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International Tourism Demand in Indonesia: Gravity Model Approach

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Abstract

Tourism is considered as big industry which growing up faster compare to other industry in this recent year. It is reported that Indonesia received approximately 11.5 million of international tourists in 2016. The government willing to boost up the factors that might contribute more on attracting international tourist. This study tried to analyse the international tourism demand in Indonesia by gravity model approach. Besides that, visa-free policy was involved to see the effect of its policy on tourism demand in Indonesia. Then, exchange rate of origin country is used as a control variable. The data is collected by many different sources during the period of 2006 to 2016, The study found that all variables are statistically significant. GDPs origin and destination country and country with visa-free entry have positive effect to the number of international tourist arrival while the rest which is exchange rate of origin country and length of distance have negative effect to the international tourists. From the result, it can be concluded that gravity model in this paper is a good tool for measuring the tourism demand in the case of tourism demand in Indonesia. Hence, the government needs to promote aggressively to the international tourist by conducting important events, increasing the number of countries that receive Indonesia visa-free and maintain the GDP in both origin and destination country.

Key words : Tourism, GDP, Visa-Free Entry, Gravity Model, Length of Distance, Exchange Rate, Indonesia, Fixed Effect Model

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INTRODUCTION

Travel and tourism is often called the "Cinderella" industry. It plays an important role as one of the main driving factors of a country's economic progress for a long time, however this industry has not received the attention it deserves and has been ignored by many researchers as an academic field of study (Buhalis, 2000a). According to Beard and Ragheb (1983), one of the first definitions of tourism originated in the early 19th century and was delivered by Austrian economist Hermann Van Schullard in 1910. It is said that tourism is the total number of operators, mainly from the natural economy, which directly relating to the entry, stay and movement of foreigners inside and outside certain countries, cities, or even regions. Another definition by Gilbert (2013), tourism is one part of recreation that involves traveling to unfamiliar destinations or communities, for a short period, to meet the needs of one consumer or a combination of activities. Whereas at present, the definition of tourism proposed by the World Tourism Organization (WTO) is generally adopted, the WTO defines tourism as an activities of people who travel and live in place outside their usual environment for no more than one year in a row for vacation, business, and other purposes not related to the training of an activity that is paid for the place visited.

Recently, researchers have begun to recognize its potential and explore the benefits of this sector. This includes investigating the features of tourism demand and supply and how they are encouraged, i.e by investigating matters that affect them. The reasons for ignorance of the role of tourism in economic growth are many and complex. Among the most important is the extreme difficulty in explaining the clear the definition for tourism and what actual component. Many people are of the view that tourism only affects transportation, accommodation, and other service-based commodities. In fact, tourism has a lot of impact on the expansion of local infrastructure, agriculture, and manufacturing to serve the foreigners. Some even argue that local human resources have increased due to tourism. This happened because the human resources of the country must learn to meet the demand of visitors.

As the result, data relating to tourism is often insufficient for rigorous economic analysis, without understanding the proper definition of tourism. These studies are time-consuming, expensive, and most importantly, limited in scope. If not, econometrics expert are forced to rely on compilation of basic tourism data such as international arrivals, receipts, and percentage share of GDP or exports. Unfortunately this data only goes back to the earliest 1980s, and is often not available for many developing countries.

The economic impact of tourism as an activity influenced by the amount of money spent by tourists in the destination country and the way they travel. The direct effect can be illustrated by tourist expenditure (Stynes, 1997). In other words they are related to the first flow of money paid by tourists for tourism products. The tourism industry has a positive impact on the economy besides an increase in foreign exchange earnings, and employment opportunities. According to the UNWTO (2019), 1.4 billion people crossed the international borders in, increased 5% then before. While the total international tourism exports has been increasing about 4% with value approximately USD 1.7 trillion. Destination that receive visits and tourism activities can benefit in many different ways, although distortions in the local or national economy could also arise, especially when they are caused by unplanned, unmanageable, or unmoderated dependencies on income and opportunities provided by tourism industry (Pleumarom, 1994).

Tourism has the potential to produce increases in output, sales, income, and new employment in the host county (Garín-Muñoz & Montero-Martín, 2007). The opportunity offering by the future of tourism development in certain places are very attractive to business-oriented people from all backgrounds and socio-economic conditions. As the result, tourism can provide a valuable boost to the local economy of a destination, tourism can also be one of the foreign exchange earners on national scale, and thus an important source of exports expecially for small and developing countries (Humphreys & Holloway, 2009). Therefore, it is not surprising that many governments at the national and local levels are trying to do development in tourism sector because of the benefits created by tourism. It is also not surprising that governments tend to consider economic benefits as the most important measure of tourism, because this can help achieve a positive balance of payments and stimulate sectors that depend on tourism, so they tend to benefit the local area (Ivanov & Webster, 2007). Many researchers have studied the importance and economic impact of tourism and business travel using various approaches, such as Fletcher (1989), Sahli and Nowak (2007), Blake et al (2008) and Zortuk (2009) found a direct relationship between Gross Domestic Product (GDP) and tourist arrivals.

Meanwhile, the indirect affect arises after the money spent by tourists flows directly through other industries in the economy. This affect can be described as changes in the production of product suppliers into tourism companies to meet their demand. That can cause changes in quantity, quality, and the price of the product provided. As said by Jucan & Jucan (2013), to make the most tourism revenue in certain countries, it is important to encourage companies engaged in tourism sector to get their supplies mainly from local manufacturers so they can improve the tourism sector in their countries. This allows a large portion of fixed income in the country's economy.

Tourism is a sector that is very important in economic growth in Indonesia. If the economic components of tourism can grow well, then the contribution to Indonesia's economic growth will be dominated by tourism industry. Indonesia's GDP is currently heavily influenced by the tourism sector. Tourism sector is a sector that is supported by other economic sectors such as transportation, human resources, and many others. Tourism sector revenue is calculated through tourist expenditure and investment in tourism such as business in tourism areas, travel services, food and beverage services, accommodation services, entertainment and recreation activities, conferences and exhibitions, tourism information services, tourism consulting services, tour guides, and massage (Tourism Ministry, 2017)

Tourism in Indonesia has experienced continuous development and diversification over the past six decades, thus becoming one of the largest and fastest growing economic sectors in the world. Although, this industry is a relative new phenomenon in the world but it plays significant role in the economic, cultural, and social development of many countries. If tourism can be managed properly, it could lead to increased production, higher standard of living, increased public welfare, business development (Tourism Ministry, 2017) and a high level employment (WTTC, 2017).

In the same line, Indonesia as the part of the largest archipelago in the world has many potential tourism destinations. This attracts people to visit it because of the country's beautiful nature, unique culture, varied food, hospitable people that spread all over

Indonesia's islands. Moreover, tourism in Indonesia is one of important component of the Indonesian economy since tourism is the third biggest of foreign revenue after timber and textile products. According to World Travel and Tourism Council (2017), tourism in Indonesia made a total contribution of 6.2% of GDP and supported 5.6% of total employment in 2016. In addition, Government also provide visa-free to certain countries and it becomes the supplement factor to stimulate the visitors going to Indonesia as well (Pujiharini & Ichihashi, 2016).

Indonesia Bureau of Statistic (BPS, 2017b) pointed out that the number of foreign tourist in Indonesia increased 10.6% to 11.5 million people in complete year of 2016. The earnings from foreign exchange from tourism industry grew 11% to USD $12.2 billion in 2015 compared to USD $11.1 billion in 2014. On average, it means each foreign tourist spent around USD $1,208 per visit in 2015 with the average length of stay increasing from 7.6 days to 8.5 days.

Moreover, over the last decades, the average annual growth rate of international tourist arrivals had good performance between 2007 and 2016. This means Indonesia has become more and more popular in the world. Therefore, a large attention has given by the Indonesian Ministry of Culture and Tourism that concerned in several campaigns to promote Indonesia through various media such as printed media, television, and internet. Although the number of problems that can influence to the tourism of Indonesia appeared such as lack of proper infrastructure, unstable exchange rate, even the threats of terrorism. The contribution of government to increase number of international through advertisement results in rising number of international tourist every year.

There are many reasons which attract tourist to visit, different people participate in tourism activity for different purposes. Seemingly, every reason comes with certain tourism demand. One of the most common demands is accommodation services. Whatever the intention, tourists should be accommodated in an easy way. The most common reasons for tourists travelled around are for leisure, visit friends, business, health treatment, religion reason, and many others motivates.

In this paper, the author is focusing on tourism demand in Indonesia. Tourism demand is a term that is usually used, referring to a series of tourism products-good and services that consumers like and can be bought for a certain time under a certain set of conditions (Song, F.Witt, & Li, 2008). Tourism demand can be studied through various approaches such as economic, geographic, and psychological approach. The economic approach examines tourism demand as the relationship between demand and prices, or other factors. Meanwhile, geographical approach considers the environmental impact of demand for tourism. Then, the psychological approach studied the character of tourist which not only those who truly participate in tourism but also those who hope (Cooper et al 2008). Buhalis (2000b) suggested that tourism demand can be conceptualized as three basic types that make up total tourism demand. First, there is effective demand, which is represented by the actual number of tourists who complete their trip. The second type suppressed request, consist of people who do not travel for a reason, either because of personal circumstances or because of external impossible conditions. The third type called latent request, it refers to specific locations of feature to generate requests. Demand for tourism varies from one place to another place and from one time to another, this difference can be quantitative or qualitative because tourism demand is influenced by a large group of economic or other factors. The

most important factors are price, income, fashion and taste, advertising, leisure and population.

The tourism industry is very important for the economy and is identified as one of the main sources of economic growth. Therefore, serious attention should be paid in studying the influencing factors of international tourist arrivals. There are many variables may affect the international tourism. However, in this paper, we would like to more concern on using variables, which are GDPs origin and destination country, exchange rate of origin country, visa-free impact and distance between Indonesia from origin countries. By these variables, perhaps, it would help the policy maker to enhance and explore more on the elements that can attract tourism flows (Lorenzini, Pisati, & Pompili, 2014).

Empirical analysis in this study used the gravity model. The gravity model traces its origin to Newton's law of gravity, which stated that attraction between two objects is proportional to their mass and inversely proportional to the distance between them. General equation for gravity models read:

$$F_{i,j} = G \frac{M_i M_i}{D_{i,j}}$$

Where F is the gravitional force between two objects i and j. Mi and Mj are the masses of these two objects. D is the distance between countries, while G refers to universal gravitional constant.

Many researchers choose to study tourism flows using the gravity model approach. For example, Prideaux, Laws, & Faulkner (2003) explored the limitations of forecasting models in crisis situations. Prideaux (2005) combined a review of existing literature with an analysis of tourist flow data using gravity modeling techniques

to examine the structure of bilateral tourism and identify various categories of factors that can affect the overall size of tourism flows. Archibald and Lacorbinière, (2008) used a dynamic tourism gravity model to measure the competitiveness of the Caribbean tourism market. Khadaroo & Seetanah (2008) applied gravity models to investigate the role of transportation infrastructure in attracting tourists. Keum (2010) explored the gravity equation to assess how well it can explain the flow of tourism, and he conducted a general survey and exposition of international tourism flow patterns. Zhang and Wang (2017) used a gravity model approach to investigate the impact of cultural values on tourism. Empirical evidence gathered by this and other studies supports the basic validity and utility of the Gravity Model to describe the flow of tourism and trade. Studies like this and papers by Morley et al. (2014) shown that, within certain specified limits, the application and robustness of the gravity model approach is well established.

Duc, Lavallee, and Siroen (2008) applied a gravity model to assess the impact of governance quality in developing countries among 21 OECD countries. The results show that if developing countries have good governance policies, this will help them import goods from industrialized countries. In addition, according to Poprawe (2015), corruption has a negative effect on tourism. However, the effects of corruption on tourism may be multiplied (Dutt & Traca, 2010). Evidence shows that corruption can facilitate business activities, thereby increasing the speed or 'speed' of money and hence accelerating business transactions. In this case, corruption sometimes has positive side effects for tourists who come, which might make the regulation easier because of the payment of bribes. However, when such payments are expected, non-payments can cause problems for

unconscious tourists. In this view, it is relevant to ask whether the assessment of the quality of the judicial and governance framework can be developed as an indicator that will be applied to the evaluation of the state of democracy and corruption in an area. The next question arises whether these indicators are strong enough in connection with more recent developments. The impact of institutional behavior and quality on trade certainly needs to be addressed (Dearden, Reed, & Van Reenen, 2000)

Gravity first appeared in textbooks in 2004 (Feenstra, 2004) after successfully connecting gravity with economic theory. The benefit of this model is that in order to explain the relations between contries in international economic theory which is concentrated in two cases of countries, sometimes it is expanded in the case of three countries with special features. Gravity tracking in many countries thanks to its modularity: the distribution of goods or factors across space is determined by the force of gravity which depends on the size of economic activity in each location.

Because of the lack of theoretical background in the context of tourism, gravity model was ignored in the tourism literature during the eighties and nineties. However, driven by success in international trade training, the gravity equation has reappeared in the tourism demand literature over the past two decades. Kimura & Lee (2006) show that service trade is better predicted by the gravity equation than trade in goods. Keum (2010) explored the validity of the gravity equation to explain tourism flows. He presented a general description of international tourism demand patterns. In addition, empirical evidence supports the gravity model in terms of application and resistance to the flow of trade and tourism (Morley, Rosselló, & Santana-gallego, 2014). The gravity model was introduced into

international trade by Mellor (1964). He used this model to predict bilateral trade between countries in the hands of the country's economic size and distance between them. Since its introduction in economics, the gravity model has become a common tool for the analysis of trade flows.

According to the core of gravity model, international tourist arrivals are estimated to be a positive for GDP and negative for distance.the basic form of the gravity model for tourism demand function is given below:

$$T_{i,j} = \beta_0 \frac{(GDP_i GDP_i)}{Distance_{i,j}} u_{ij}$$

The equation above, explains that Tij is an international tourism flow between countries i and j, Distanceij is the distance between countries i and j; uij is an error term.

Standard gravity model generally use cross-sectional data for certain time periods, such as one year, or even more than average data. However, the panel data model can be provide additional insights, capture relevant rlationships over time and avoid the risk of choosing an unrepresentative year. In addition, the panel data allows monitoring of individual effects that cannot be observed between trading partners. Therefore, to investigate the impact of gravity factors on tourism inflows, this study uses a frame model of gravity panel.

Based on a theoretical background and previous research, our main purpose of this paper is to measure of dependence structure between the number of International tourism as dependent variable and GDP, exchange rate, visa-free impact and length of distance as independent variable in Indonesia based on yearly data. The goal of this paper is analysis macro variables that affect to international tourism. The purpose of this research is to provide analysis about macro factors that can be developed in order to develop tourism in Indonesia from macro perspective. The policy

recommendation will also be provided in the last chapter of this paper.

Many literatures have shown the determinant factors that influence tourist arrivals in many countries. In fact, they have bidirectional relationship, GDP to tourism and tourism to GDP. Nanthakumar, Ibrahim, & Harun (2008) studied about tourism development and policy and strategic alliances to Malaysia's economic growth. The authors said that real gross domestic product (GDP) is very important economic indicator to determine the tourist arrival since they found that the lower the GDP, the lower will be the level of tourist arrival. Another research shows that the relationship between GDP and tourism is conducted by Tian, Mak, & Leung (2011). They have proven that tourism have direct and indirect contributions to GDP.

With regards to exchange rate performance, Crouch (1993) found that exchange rate statistically significance to demand of international tourist. It means that the higher the exchange rate, the level of international tourist demanded will be higher. He stated that movement from a system of exchange rate to a system of floating exchange rate might explain trend. The elasticity of exchange rate also significantly determined by region of origin and destination, for instance, tourist from oceans countries may more sensitive to exchange rate while countries from Middle-East are less sensitive. Besides that, the author also explains that fluctuation in exchange rates give the effect of international travel and tourism price. Hence, it would affect the decision of international tourist to visit that destination country. Crouch finding result was supported by the research from Culiuc (2014) and Uysal and Crompton (1984). Culiuc (2014) stated that there is strongly effect of tourism flow to

the real exchange rate of countries destination, both extensive (tourist arrival) and intensive (duration of stay) margins. However, the small island's real exchange rate has less effect from the tourist arrival. Afterwards Uysal and Crompton (1984) also explain that real exchange rate is a significant factor to determine the flows of international tourist arrival to Turkey. Thus, if the real exchange rate declines, tourist would ask for more services.

In order to increase tourism sector revenues, some countries even tend to impose the visa-free. Pujiharini and Ichihashi (2016) analysed about the effect of visa-free entry policy in tourism development, particularly in Indonesia case. The authors found that visa-free policy has positive relationship to tourism arrival. The finding explained that visa-free entry lead to increase number of international tourist by 10.44%. In addition, it also been reported that visa-free policy considered as good policy since the authors found the significant trend of tourist arrival after the policy was issued in 2011. The number of free-visa countries is increasing until this nowadays. Moreover, WTTC (2014) also was examined the relationship between visa policy on tourist arrival and tourism development. The author findings show that facilitative visa policy might contribute to the increase of market in a range between 5% and 25% per year. Visa-free policy even gives high impact to destination countries as long as that country have good and more attractive destination to leisure. It is interesting to note that among ASEAN countries, Singapore reach the highest impact based on competitiveness score on tourism attraction. It is followed by Malaysia, Thailand, Indonesia, Laos and Brunei. The lowest impact goes to Cambodia. In total, number of international tourist arrival would increase to the ASEAN countries between 6 million and 10 million (low and high impact respectively) or 3% and 5.1 % above the baseline forecast under visa policy.

In addition, it is reported that length of distance has negative effect to the number of international tourist arrival (Marrocu & Paci, 2013). Tourist prefers to choose destination country which has short length of distance from their home origin country due to financial constraint. Moreover, it is happened, particularly when the tourist bring along the family to certain vacation to some countries. They need to limit the budget and the best solution is finding the destination countries which are not far away from their home. Mostly, shorter distance doesn't need high cost. Hence, this variable is beneficial to measure the travel demand by tourist (Becken and Schiff, 2011). However, it is interesting to note that Nicolau and Mas (2006), as cited by Marrocu and Paci (2013), explained that whether the distance is far from each origin country, they are still prefer to coming to destination country due to specific preferences, such as culture, climate and tranquillity. It seems that those preferences compensate the effect of length of distance.

Throughout the world, tourism continues to develop as a significant social and economy activity. It plays a vital role in the economy by contributing in generating country's income as well as creates job opportunity to the citizens. Given natural resources and demographic advantages available, people in a country will utilize it to maximize the income gained for their homeland. Economist research the manifold business dimension of tourism, including marketing and the economic impacts of tourism on destinations.

Tourism as defined by the World Tourism Organization - UNWTO (Becken & Hay, 2007) is the activities of persons travelling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes which are not related to the exercise of an activity remunerated from within the place visited. The term of "visitors" or also called "tourists" is described as those persons travelling. Visitor consumption in accommodation, transportation and other tourism services become the GDP generated element, which is the most comprehensive aggregate illustrating the economic relevance of tourism. Many agree that the importance of tourism as a strategic industry in the national economy as it provides an essential contribution to the economic well-being of the citizens in the country, contributes to the economic objectives of governments and shows its possible role as a relevant player in moving towards a more innovative and strong economy.

The primary characteristic of exchange rate is "fluctuate", which is affecting the price of travel and tourism including cost of accommodation, transportation and tourism services. It is difficult to decide an appropriate measurement of price for certain destinations and services provided, especially when tourists visit more than one country in a trip. Another problem is, tourists may realize about the exchange rate but don't have enough information on price level. Countries with lower or depreciate value of currency compared to destination countries tend to avoid visiting the country. For example, in the case of visiting country is Indonesia, countries with lower exchange rate than Indonesia may change their plan to visit other countries or may be the budget to be spent will be cut.

Visa-free policy is part of promotion that effectively boosts up the number of international tourist arrival. Visa-free entry policy among the significant key point in determining is the best place to visit. Most tourists will prefer to visit countries with no visa restriction with more attractive destination. Visa-free policy for tourism in Indonesia faces some challenges where it would create a conflict between the development of tourism and the local traditions; on the life of local people. As

well as the security matters, the terrorist threats, religious conflicts significantly interrupt the impact of visa-free policy for tourism in the country. Length of distance is one of key factor to measure travel demand by tourist. The geographical distance between origin and destination country would be a problem to the international tourist since many problems appear due to far distance between their home countries and the destination country. Expensive cost on accommodation exemplifies the reason on why the distance discourages the willingness of tourist coming to destination country, which in this case is Indonesia. Hence, the higher the length distances from origin to destination, the lower the number of international tourist. In this case, the distance between Indonesia and origin country was measured in kilometres.

Transportation costs are another aspect that can influence tourists' decisions whether to visit Indonesia or not. Variable to capture travel expenses to Indonesia at this paper is the kilometric distance between Jakarta and the capital of all tourists producing countries. Apart from its drawbacks as a measure of travel prices, distance is widely used in the literature as an effective proxy for transportation costs. We hope the negative sign for the coefficient of this variable.

METHOD

This paper aims to investigate the International tourism demand in Indonesia using gravity model. To answer the question, an empirical study is pursued by using panel data with gravity model from 2006 to 2016. The data has been collected from Indonesia Bureau of Statistic and World Bank in yearly basis, between 2006 and 2016. The independent variables tested would be GDPs

of origin and destination country and distance as the gravity variables. Visa-free policy is involved to see how big the impact of this policy. This paper also used exchange rate of Indonesia as control variable, while international tourist arrival in Indonesia is used for dependent variable.

According to Gujarati (2004), there are several benefit by using panel data rather than using either cross section or time series data, namely first, increasing degree of freedom, second is reducing collinearity among independent variables which result to an efficient estimation. Third is giving huge information instead of using cross section or time series, then giving better solution to decide dynamic movement compare to cross section and the last is minimizing the bias that might be happened due to aggregation of individual data. By studying repeated cross sections of panel data observations can detect and measure effects that cannot be observed in a pure cross section or pure time series data.

Analyzing cross-sectional observations and time series provides more flexibility than when using them separately by increasing the quantity and quality of data. In panel data analysis, cross-sectional units are considered heterogeneous and controlled for variation (heterogeneity). Pure time series or cross sections of studies that do not control heterogeneity can run the risk of getting biased results. The data panel can control variables that are subject or time invariant (Baltagi, 2010)

Hence, in this study, the empirical estimation can be denoted as follows:

$$\text{Ln } T_{it} = \beta_0 + \text{Ln } \beta_1 GDPX_{1it} + \text{Ln } \beta_2 GDPY_{2it} - \text{Ln } \beta_3 EXCH_{3it} + \beta_4 FV_{4it} - \beta_5 D_{5it} + \mu_{it}$$

Whereas:

T = International Tourist Arrival

$GDPX_1$ = GDPs destination country

$GDPY_2$ = GDPs origin country

$EXCH_3$ = Exchange rate of origin country

FV_4 = Countries with visa-free entry to Indonesia

D_5 = Length of distance between origin to destination country

β = Constanta from independent variable in the time of unit t and unit i

μ_{it} = error

In this model, GDPs origin and destination country and length of distance need to be transformed into log since they are not percentage data. While the variable of countries with visa-free entry to Indonesia is dummy variable. It is estimated that GDPs of both origin and destination country and countries with visa-free entry to Indonesia have positive effects while exchange rate of origin country and length of distance are expected to have negative effect. Thus, the expected signs are all positives, β_1, β_2, β_4 exclude exchange rate which have negative sign, β_3 and β_5.

In this study, there are three approaches to get best model, Common Effect Model, Fixed Effects Model and Random Effects Model. Those approaches can be employed by using Chow test and Hausman test (Gujarati, 2004). If selected model already chosen, then panel data with that model can be process as long as all variables are satisfied the heteroscedasticity and multicolinearity test.

RESULTS AND DISCUSSION

Before regress the model, Chow test needs to be undertaken. It can be seen that probability of F test is 0.000 which is smaller than level of significance, 0.5. It means that Fixed Effect Model is the best model for this study instead of Common Effect Model. Afterwards, after testing the model using Chow Test, it can be continuing by using

Hausman test as the last test. This test aims to select the correct model for this study either Fixed Effect or Random Effect Model. It can be concluded that Random Effect Model can be used for this study since the probability of Cross-section random is bigger than 0.5 (0.6280>0.5). Hence, the panel data using Random Effect Model is the proper method for this paper.

Table 1. Estimation Result of Regression Analysis (Dependent Variable is Number of International Tourist Arrival).

Variables	Coefficient	Std. Err.	Prob.
C	-22.48584	2.744287	**0.000*****
LN GDP Indo	0.7698375	0.0986326	**0.000*****
LN GDP Origin	1.011304	0.0990648	**0.000*****
LN EXCH Origin	-0.2119072	0.0565836	**0.000*****
LN Length of Distance	-1.666851	0.2193611	**0.000*****
Free Visa	0.1703159	0.0499436	**0.001*****

***denotes significance at 1%, ** for 5% level, and * for 10% level.

Source: Data Processed (2006-2016)

Based on empirical result, it is shows that all variables are statistically significant at the 5 percent of significance level, though each variable has different impact to the number of international tourist arrivals. GDPs from origin and destination country and visa-free entry have positive effect to the inbound tourist while exchange rate of home country and distance have negative impact to the international tourist arrival. According to the estimation, one percent increase in GDP of home country, GDP of destination country will have a positive effect on tourism inbound in Indonesia. Country with visa-free entry will increase the number of international tourist by 1.011 percent, 0.769 percent and 0.17 percent respectively. On the other hand, exchange rate of home country and distance have negative sign, which means that one percent change in both variables lead to

reduce tourist by -0.211 percent and -1.66 percent, respectively.

From the table above, it can be seen that all variables are considered as potential sector to increase or decrease the number of international tourism. GDP of origin country and destination country are mainly seen have same contribution to boost up international tourist. If the number of tourist coming to Indonesia is increasing, it might happen due to strong performance of economic condition in both Indonesia and other countries. Strong GDPs of destination country stimulate indirectly to the number of inbound tourist. The higher the GDP of Indonesia, the more the number of infrastructure (Imikan & Ekpo, 2012). The significant trend of length road due to stable economic is associated with the increasing of number tourist arrival. In addition, destination country might provide good quality of public services, such as health care, public transport and law enforcement (Marrocu & Paci, 2013). Those elements would influence the decision of tourist to visit Indonesia. It is proven by the WTTC data (2017), leisure travel spending is about 74.8 percent of direct travel and tourism GDP in 2016 and the numbers keep increasing with about 75.2 percent of direct travel and tourism GDP in a year later (World Travel & Tourism Council, 2018).

Furthermore, the stable and strong GDP of origin country could help their citizen to conduct their willingness to visit attractive places in destination country. Tourist that came from high income region would have good income since the economic development in that country is considered good. They can do a business trip or leisure trip to the countries which has less currency or going to developing country. It is reported that the number of tourist from Europe and America to Indonesia have significant trend year by year. In complete year of 2005, the number of international tourist from Europe and America are 283,082 tourists and 955,917 tourists, respectively and it keep increasing in the year of 2016 with more than 475,000 tourist from America and more than 1767,000 tourists from European countries.

In addition, the variable of visa-free entry also might help Indonesian government to increase the number of international tourist. Indonesian government realize that tourism contribute more to economic sector and it is considered as the promising industry that growing faster in the world (Tourism Ministry, 2016). Hence, the new law (Presidential regulation No 21/2016) has been issued in 2016 by approving 79 countries to receive visa-free from Indonesia. Then overall, there are 169 countries that receive an Indonesian visa-free. According to Indonesia Bureau of Statistic (2017b), the number of tourist arrival in Indonesia at the year of 2016 is increased by 1.12 percent which is equivalent to 11,519,275 tourists. WTTC (2014) also stated that visa-free requirement could boost the market up from 5 percent to 25 percent every year. By upgrading the tourism fasilities, it might attract more the visitors coming to Indonesia. The good access of public transport, safety leisure places, pedestrian walkway, 24 hours of information center and visa-free requirement exemplify the reasons of tourist to gladly coming to destination country. This result is in line with Balli, Ozer, and Cebeci (2013) that paper stated that visa-free entry policy has boost the number of tourist arrivals to Turkey, The visa-free entry policy has increased the number of international tourist by about 10.44%.

However, it should be noted that actually cross-border movement of people is considered as a double-edged knife by most people of the state government. On the one hand, destination country welcome the economic benefits that are usually associated with such movements in the form of tourism, trade, and foreign capital investment (Kemeny, 2011).On the other hand, they worry about cross-border flow of individuals both for security reasons and because of fears that visitors will become illegal immigrants. National sovereignty includes the right to control and limit who enters the territory of a nation state, a right which 'has historically been seen as a right of ownership in a state of sovereignty' (Collinson, 1996). Globalization has weakened the nation's stated

ability to uphold their right to control mobility, but did not deprive them of the prerogative to do so. So as to anticipate bad things happening, the government imposes visa restrictions requiring a citizen who wishes to travel to a visa-restricted country to apply for a travel visa, which is usually only valid for a short period of time (between 30 to 180 days). Applicants can do this directly, which requires visiting the embassy of the destination country or one of its consulates and waiting in line, perhaps for hours. Or, someone can use a professional visa service that charges a large fee in addition to the visa fee itself. In some cases, a person can apply for a visa on arrival at the border. The cost of money and non-money to get a visa will prevent some of them from entering the destination country.

Aside from the income generated from visa fees, the main benefit for countries that impose visa restrictions is that they can pre-screen who enters their territory before the person even arrives at the border. Visa restrictions help countries to prevent potential illegal immigrants, potential terrorists and criminals as well (Funk, 2001). To enforce this first line of defense, countries will usually ask airlines and passenger ships to refuse passengers who need a visa unless they have a valid visa. Those who arrive at the border by land are not given access unless they have a valid travel visa. Visa restrictions allow countries to selectively filter out their potential visitors. Passport holders from countries that do not need a visa are welcome and are considered as low-risk visitors. Those who need a visa and have been granted a visa are considered to be accepted after closer inspection. However, those who need a visa and do not have or are refused are not liked. The problem is that visa restrictions will deter unaccepted visitors, policy intentions, and visitors who will be welcomed but who only prevented from applying for a visa. Therefore there is a possibility that there will be economic costs in the form of a reduced number of foreign tourists, traders and investors.

For the tourism industry, it is true that 'freedom of travel is freedom of trade' (Young & O'Byrne, 2001). Tourists and travelers come for a short time and they usually choose an alternative destination as an option for their trip. Visa restrictions will only deter a few tourist, others who want to visit the destination country are strong enough to be willing to bear additional costs. That is, visa restrictions can affect the volume and spatial direction of international travel to levels that are still unclear (Czaika & De Haas, 2013). If compared, one would expect the negative effects of visa restrictions to be smaller for trade and FDI. Foreign entrepreneurs and investors usually have a large economic interest in the country where they want to export their goods and services or want to invest their capital. However, many international trade and capital investments abroad require direct or personal contact (Storper & Venables, 2004) with trading and investment partners, not least because of the importance of doing business directly (Gertler, 2003). Globalization has not yet created a 'world without borders' where space and place no longer play a decisive role (Yeung, 1998). In an op-ed, Rainer Stinner, German federal lawmaker for the business-friendly Free Democratic Party, points out that German business loses export opportunities if the spouse's foreign business needs to wait six weeks until he receives a visa from the German consulate abroad.

The requirement to obtain a visa where visa restrictions apply will only deter those whose costs and hassle to obtain a visa do not exceed economic benefits. We must consider, however, that the benefits of trade and FDI will often only be found after personal contact or after visiting a potential export or investment site several times. Visa restrictions can make it more difficult to ascertain whether economic opportunities are significant enough to make a trade or investment. Finally, in some poor countries, many international trades take place directly in the border region with neighboring countries. In such a case, even small surcharges such as those imposed by visa restrictions can have a significant impact on travel and business activities.

If we talk about visa, then we also talk about moving people from one place to another. Providing visa-free policy is one of the policies that support the existence of globalization. Globalization, understood as widening,

deepening and accelerating interconnection throughout the world in all aspects of contemporary social life '(Held, McGrew, Goldblatt, & Perraton, 1999), is a broad process of interrelated social, cultural and economic development across spatial boundaries and political. If focused on three main aspects of economic globalization, namely international tourism, trade and FDI. Technological advances and market competition have radically reduced the costs of air travel and other means of transportation and increasingly longer distance communications (Castells, 1996), and the integration of international markets has spatially developed opportunities for business, trade, investment and tourism. As a result, the world has seen an unprecedented increase in the mobility of people, goods and services, and capital in all parts of the world. Therefore, if we draw a straight line between the globalization with and visa, it can be said that visa-free will make foreign tourists come to destination countries which in turn will create a trickle down effect, so that it can later reduce poverty levels in tourist destination countries (Adha, Nahar, & Azizurrohman, 2018)

Another variable, the exchange rate variable from origin country was found to have negative impact to the international tourist arrival in Indonesia. The increment of exchange rate in origin country would change the decision of tourist to visit Indonesia since they have low currency compare to Indonesia. Let says the currency for 1 US Dollar is IDR 15,000. Then, when the tourist came to Indonesia and bring 200 USD, they will get 200 multiplied by IDR 15,000, which is about IDR 3 million. Suddenly, the currency of rupiah has increased by IDR 1000, which is IDR 14,000 for 1 US Dollar. Hence, the total money received by tourist is IDR 2,800,000. It means that they receive less rupiah due to low currency in origin country. It is supported by the research from Ruane (2014) which explained that stronger USD or weaker JPY would reduce the willingness of Japanese tourist to visit Guam Island, America.

Japanese tourist should pay the higher expenses to Guam by 33% since September 2012. The apresiation of the exchange rate against foreign currencies means the weakening of the tourist currency against the currency of the destination country, this causes the prices of goods and services will increase for foreign tourists. So this will affect foreign tourists who are in Indonesia or who are going to Indonesia, in line with (Chao, Kanno, & Furuta, 2013) which mentioned that the effect of an increase in domestic price inflation due to the weakening of money brought by foreign tourists has influenced through the decline in tourist consumption when they stay in the country.

Moreover, length of distance also has been found as one of significant factors that reduce the number of visitors coming to Indonesia. Bureau of Statistic depicts the data of countries visited Indonesia. From the table 3, it can be seen that foreign tourist from Asia Pacific countries visited Indonesia with the greatest numbers (8.9 million tourists). Meanwhile, Europe, America, Midle East and African countries traveled to Indonesia by a tiny number to range between 367 hundred and 1.7 million visitors. All the countries mentioned in table 3 except Asia Pacific countries are located in farthest away from Indonesia. Hence, the length distance between tourist origin and Indonesia is confirmed to significantly impact the number of visitors.

Table 2. Countries Visited Indonesia in 2015 and 2016

Countries	2015	2016
Asia Pacific	8,096,372	8,908,561
Europe	1,439,464	1,767,145
America	401,934	475,982
Middle East and Africa	293,006	367,587

Source: Indonesian Bureau of Statistic

This result is match with the research of Marrocu & Paci (2013) which stated that distance is a matter for tourist origin to destination. It affects tourist choices, particularly for those who travelled with family. Some foreign tourist could not afford the cost to cover all expenses. The farthest distance means

they need to prepare the expected and unexpected budget.

Although the distance between origin and destination is considered far, many people still decide to come since they have their own preferences on visiting some destination. More attractive places with good access on public services and safe country exemplify the preferences of tourist to visit far destination country. In addition, it cannot be deny that many travel and tourism agency (online or offline) that promote affordable hotel and transportation cost and then government also provide visa-free to 169 countries would help the Indonesian government to get as many as possible international tourists. In the future, the length of distance would not be a big problem anymore since it is compensated by the good services on tourism marketing. Hence, the strong preferences might offset the negative indicator on distance variable.

As a crucial sector in Indonesian economy, the development of tourism is important to be considered. Tourism was seen as a source of contributions that helped induce industrial growth and a structural transformation of the economy. This is reason why understanding factors that attract tourist is important to be observed. In macro scale, government need to look at the underlying fact that there were potential factors contribute the increase of international tourist to Indonesia.

Referring to the empirical findings, it is captured that there is potency of these variables in tourism development. For development purpose, there are some analysis and policy recommendations related to this topic. First, government of Indonesia should focus on the development of visa-free policy. As it can be seen that ASEAN countries and Australia which do not required to obtain visa for visiting Indonesia, has contribute to nearly 56 % of total on foreign visitor arrivals in Indonesia. Among those countries, Malaysia visited as the highest one and it followed by Singapore, Australia and Philipines (BPS, 2017a). Since Indonesia has been allowing 169 countries to visit without visa, perhaps the number of tourist arrival would reach the government target in future years. The positive impact of visa-free entry policies still needs to be improved by broadening a number of aspects, so that not only the number of tourists arriving but also the length of stay and their expenses while traveling must also increase. Because tourists are one of the country's main sources of foreign exchange, the Indonesian government must work with all stakeholders to innovate on this new type of promotion that will effectively attract visitors from other countries.

Secondly, government should intensely attract the investors to put more investment in tourism industry. Trade in tourism industry can improve economic performance of destination country. Indonesia might have strong growth of economy through travel and tourism sector. Money invested in tourism sector lead to upgrade the quality of attraction leisure places and the public facilities. In result, many visitors come to Indonesia and lead to attract more and more foreign tourist. The more visitors coming to Indonesia, the high number of job creation would be emerged. Hence total travel and tourism to GDP for Indonesia is forecasted to increase rapidly in the future years.

Fourth, the government should encourage the young generation to be involved in keeping the sustainability of the tourism industry. Many ideas from productive age level, particularly the young generation could help the government to compete with other countries in term of attracting tourist. Gojek is one of fintech platform that help tourist to access the tourism place easily. It is reported that Gojek contribute to raise Indonesian economy by IDR 8.2 trillion in one year (Wisana et al, 2018). Thus, these recommendations may not be conducted in

short term, if all the stakeholders related integrate to work together on this issue, in the future, high increasing of international tourist might be achieved.

Fifth, according to Holik (2016), there are various ways to increase the number of tourists coming to a country: first, improve the ability and management skills of tourism services by managing human resources in order to have good managerial skills. Second, looking for new ideas that don't only rely on natural phenomena, in the current era, attractions do not always have to relate to nature, but must be adapted to the development of an era that uses creativity and continuous innovation. Creativity must continue to be created to meet the challenges of modern life that are more complex. Natural tourism objects tend to be resistant to weather conditions and climate change, so diversification of travel is very important. Third, the improvement of the tourism sector needs to be balanced with the synergy of various economic domains. This is to create a long-term balance that is obtained from the development of tourism continues to be felt, and the phenomenon of coastal diseases can be avoided. Fourth, the development of tourism needs must prioritize elements of local culture and the active participation of the local community. In some cases, there are often complaints from foreign tourists about the disorder of the local community. This is because the local community is not involved in maintaining and enhancing the tourism area. They are only initially friendly spectators, but turn out to be rude when the economic gap is clearly displayed in front of them. Fifth, increase the visitor stability and comfortability.

For the last, government policies must integrate transportation policies into tourism planning, especially for areas with poor infrastructure. Investing in tourism infrastructure, marketing efforts, and liberalizing air access may not be enough without efficient supporting infrastructure for transportation. Thus the government must be more careful in making decisions in terms of state spending. Policy makers must have an explicit focus on long-term planning and requirements. They must develop an integrated, efficient and affordable transportation system that is sustainable from a social, economic and environmental perspective. At present, the main problem facing Indonesia is transportation from one area to another, not only the lack of means of transportation but also the high cost of reaching other places. This makes foreign tourists and even local tourists reluctant to come to Indonesia. In addition, broad participation from various interest groups, especially from the tourism sector and consumers is very important for the effectiveness of the planning. The latter must also include the development of land management regimes to avoid land abuse.

For further research can dig deeper into the effect of visa-free on length of stay and the total expenditure of tourists coming in Indonesia, this can clarify the benefits of being visa-free whether visa-free policy has an impact on length of stay and the expenditure of tourist or not.

CONCLUSION

This research finds that all variables are significant to affect the number of international tourist in Indonesia. The GDPs from origin and destination as a size measurement of the gravity variables and countries with visa-free entry to Indonesia have positive impact on the international tourist arrival. Therefore, it can be said that gravity model has been proven to be suitable for this case. Although over the years the tourism demand literature has avoided

mentioning the 'gravity model' in empirical exercises, it must be noted that this terminology has been recombined in the literature driven by good empirical results from such models in the international trade literature. In this paper theoretical background has been added to the success that was applied. Gravity can be presented as a valid tool for assessing the impact of tourism policy, examining changes in one of the determinants in the equation. Consequently its use as a policy instrument such as an evaluation of tourist tax or promotional expenditure policies must be had the same validity that comes from the traditional tourism demand model. An increased understanding of these factors will help policymakers develop more effective policies to enhance the goals of competitiveness and attractiveness in a bilateral environment.

On the other hand, exchange rate and length of distance had negative effect to the number of tourist arrival in Indonesia. The higher the level of exchange rate and length of distance, the lower the number of tourist visited to Indonesia. The overall results advocate several suggestions to improve tourism industry. The result of visa-free policy shows a significant effect between the periods before policy was issued. Visa-free policy not only attract peple to come but also attract more people to invest on Indonesian tourism sector and invite young generation to sustain the tourism development for maintaining the strong growth of Indonesian economy. It seems to be good policy to boost the number of tourist arrivals by removing such a barrier. Removing the barriers will affect lower cost and shorter time. In addition, the government needs to educate the human resource to improve the quality of tourism services through training such as how to communicate using foreing language, hospitality manner course and so forth.

Finally, this research focuses on macro factors that influence international tourism demand in Indonesia. For future research, it is encouraged to explore the other factors of macro or other variables that contribute to international tourist arrival such of CPI, inflation, infrastructure, length of stay, transportation and accommodation. The higher percentage of total international tourist is very important for an overall improvement of the economy, macroeconomic condition, and decrease in rural poverty.

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