spend more money because tourists perceive the price to be cheaper. According to Mak (2003) One of the factors that influence someone to travel is the price factor. Because in traveling, someone pays for lodging, transportation, and costs at his own tourist spot.

So that tourists will compare some of the prices offered in several tourist destinations, and they tend to prefer tourist attractions with lower prices. So that the choice of tourists shifts from countries with high exchange rates to destination countries with low exchange rates, which will have an impact on increasing the number of international tourist visits to that country (Li, Song, & Witt, 2005)(Song & Li, 2008). This is proven by research Nimanussornkul & Do (2017) that the exchange rate is the most significant determinant of tourism demand. Then the proposed hypothesis is;

H3. Exchange Rates Affect International Tourist Visits

Information Technology on International Tourist Visits

If Information Technology services increase, it will have an effect on increasing international tourist visits. This is because Information Technology facilitates access to tourism travel requests on a wider scale, such as the ease of information on tourist destinations, travel products and services, to the ease of financial mechanisms between countries. (Lopez-Cordova, 2020). Digitally supported information technology services are an important factor for the tourism industry which has various innovative programs, with the availability of technology-based services that will revolutionize initiatives, product and service innovations, business ecosystems, and support tourism destinations with digital systems (Al-Mulali et al., 2020). So the potential use of information technology services in tourism will increase tourists' expectations that their destination country has been designed with modern technology (Ilić & Nikolić, 2018). So that the willingness and readiness of Information Technology will increase the interest of tourists to visit countries that have access to adequate technology, information and communication services. This is proven by Kumar & Kumar (2019) that Information Technology affects the tourism sector. Based on this explanation, the proposed hypothesis is;

H4. Information Technology Affects International Tourist Visits

3. Method

This study uses a quantitative approach which emphasizes testing research variables in the form of numbers or numbers, which involves data analysis with statistical procedures (Sugiyono, 2016). The type of data used in this study is secondary data in the form of time series data, which is a series of observations within a certain time span. The time series data used is annual data for the period 1991-2019, sourced from the official website World Bank (worldbank.org), namely data on international tourist visits, trade, and information technology (ICT Service) variables, International Monetary Fund (imf.org) for variable data. Exchange rate (USD exchange rate against domestic currency), and the Central Statistics Agency for inflation variable data (bps.go.id).

The data analysis method used in this study is the Vector Error Correction Model (VECM) method with Eviews 10 software. The VECM method is a derivative method of Vector Auto Regression (VAR). The use of the VECM method because there is a form of data that is not stationary, but cointegrated. Assumptions that must be met in VECM are the same as for VAR, except for the provision of data stationarity. In contrast to VAR which requires stationary data, while the VECM provision is that data must be stationary in the first differentiation (Basuki & Prawoto, 2016). So the model used in this study is formulated in the following equation;

$$\Delta ITV_t = \alpha_0 + \alpha KW\sigma_{t-1} + \beta_1 \Delta TR_{t-1} - \beta_2 \Delta IN_{t-1} + \beta_3 \Delta ER_{t-1} + \beta_4 \Delta IT_{t-1} + \varepsilon_t \quad (1)$$

Information:

- ITV : International Tourist Visit
- β : Variable coefficient
- TR : Trade
- Δ : Parameters of *first difference*
- IN : Inflation
- σ : *Error correction term*
- ER : Exchange Rate
- t-1 : Lag
- IT : Information Technology
- ε : *Error*
- t : Time period (1991-2019)
- α : Constant

The series of tests in the Vector Error Correction Model (VECM) method include Data Stationarity Test, Lag Length Test, Cointegration Test, Granger Causality Test, VECM Model Estimation, Impulse Response Function analysis, and Variance decomposition with an explanation of the test results in the statistical analysis section

4. Result and Discussion

4.1 Result

Time series data analysis begins with testing the stationarity of the data through the Unit Roots Test - Augmented Dickey Fuller (ADF), which aims to determine the structure of the research data on all variables that have been stationary. The test is carried out so that the data to be used has low fluctuations, thus making the model estimation results have a low variance as well. Data is said to be stationary if the average value and variance of the time series data do not change (trend) systematically over time or the data is constant. Unit Roots Test will be carried out at the level and differentiation level (Basuki & Prawoto, 2016). In Table 1, the results of the stationarity test of the data with the Unit

Roots test at the level level and Table 2 are presented for the results at the first difference level. The results of the Unit Roots test can be seen below;

Table 1. Unit Root Test Results Level

Variable	ADF T-Statistic	Critical Value Mackinnon			Prob.*
		1%	5%	10%	
LN_ITV	0.578380	-3.711457	-2.981038	-2.629906	0.9862
TR	-2.540613	-3.689194	-2.971853	-2.625121	0.1171
IN	-4.201323	-3.689194	-2.971853	-2.625121	0.0029
LN_ER	-3.568731	-3.724070	-2.986225	-2.632604	0.0142
LN_IT	-1.323215	-3.689194	-2.971853	-2.625121	0.6044

Source: secondary data, processed with Eviews 10.

Based on Table 1, it shows that most of the data on the variables do not pass stationary at the level level, because the data has a probability value greater than the 5% significant level, it is necessary to carry out a higher test, namely at the first difference level, with the results as following;

Table 2. Unit Root Test Results First Level of Differentiation

Variable	ADF T-Statistic	Critical Value Mackinnon			Prob.*
		1%	5%	10%	
LN_ITV	-4.533162	-3.699871	-2.976263	-2.627420	0.0013
TR	-8.107981	-3.699871	-2.976263	-2.627420	0.0000
IN	-6.292262	-3.711457	-2.981038	-2.629906	0.0000
LN_ER	-9.475007	-3.699871	-2.976263	-2.627420	0.0000
LN_IT	-5.342661	-3.699871	-2.976263	-2.627420	0.0002

Source: secondary data, processed with Eviews 10.

Based on Table 2, the results of the Unit Root test show that the research data is stationary at the first difference level, with a probability value of less than the 5% significance level. Then it can be continued with the Lag Length test to determine the optimal lag of the exogenous and endogenous variables in the model estimation.

Table 3. Lag Length Test Results

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-188.3445	NA	1.980721	14.87266	15.11460	14.94233
1	-157.1589	47.97783	1.283746	14.39684	15.84849	14.81486
2	-86.03027	82.07155*	0.047013*	10.84848*	13.50984*	11.61486*

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (5%), FPE: Final prediction error, AIC: Akaike information criterion, SC: Schwarz information criterion, HQ: Hannan-Quinn information criterion.

Source: secondary data, processed with Eviews 10.

In Table 3, it shows that the optimal lag in this research variable is at lag 2. Then the next test is the data stability test. Data stability test using a stability condition check in the form of roots of characteristic polynomial on all research variables. The results of the stability test in this study are all

roots have a modulus value less than 1, then the data is said to be stable and can be used for analysis of Impulse Response and Variance Decompositions.

Furthermore, cointegration testing is carried out to find out whether the variables that are not stationary at the level, and have been stationary in the first differentiation, meet the requirements of the integration process, namely there is a long-term equilibrium of the research model, and there are similarities in the movement and stability of the relationship between the variables used. It is said that it is cointegrated or has a long-term relationship, when the trace statistic value is greater than the critical value at the 5% level. (Basuki & Prawoto, 2016). The results of the Johansen-Cointegration test can be seen as follows;

Table 4. Cointegration Test Results

<i>Hypothesized No. of CE(s)</i>	<i>Eigenvalue</i>	<i>Trace Statistic</i>	<i>0.05 Critical Value</i>
None *	0.935133	144.9254	69.81889
At most 1 *	0.740247	76.54014	47.85613
At most 2 *	0.622389	42.83950	29.79707
At most 3 *	0.381403	18.49221	15.49471
At most 4 *	0.228476	6.484691	3.841466

Source: secondary data, processed with Eviews 10.

In Table 4, the results of the cointegration test show that the variables used in this study have a long-term relationship or mutual cointegration, which is indicated by the Trace Statistics value of 144.9254 which is greater than the Critical Value of 69.81889. Thus, it can be concluded that all research variables, namely Trade, Inflation, Exchange Rates, Information Technology have a balance relationship and similarity of movements in the long term.

Then, the Granger Causality Test was carried out to find out whether the two variables had a causal relationship (reciprocity) or not. It is said that there is a causal relationship between two variables when the probability value is less than 5% of the significance level. The following presents the results of the Granger Causality test.

Table 5. Granger Causality Test Results

<i>Null Hypothesis:</i>	<i>F-Statistik</i>	<i>Prob.</i>
LN_ER → LN_ITV	3.36668	0.0402
LN_IT → TR	3.67509	0.0305
LN_IT → IN	5.74018	0.0057
LN_ER → LN_IT	4.15288	0.0202

Sumber: data sekunder, diolah dengan Eviews 10.

In Table 5, the probability value is less than 5% which indicates that the variable has a relationship with other variables, but only has a one-way effect. The Exchange Rate variable statistically influences the International Tourist Visit variable. Then the Information Technology variable affects the Trade variable. Information Technology variable has an effect on Inflation. And the Exchange Rate variable statistically affects Information Technology.

Furthermore, based on the purpose of the VECM analysis, which is to determine the movement of a variable in the short term to the long term, due to a shock or change. The VECM estimation in this

study aims to analyze the short-term and long-term effects between the variables of International Tourist Visits, with Trade, Inflation, Exchange Rates, and Information Technology.

Table 6. Short-Term VECM Results

Variable	Coefficient	T-Statistic	Prob
<i>CointEq1</i>	-0.298879	-4.48926	0.06658
<i>Constanta</i>	0.118899	0.02051	5.79816
D(LN_ITV(-1))	-0.009575	-0.05550	0.17250
D(LN_ITV(-2))	-0.274294	-1.84186	0.14892
D(TR(-1))	0.009815	2.51565	0.00390
D(TR(-2))	0.006459	2.20587	0.00293
D(IN(-1))	-0.006807	-2.76578	0.00246
D(IN(-2))	-0.002708	-1.33018	0.00204
D(LN_ER(-1))	-0.083175	-2.39425	0.03474
D(LN_ER(-2))	-0.195461	-6.15451	0.03176
D(LN_IT(-1))	-0.113811	-3.79653	0.02998
D(LN_IT(-2))	0.005195	0.16432	0.03162

Source: secondary data, processed with Eviews 10.

Based on Table 6, the estimation results of the VECM model on variables that affect tourist visits in the short term are obtained. The VECM estimation shows that in the short term the variables of Trade, Inflation, Exchange Rate, and Information Technology have an effect on International Tourist Visits in Indonesia, in the first and second lags which are indicated by probability values less than 5% significant level. This means that in the short term, International Tourist Visits in Indonesia are influenced by the previous one to two years from the variables of Trade, Inflation, Exchange Rates, and Information Technology. With the description, that the Trade variable in Lag 1 has a significant positive effect on International Tourist Visits, which means a 1 percent increase in Trade in the previous 1 year will increase International Tourist Visits in the short term by 0.98% in the current year. And the Trade variable at Lag 2 has a significant positive effect on International Tourist Visits, which means a 1 percent increase in Trade in the previous 2 years will increase International Tourist Visits in the short term by 0.64% in the current year.

The Inflation variable at Lag 1 shows a negative effect on International Tourist Visits, which means a 1 percent increase in Inflation in the previous 1 year will reduce International Tourist Visits in the short term by 0.68% in the current year. And the Inflation variable at Lag 2 has a significant negative effect on International Tourist Visits, which means a 1 percent increase in Inflation in the previous 2 years will reduce International Tourist Visits in the short term by 0.27% in the current year. Then the Exchange Rate variable at Lag 1 has a significant negative effect on International Tourist Visits, which means a 1 percent increase in the Exchange Rate in the previous 1 year will reduce International Tourist Visits in the short term by 8.31% in the current year. And the Exchange Rate at Lag 2 has a significant negative effect on International Tourist Visits, which means a 1 percent increase in the Exchange Rate in the previous 2 years will reduce International Tourist Visits in short term by 19.5% in current year.

The Information Technology variable in Lag 1 has a significant negative effect on International Tourist Visits, which means that a 1 percent increase in Information Technology in the previous 1 year will reduce International Tourist Visits in the short term by 11.3% in the current year. Meanwhile, the Information Technology variable at Lag 2 has a significant positive effect on International Tourist

Visits, which means that a 1 percent increase in Information Technology in the previous 2 years will increase International Tourist Visits in the short term by 0.51% in the current year.

Table 7. Long-Term VECM Results

Variable	Coefficient	T-Statistic	Prob
<i>Constanta</i>	-17.65544		
TR (-1)	0.061093	9.93839	0.00615
IN (-1)	-0.011245	-0.93223	0.01206
LN_ER (-1)	-0.461673	-7.33516	0.06294
LN_IT (-1)	0.148661	4.16339	0.03571

Source: secondary data, processed with Eviews 10.

Table 7 shows the estimation results of the VECM model in the long term that Trade, Inflation, and Information Technology in Lag 1 have a significant effect on International Tourist Visits in Indonesia. The positive effect of the Trade variable on International Tourist Visits in the long term is obtained. This means that a 1 percent increase in Trade will lead to an increase in International Tourist Visits of 6.11%. Then the negative effect of the inflation variable on international tourist arrivals in the long term. This means that a 1 percent increase in Inflation will cause a decrease in International Tourist Visits by 1.12%. And the Information Technology variable shows a positive influence on International Tourist Visits in the long term. This means that a 1 percent increase in Information Technology will lead to a 14.8% increase in International Tourist Visits.

Then based on the estimation of the VECM model, the coefficient of determination of the R-Squared value is 0.85 or 85.18%. This means that the large influence of Trade, Inflation, Exchange Rates, and Information Technology on International Tourist Visits in Indonesia is 85.18%, while the remaining 14.82% is influenced by other variables not examined in the model.

Furthermore, the Impulse Response analysis is to determine the response of the endogenous variable, namely International Tourist Visits to shocks caused by exogenous variables, namely Trade, Inflation, Exchange Rates, and Information Technology for several periods. Overall Impulse Response results show that International Tourist Visits respond to shocks caused by the variables of Trade, Inflation, Exchange Rates, and Information Technology starting in the second period, which are expressed in standard deviation units (SD). Impulse Response results are presented in Table

Table 8. Impulse Response Results

Response of LN_ITV:

Periode	LN_ITV	TR	IN	LN_ER	LN_IT
1	0.043175	0.000000	0.000000	0.000000	0.000000
2	0.039292	-0.028476	0.012479	-0.001065	-0.039210
3	0.039177	-0.021767	0.032770	-0.039006	-0.035576
4	0.068473	-0.016723	0.055947	-0.049296	-0.041415
5	0.073013	-0.020654	0.053553	-0.036689	-0.057552
6	0.075673	-0.021501	0.047579	-0.036716	-0.056142
7	0.068195	-0.020118	0.059445	-0.055781	-0.061667
8	0.067544	-0.014890	0.066134	-0.061153	-0.063443
9	0.085087	-0.017564	0.060751	-0.032367	-0.063048
10	0.078425	-0.020745	0.057167	-0.037447	-0.063561

Source: secondary data, processed with Eviews 10.

Result of Impulse Response Trading variable. The second period shows that International Tourist Visits respond negatively to shocks in the Trade variable of 0.0284 SD, which means that when there is an increase of 1 SD in the Trade variable, it will respond with a decrease in International Tourist Visits of 0.0284 SD. As for the average response for 10 periods, International Tourist Visits to shocks in the Trade variable are 0.0202 SD. The results of the Impulse Response variable Inflation stated that in the second period, International Tourist Visits responded positively to shocks in the Inflation variable of 0.0124 SD, which means that when there is an increase of 1 SD in the Inflation variable, it will respond to an increase in International Tourist Visits of 0.0124 SD. As for the average response for 10 periods, International Tourist Visits to shocks in the inflation variable are 0.0495 SD.

Then the results of the Impulse Response Exchange Rate variable. In the second period, International Tourist Visits responded negatively to the shock of the Exchange Rate variable of 0.0010 SD, which means that when there is an increase of 1 SD in the Exchange Rate variable, it will respond with a decrease in International Tourist Visits of 0.0010 SD. As for the average response for 10 periods, International Tourist Visits to shocks in the Exchange Rate variable are 0.0388 SD. And the results of the Impulse Response of the Information Technology variable in the second period show that International Tourist Visits responded negatively to shocks in the Information Technology variable of 0.0392 SD, which means that when there is an increase of 1 SD in the Information Technology variable, it will respond with a decrease in International Tourist Visits of 0.0392 SD. The average response for 10 periods, International Tourist Visits to Information Technology variable shocks is 0.0535 SD.

Analysis of Variant Decompositions is used to determine the contribution of each exogenous variable to the endogenous variable over the next several periods. This study will focus on the Variant Decompositions of Trade, Inflation, and Information Technology variables on International Tourist Visits for 10 periods. The results of the Decompositions Variant can be seen in Table 9.

Table 9. Results of Decomposition Variance

<i>Variance Decomposition of LN_KW:</i>						
Periode	S.E.	LN_ITV	TR	IN	LN_ER	LN_IT
1	0.043175	100.0000	0.000000	0.000000	0.000000	0.000000
2	0.076897	57.63412	13.71292	2.633419	0.019192	26.00034
3	0.108548	41.94937	10.90278	10.43577	12.92259	23.78949
4	0.155004	40.08669	6.510820	18.14547	16.45162	18.80539
5	0.193158	40.10252	5.336071	19.37170	14.20207	20.98764
6	0.224193	41.16117	4.880742	18.88355	13.22433	21.85022
7	0.256448	38.52946	4.345612	19.80518	14.83802	22.48172
8	0.287555	36.16162	3.724397	21.04141	16.32404	22.74853
9	0.314563	37.53534	3.424082	21.31326	14.70007	23.02724
10	0.337995	37.89501	3.342493	21.32115	13.95995	23.48140

Source: secondary data, processed with Eviews 10.

The results of the Decompositions Variant indicate that, in the first period the variables of Trade, Inflation, Exchange Rate, and Information Technology have not contributed to the variance of changes in International Tourist Visits. And start to contribute in the second period up to the 10th period. In the second period, the contribution of the Trade variable to International Tourist Visits was 13.71%. In the third period, the contribution of Trade was 10.90%, then the fourth period was 6.51%. And in the next period up to period 10, there was a decrease in the contribution of Trade to International Tourist Visits. Then the results of the Variant Decompositions of the Inflation variable showed a contribution to International Tourist Visits of 2.63% in the second period. In the third period the contribution of the inflation variable was 10.43%, then in the fourth period it was 18.14%. And up to period 10, the contribution of Inflation continues to increase to International Tourist Visits. Although there was a one-time decline in period 6.

The results of the Decompositions Variant of the Exchange Rate showed a contribution to International Tourist Visits of 0.01% in the second period. In the third period, the contribution of the Exchange Rate to International Tourist Visits was 12.92%, then in the fourth period the contribution of the Exchange Rate was 16.45%. There was a decrease in the contribution of the Exchange Rate to International Tourist Visits in periods 5 and 6, then increased again in periods 7 and 8. While in periods 9 and 10, the contribution of the Exchange Rate to International Tourist Visits decreased again. Finally, the results of the Variant Decompositions of the Information Technology variable, which shows a 26% contribution to International Tourist Visits in the second period. In periods 3 and 4, the contribution of Information Technology decreased to International Tourist Visits. Then in the next period, namely periods 5 to 10, there was an increase in the contribution of Information Technology to International Tourist Visits

4.2 Discussion

Based on the explanation of the results of the VECM model analysis, testing the research hypotheses obtained from the statistical test of the VECM model shows that the variables of Trade, Inflation, and Information Technology have a significant effect on International Tourist Visits in the short and long term. While the Exchange Rate variable has no effect on International Tourist Visits in the long term but has an effect in the short term.

Effect of Trade on International Tourist Visits

Trade has a significant positive effect on International Tourist Visits, in the short and long term. This means that the number of international tourist arrivals in Indonesia is increasing when international trade increases. On the other hand, the number of tourist visits will decrease if international trade declines. Then based on impulse response analysis that the response of International Tourist Visits to international trade shocks fluctuated for 10 periods. The response shown by International Tourist Visits is negative, so that when a shock occurs in trade, it will be responded to by a decrease in International Tourist Visits.

While the results of the analysis of the short and long term effects of International Trade on International Tourist Visits are positive and in line with the theory that through trade between countries, the exporting country (Indonesia) will be better known to the importing community, which will indirectly increase interest in visiting Indonesia. In this case, trade is also a form of promotion and introduces Indonesia to importing countries (Leitão, 2010). The findings of this study are in line with

the research conducted by Shahbaz et al. (2017) & Alola et al. (2019) that trade affects International Tourist Visits.

The Effect of Inflation on International Tourist Visits

Inflation has a significant negative effect on International Tourist Visits, in the short and long term. This means that the number of international tourist arrivals in Indonesia increases when the inflation rate is low, and vice versa the number of tourist arrivals decreases due to an increase in the inflation rate based on the CPI. Then based on impulse response analysis that shocks to the inflation rate tend to get an increasing response for 5 periods, but there is a decrease in response in periods 6 and 10. The response shown by International Tourist Visits due to the inflation rate is positive, so that the increase in inflation will be responded to by an increase in Tourist Visits. International. Meanwhile, according to the results of short-term and long-term analysis, the effect of inflation on International Tourist Visits has a negative direction, and is in accordance with existing theory.

A low level of inflation describes the general price of goods and services in a country within reasonable limits. Where this condition affects the community's cost of living. When the cost of living is low or at a stable level, it will affect other costs, one of which is the cost of transportation travel, tourist accommodation (Meo et al., 2018). The high cost of travel will result in a decrease in the inflow of visits from foreign tourists to Indonesia. So that an increase in inflation based on the CPI will cause a decrease in the purchasing power of foreign tourists, which will have a negative impact on the number of tourist visits from other countries to Indonesia. The findings of this study are in line with the research conducted Meo et al. (2018) which states that Inflation affects Tourist Visits.

The Effect of Exchange Rates on International Tourist Visits

Exchange rate has a significant negative effect in the short term on International Tourist Visits. This means that if the exchange rate (dollar against rupiah) increases, it will have an effect on decreasing the number of tourist visits to Indonesia. As it is known that the exchange rate of tourist destination countries affects the interest of tourists to visit the country, Nimanussornkul & Do (2017) stated that the exchange rate is the most significant determinant of tourism demand. However, in this study there is a theoretical contradiction with the VECM test results that the exchange rate has a significant negative effect on tourist visits, where during the period 1991-2019 the exchange rate fluctuated and tended to decrease, while tourist visits in Indonesia increased. Utami & Hartono (2016) explained that the lower the exchange rate of the destination country will increase the interest of tourists to visit and spend more money because tourists perceive the price to be cheaper.

According to Mak (2003) One of the factors that influence someone to travel is the price factor. Because in traveling, someone pays for lodging, transportation, and costs at his own tourist spot. So that tourists will compare some of the prices offered in several tourist destinations, and they tend to prefer tourist attractions with lower prices. So that the choice of tourists shifts from countries with high exchange rates to destination countries with low exchange rates, which will have an impact on increasing the number of international tourist visits to that country (Li, Song, & Witt, 2005) (Song & Li, 2008). The findings of this study are in line with Nimanussornkul & Do (2017) dan Haseeb et al. (2019) which states that the Exchange Rate has an effect on Tourist Visits.

The Effect of Information Technology on International Tourist Visits

Information Technology has a significant positive effect on International Tourist Visits, in the short and long term. This means that the higher the use of Information Technology as measured by computer, communication and information services, the more the number of International Tourist Visits to Indonesia will increase. And the lower the use of Information Technology services, the lower the

International Tourist Visits. Then based on impulse response analysis that the response to the number of International Tourist Visits on Information Technology service shocks tends to increase for 10 periods. Where the response shown by International Tourist Visits is negative, so that when a shock occurs in Information Technology services, it will be responded to by a decrease in International Tourist Visits.

Meanwhile, the results of the analysis of the short and long term effects of Information Technology services on International Tourist Visits are positive and in line with the theory that the availability of adequate infrastructure for Technology, Information and Communication services will improve the tourism industry and help facilitate international travel, hospitality and financial mechanisms (Ilić & Nikolić, 2018). The findings of this study are in line with research conducted by Al-Mulali et al. (2020) which shows that Information Technology has an effect on Tourist Visits.

5. Conclusion

International tourist visits reflect the number of individuals or the volume of tourists entering from one country to another, which in this study represents the number of tourists entering Indonesia during the period 1991-2019. The large number of tourist visits reflects the amount of tourism receipts for the Indonesian state. Natural and cultural wealth has great potential to attract tourists to visit Indonesia. This research tries to find out whether there is an effect of Trade, Inflation, Exchange Rates, and Information Technology on International Tourist Visits in Indonesia, in the short and long term during the period 1991-2019. So the results of statistical analysis using the VECM research model show that trade has a significant positive effect on International Tourist Visits, in the short and long term. Inflation has a significant negative effect on International Tourist Visits, in the short and long term. Information Technology has a significant positive effect on International Tourist Visits, in the short and long term. Meanwhile, the Exchange Rate has a significant negative effect in the short term on International Tourist Visits.

The implications of the research based on the results of this study are aimed at stakeholders, especially the Indonesian tourism ministry and service companies in the tourism sector in increasing the number of international tourist visits to Indonesia, so it is hoped that they will pay more attention to trade, inflation, exchange rates, and information technology factors. Especially the availability of digital-based state technology, information and communication services, which can increase the competitiveness of Indonesian tourism with other countries. The contribution of the findings of this study to previous research is expected to add to empirical studies related to tourist visits in Indonesia based on a quantitative approach, using the VECM analysis model. In addition, the results of this study are certainly inseparable from limitations and shortcomings, so the recommendation for further research is to be able to add other exogenous variables and use different research objects.

6. Reference

- Aferdita, B.-S., & Mihane, B.-N. (2015). Information Technology and the Digital Economy. *Mediterranean Journal of Social Sciences*, 6(6). <https://doi.org/10.5901/mjss.2015.v6n6p78>
- Alola, U. V., Cop, S., & Alola, A. A. (2019). The spillover effects of tourism receipts, political risk, real exchange rate, and trade indicators in Turkey. *International Journal of Tourism Research*, 21(6), 813–823. <https://doi.org/10.1002/jtr.2307>.
- Al-Mulali, U., Solarin, S. A., Andargol, A. E., & Gholipour, H. F. (2020). Digital adoption and its impact on tourism arrivals and receipts. *Anatolia An International Journal of Tourism and*

- Hospitality Research*, 00(00), 1–3. <https://doi.org/10.1080/13032917.2020.1856692>
- Badan Pusat Statistik. (2019). *Statistik Kunjungan Wisatawan Mancanegara 2019*. Jakarta: Badan Pusat Statistik.
- Basuki, A. T., & Prawoto, N. (2016). *Analisis Regresi dalam Penelitian Ekonomi dan Bisnis. Dilengkapi Aplikasi SPSS & EVIEWS*. PT RajaGrafindo Persada.
- CNN Indonesia. (2021, Maret 28). *Daftar Kasus Ledakan Bom di Indonesia 2 Dekade Terakhir*. Retrieved Juni 1, 2020, from CNN Indonesia: <https://www.cnnindonesia.com/nasional/20210328150157-20-623072/daftar-kasus-ledakan-bom-di-indonesia-2-dekade-terakhir>
- Crouch, G., & Ritchie, J. (1999). Tourism, Competitiveness, and Societal Prosperity. *Journal of Business Research*, 44 (3), 137-152.
- data.worldbank.org. (n.d.-a). *ICT service exports (% of service exports)*. The World Bank. Retrieved April 7, 2021, from <https://data.worldbank.org/indicator/BX.GSR.CCIS.ZS>
- data.worldbank.org. (n.d.-b). *Inflation, consumer prices (annual %)*. The World Bank. Retrieved April 28, 2021, from <https://data.worldbank.org/indicator/FP.CPI.TOTL.ZG>
- data.worldbank.org. (n.d.-c). *International tourism, number of arrivals*. The World Bank. Retrieved April 28, 2021, from <https://data.worldbank.org/indicator/ST.INT.ARVL>
- data.worldbank.org. (n.d.). *Trade (% of GDP)*. Retrieved Mei 2021, from The World Bank: <https://data.worldbank.org/indicator/NE.TRD.GNFS.ZS>
- Diphayana, W. (2018). *Perdagangan Internasional*. Yogyakarta: Penerbit Deepublish.
- Gül, H. (2013). Economic Impacts of an Increase in the Foreign Tourism Receipts: a Sam--Based Income Multiplier Analysis for Turkey. *An International Journal of Akdeniz University Tourism Faculty*, 1(1), 2147–9100. www.ttyd.org.tr
- Haseeb, M., Zandi, G., Andrianto, N., & Chankos, T. (2019). Impact of macroeconomic indicators on development patterns: Case of tourism industry in ASEAN region. *Journal of Security and Sustainability Issues*, 9(1), 257–268. <https://doi.org/10.9770/js>.
- IDN Times. (2018, Oktober 20). *5 Kejadian Penting di Indonesia Tahun 2000an yang Harus Kamu Ketahui*. Retrieved Juni 1, 2020, from IDN Times: <https://www.idntimes.com/hype/throwback/zainal-arifin/5-kejadian-penting-di-indonesia-tahun-2000an-yang-harus-kamu-ketahui-c1c2/5>
- Kompas.com. (2018, September 3). *7 Fakta Seputar Asian Games 2018*. Retrieved Juni 1, 2021, from Kompas.com: <https://olahraga.kompas.com/read/2018/09/03/14421248/7-fakta-seputar-asian-games-2018?page=all>
- Hojeghan, S. B., & Esfangareh, A. N. (2011). Digital economy and tourism impacts, influences and challenges. *Procedia - Social and Behavioral Sciences*, 19, 308–316. <https://doi.org/10.1016/j.sbspro.2011.05.136>
- Ilić, I., & Nikolić, A. (2018). Implications of modern technology development for the tourism sector of the Republic of Serbia. *Ekonomika*, 64(1), 37–52. <https://doi.org/10.5937/ekonomika1801037i>
- Kumar, N., & Kumar, R. R. (2019). Relationship between ICT and international tourism demand: A study of major tourist destinations. *Tourism Economics*, 26(6), 908–925. <https://doi.org/10.1177/1354816619858004>
- Leitão, N. C. (2010). Does trade help to explain tourism demand? The case of Portugal. *Theoretical and Applied Economics*, Volume XVII, No. 3(544), pp. 63-74 .
- Liputan6. (2003, Agustus 5). *Lima Ledakan Bom Mengguncang Jakarta pada 2003*. Retrieved Juni 1,

- 2020, from Liputan6: <https://www.liputan6.com/news/read/59796/lima-ledakan-bom-mengguncang-jakarta-pada-2003>
- Lopez-Cordova, E. (2020). Digital Platforms and the Demand for International Tourism Services. *Digital Platforms and the Demand for International Tourism Services*, February. <https://doi.org/10.1596/1813-9450-9147>
- Mak, J. (2003). *Tourism and the Economy: Understanding the Economics of Tourism*. University of Hawaii Press.
- Mankiw, N. G. (2018). *Pengantar Ekonomi Makro (Ketujuh)*. Salemba Empat.
- Meo, M. S., Chowdhury, M. A. F., Shaikh, G. M., Ali, M., & Masood Sheikh, S. (2018). Asymmetric impact of oil prices, exchange rate, and inflation on tourism demand in Pakistan: new evidence from nonlinear ARDL. *Asia Pacific Journal of Tourism Research*, 23(4), 408–422. <https://doi.org/10.1080/10941665.2018.1445652>
- Neidhardt, J., & Werthner, H. (2018). IT and tourism: still a hot topic, but do not forget IT. *Information Technology and Tourism*, 20(1–4), 1–7. <https://doi.org/10.1007/s40558-018-0115-x>
- Purba, B., & Suryani, D. (2021). *Ekonomi Internasional*. Yayasan Kita Menulis.
- Putong, I. (2003). *Pengantar Ekonomi Mikro dan Makro*. Ghalian Indonesia.
- Rozalinda. (2017). *Ekonomi Islam, Teori dan Aplikasinya pada Aktivitas Ekonomi*. Rajawali Pers.
- Shahbaz, M., Kumar, R., Ivanov, S., & Loganatha. (2017). The nexus between tourism demand and output per capita with the relative importance of trade openness and financial development: A study of Malaysia. *Tourism Economics*, 23(1), 168–186.
- Simorangkir, I., & Suseno. (2005). *Sistem dan Kebijakan Nilai Tukar*. Jakarta: Pusat Pendidikan dan Studi Kebanksentralan (PPSK) Bank Indonesia.
- Song, H., & Li, G. (2008). Tourism Demand Modelling and Forecasting: A Review of Recent Research. *Tourism Management*, 29 (2): 203-20.
- Sugiyono. (2016). *Metode Penelitian Kuantitatif, Kualitatif dan R&D*. Cetakan ke-23. Alfabeta.
- Tampubolon, J. (2020). *Perdagangan dan Bisnis Internasional Teori dan Analisis Empiris*. Yogyakarta: Penerbit Deepublish.
- TTCL. (2019). *The Travel & Tourism Competitiveness Report 2019*. Geneva: The World Economic Forum's Platform for Shaping the Future of Mobility.
- UNWTO. (n.d.). *Global and Regional Tourism Performance*. Retrieved April 2021, from The World Tourism Organization: <https://www.unwto.org/global-and-regional-tourism-performance>
- Utami, R. C., & Hartono, D. (2016). Analisis Daya Saing Harga Pariwisata Indonesia: Pendekatan Elastisitas Permintaan. *Jurnal Kepariwisata Indonesia*, Vol. 11 Nomor 93-118.
- unwto.org. (n.d.). *Global and Regional Tourism Performance*. Retrieved April 18, 2021, from <https://www.unwto.org/global-and-regional-tourism-performance>
- Wang, L., Zeng, G., & BI, D. (2019). Spatial spillover effects of ICT on tourism industry growth. *Acta Geographica Sinica*, 74(2), 366–378. <https://doi.org/10.11821/dlxb201902012>.
- World Travel & Tourism Council. (2020). TOP 20 ECONOMIES - LARGEST CONTRIBUTION OF TRAVEL & TOURISM GDP. <https://wttc.org/>.
- Yalçinkaya, Ö., Daştan, M., & Karabulut, K. (2018). The effects of international tourism receipts on economic growth: Evidence from the first 20 highest income earning countries from tourism in the world (1996-2016). *Montenegrin Journal of Economics*, 14(3), 55–71. <https://doi.org/10.14254/1800-5845/2018.14-3.4>