An Empirical Analysis of Demand Factors For Malaysian Tourism Sector Using Stochastic Methods

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ABSTRACT

The travel and tourism industry is one of the world's largest and most diverse industries. Many nations rely on this dynamic industry as a primary source for generating revenues, employment, private sector growth, and infrastructure development. The increasing growth of tourism industry is widely recognized for its contribution to the economic development of regions and nations all around the world. For many destinations, visitor expenditure on accommodation, food and drink, local transport, entertainment, shopping, and others is an important pillar of their economies, creating much needed employment and opportunities for development. Tourism has increasingly become a vital element in the economic development of Malaysia. This study aims to identify the demand or contributing factors of Malaysian tourism in the year of 2014 which also happens to be the Visit Malaysia Year 2014; nation's biggest and grandest tourism celebration with Malaysia Truly Asia's endless wonders of events, festivals and activities all-year round. The existing literatures have been reviewed in the first part of the paper. This is followed by developing a simple econometric model in order to investigate macroeconomics variables affecting the destination choice of tourism industry in Malaysia using stochastic method. Combining insights from econometric model and anecdotal evidence in the field of tourism, it has been proposed at the end of the paper that demanding factor of destination choice of tourism in Malaysia are cognitive attractiveness motivated, first, by cultural attractions as the second, which is facilitated by service and safety.

Keywords: Tourism, Cognitive Attractiveness, Econometric Model

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INTRODUCTION

The development of the tourism industry in Malaysia has a long history. Before its dependence in 1957 and a few decades after, the Malaysian economy was heavily dependent on primary commodities mainly tin, rubber, palm oil and petroleum products. In the 1970's, the government had seriously started to stimulate the development of the manufacturing industry in an effort to diversify the country's economy. These two sectors, however, were highly export-oriented and their performance was directly influenced by changes of the world economic climate. The severe economic recession that hit most of the Asian region in the mid 1980's had badly hurt the Malaysian economy and the government started to search for a more robust industry to broaden the country's economic base. Tourism was identified as a potential industry that could encourage and stimulate the socio-economic development of the country especially as a supplier of foreign exchange earnings, and employment opportunities. Tourism sector also contribute to regional development, encourage the development of supporting sectors and reduction in rural-urban migration.

After the severe recession in the mid 1980's the government has given a very high priority to the development of the tourism industry. The seriousness of the government in promoting the tourism industry was manifested by the establishment of the Ministry of Culture, Arts and Tourism in 1987. In 2004, this ministry was restructured into three ministries and one of them is the Ministry of Tourism which was assigned to take care of, coordinating and implementing government policies and strategies pertaining to tourism development. Various tourism-related agencies at the state level were also set up, besides having some promotional activities such as the declaration of Visit Malaysia Year' (VMY) in the 1990's, 2000, and 2007, and active participation of the private agencies.

As a consequence, total tourist arrivals increased dramatically especially in 1990 and thereafter. In 1990, there are 7.4 million of tourist arrivals compared to 4.8 million tourist arrivals in 1989. However, the following year (1991), due to lack of promotional programme tourist arrivals dropped to 5.8 million. Tourist arrivals continued to escalate to 7.5, 10.2 and 15.7 million in 1995, 2000 and 2004

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respectively. In the 1990's (1991-2000), the annual average growth of tourism was quite high at about 11 per cent.

Tourism sector also has strong influence in stimulating investments in new infrastructure. Thus, it will encourage more foreign exchange. According to WTTC, Travel and Tourism investment is estimated at US$652.4 billion or 4.5 % of total investment in 2011. It should be rise to reach US$1,487.9 billion by 2021. As many tourists come to one country, the government of the country gains revenue from tourism sector such as taxes and fees. There are many studies have been focus on demand for travel. Malaysia's government has seen that tourism can contribute more in terms of global tourism receipts and providing jobs to the people. Therefore, the main purpose of this study is to identify factors that attract tourist arrivals to Malaysia from countries all over the world.

This paper consist 6 chapters. First chapter, we already discussed the introduction. In second chapter, will be briefing about Malaysian tourism industry. Literature review will be in chapter three while methodology in chapter 4. Chapter 5 and 6 are discussion of the results and its conclusions.

MALAYSIAN TOURISM INDUSTRY

The development of tourism industry in Malaysia has achieved a level that can be proud of. Tourism related services are one of the main economic activities in Malaysia. It is the second largest foreign export earner, after manufacturing and has been growing since 2000 with international arrivals increasing by 9% per year. According to research by the World Travel & Tourism Council (WTTC), the global Travel & Tourism industry will grow by 2.8% in 2012, marginally faster than the global rate of economic growth, predicted to be 2.5%. This rate of growth means that Travel & Tourism industry is expected to directly contribute $2 trillion to the global economy and sustain some 100.3 million jobs. South & Northeast Asia will be the fastest-growing regions in 2012, growing by 6.7%, driven by countries such as India and China where rising incomes will generate an increase in domestic tourism spend and a sharp upturn in capital investment, and recovery in Japan.

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TABLE 1: Tourist Arrivals and receipt in Malaysia: 1998 to 2010

Year	Arrivals (million)	Receipts(RM million)
2010	24.6	56.5
2009	23.6	53.4
2008	22.0	49.6
2007	20.9	46.1
2006	17.45	36.3
2005	16.4	32
2004	15.7	29.7
2003	10.5	21.3
2002	13.2	25.8
2001	12.7	24.2
2000	10.2	17.3
1999	7.9	12.3
1998	5.5	8.6

Sources: Tourism Malaysia, 2011.

According to Tourism Malaysia , in 2010, international tourist arrivals grew to 24.6 million and the number of tourist receipts are RM 56.5 million compared to the number of tourist arrivals and receipts that only 5.5 million and RM 8.6 million in 1998. These can be shown that tourist arrival and receipts has consistently increased from year 1998 to 2002 but in 2003 the number of tourist arrival has fallen to 10.5 million and the receipts drop to RM 21.3 million because of the Severe Acute Respiratory Syndrome (SARS). The number of tourist arrival and receipts increased again from 2004 to 2010. In other words, the growth of Malaysia's tourism industry can be seen through the growth of tourist arrival and receipts in Table 1.

Survey by Ministry of Culture, Arts and Tourism (MOCAT) and the Malaysian Tourism Promotion Board (MTPB) found that domestic tourism was equally encouraging with revenue of RM25.98 billion, an increase of 23% compared with the RM21.1 billion domestic travelers contributed in 2008. In 2009, 90.5 million visitors travelled all over the country's local tourist destinations compared with 63.3 million in 2008. Services sector is expected to grow at 7.2% annually until 2015, raising its contribution about 61.1% in terms of GDP (Tenth Malaysia Plan).

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LITERATURE REVIEW

Factor affecting international tourist can be explained from supply side as well as demand side. Khadaroo and Seetanah (2007), Martin et. al (2008), Aslan et. al (2009) are such studies that have been focus on supply side. However, demand factors are important in explaining international tourist such as Croach (1994a), Lim (1997), Zhang and Jensen (2007), Halicioglu (2004) and Vietze (2008). Lizzi and Flückiger (2003) indicates that tourism is not really an industry, but rather a collection of activities in which foreigner partake, and which are also available for consumption by local residents.

Frechtling (1996) classified that there are pull and push factors in estimating tourism demand. Pull factors is factors in destination that attract tourist to a destination. Push factors is emissive factors, which encourage tourists to travel away. Income and price are the most explanatory variable by researcher. Munóz and Amaral (2000) indicated economic demand theory suggest as country's income increases, more of its residents can afford to visit other countries, and therefore tourist arrivals are a positive function of income. Vanegas and Croes (2005) found price is negatively related with international demand tourism, that is, the lower living cost in the destination country relative to the source country, the greater the tourism demand.

Tourism demand in destination can be influenced by changes in the exchange rates. Changes in exchange rate will affect the currency value of the origin country. Any change in exchange rate will lead to an appreciation or depreciation of tourist currency. Transportation cost, has been widely review in tourism literature. Researchers often included the distance of travel as a proxy such as Khadaroo and Seetanah (2007); the transportation cost variables is measured by the distance in kilometers between the capital cities of the source and destination country.

Goh and Law (2011) had reviewed 155 studies of tourism demand and classified it into the groups of method and technique adopted. Such as an econometric-based approach, time series techniques, and artificial intelligence (AI)-based methods. It appears that the more advanced methods such as cointegration, error correction model, time varying parameter model, and their combinations with systems of equations

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produce better results in terms of forecasting accuracy. For instance, Muchapondwa and Pimhidzai (2011) estimate the coefficients of the determinants of international tourism demand for Zimbabwe for the period 1998 to 2005. By employing bound testing cointegration procedure, the results show that taste formation, transport costs, changes in global income and certain specific events have a significant impact on international tourism demand. However, the long-run price elasticity of 0.145 in model 2 is insignificant makes tourism price in Zimbabwe is not luxury tourism.

However, recently in tourism demand studies, Gravity model has attracted researcher's attention for them to employ it into tourism demand model. For example, Hanafiah and Harun (2010) studied tourism demand in Malaysia based on the key economic factors like income, price, exchange rate, consumer price index, distance, population and economic crisis using a modified Gravity model. The result indicates that there is strong relationship between the key economic factors and decision to travel among the tourists. Income is the most important factor that affecting tourism flows. Exchange rate is negatively related with tourism demand as tourist from higher purchasing power prefers to visit Malaysia. Consumer Price Index (CPI) reduce number of tourist to travel. The increasing number of tourist arrivals was influenced by population growth and distance may reduce tourism demand.

METHODOLOGY

a) Data Source

Data for tourist receipts in Malaysia from twenty four source countries extracted from Tourism Malaysia. The data is spanning from 1998 to 2009. Therefore, this study consists of unbalanced panel data of 14 pairs with 288 observations. Data for tourist arrival and receipts were taken from Tourism Malaysia. Data for Gross Domestic Product GDP, population and Consumer Price Indices, Official exchange rate are taken from World Development Indicators, World Bank. Common language, common border and distance measures are taken from Centre D'Etudes Prospectives Et D'Informations and Internationales (CEPII).

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b) The Gravity Model

The Gravity model is a most common formulation of the spatial interaction method because it understandable and practical to measure the relationship of one zones to another zone such as trade volume, migration and capital flows. It was originally proposed by Newton's gravitational law. Tinbergen (1962) was first used the gravity model in analyzing flows of international trade. The basic assumption of gravity model state that there are positive relation between bilateral trade and GDP while between bilateral trade and distance it becomes negative relation. The basic formulation model is express as follow:

$$\text{Trade}_{ij} = A\frac{(GDPi.GDPj)}{DISTANCEij} \quad (1)$$

For the econometric purposes, the equation (1) can be change into a linear form equation (2) by employing logarithm:

$$\text{Log (Trade}_{ij}) = A + \beta_1 \log (GDP_i.GDP_j) - \beta_2 \log (\text{Distance } ij) + \varepsilon_{ij} \quad (2)$$

In estimating tourism demand, Rodrigue (2004) has used Tinbergen Gravity Model and to suit the tourism and variables, some adjustment has been made with the model. The model proposed by Rodrigue (2004) is as follow:

$$TD_{ij} = K\frac{(m_i.m_j)}{Dij} \quad (3)$$

Where TDij stands for tourist arrival from country i to destination country j, K is constant, mi as a factor to generate movement of international tourism, mj as a factor to attract movement of international tourism and Dij is distance between origin country i and destination country j.For a several decades, several researchers has work on in explaining international trade flows between countries by using Gravity model. However, the early empirical use model has been criticized due to its lack theoretical foundation. As pointed by Serlenga et al. (2004), Anderson (1979) was the first author shown formulation of the Gravity Model can be derived from different theoretical

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models such as Ricardian models, Hecksher-Olin (HO) models and Increasing Return to Scale (IRS) models of the New Trade Theory. The strength of using Gravity approach compared to others as it can estimate both in time variant as well as time invariant variables.

Additionally, the model allows more factors can be taken into account to explain the extent of trade as an aspect of international trade flows. Recently, in the international tourism empirical literature, Gravity model has been widely used to investigate the role of tourism. To achieve this objective, demand factors of international tourism will be estimate by using Gravity Model. Initially, the sample covering 40 countries for the period 1998 to 2009, however, after screening throughout the data only 24 countries are available. The basic Gravity Model can be specified as follows.

$$TR_{mst} = \beta_0 + \beta_1 INCOME_{mt} + \beta_2 INCOME_{st} + \beta_3 PRICE_{mt} + \beta_4 EX_{mst} + \beta_5 POP_{st} + \beta_6 DIST_{ms} + \square_{mst} \quad (4)$$

For estimation purpose, linear equation form of natural logs is expressed as:

$$ln\, TR_{mst} = \beta_1 ln\, INCOME_{mt} + \beta_2 ln\, INCOME_{st} + \beta_3 ln\, PRICE_{mt} + \beta_4 ln\, EX_{mst} + \beta_5 ln\, POP_{st} + \beta_6 ln\, DIST_{ms} + \square_{mst} \quad (5)$$

The dependent variable is the value of inbound tourist receipts ln(TR) in Malaysia, m, from source countries, s, at t year. Ismail and Samdin (2010) use tourist arrivals as dependent variable. However, this study differentiates by using tourist receipt to measure tourism demand since this variable may be important to attract revenues for a country. As regards independent variables, this study focuses on income, tourism price, exchange rate and population. Basic component of Gravity model include ln INCOME mt as a proxy to GDP per capita of the destination country, Malaysia, m, and ln INCOME st as a proxy to GDP per capita of the source country, s, at t time. GDP per capita is known as an indicator of the level of economic development which could promote tourism receipts. Therefore, an increase in tourist income will increase the number of tourist recipients. The result is expected greater than

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zero as tourist receipts increase when income increases. Tourism price (ln PRICE mt) factor ensures by most researches as important factor in determining tourism demand. Tourism price is a proxy to costs of living in destination by the tourists from the source countries. In other word it refers to the price of all goods and services consumed by tourists at the destination country. The calculation of tourism price is based on the consumer price index (CPI) of the destination country, m, divided by the CPI of the source country, s. It expected that tourism price and receipts will have a negative relationship.

Nominal exchange rate (ln EX mst) is ratio of currency between the source country, s, and Malaysia, m at t time. The change of exchange rate will affect the currency value of the source country. Any change in exchange rate will lead to the appreciation or depreciation of tourist currency. Anyappreciation in tourist currency may encourage more people to travel. Population (ln POPst) is a proxy for country size of source countries, s at t time. It is expected a positive sign as the larger the population, the more tourists from source country will demand to visit Malaysia and thus will increase tourist recipients.

There always have cost in tourism demand. Distance (ln DIST ms) is a proxy for transportation cost to Malaysia, m, from source countries, s. In this study, we will use weighted distance. For measuring the distance between the countries, usually we will use city-level data to assess the geographic distribution of population inside each nation. If the traveling cost rises, the cost of traveling becomes more expensive, and this will reduce the recipients. Dummy variables also included to explain tourism. In this study, LANGms is used to control for countries which use the same language. While BORms is used to control for countries that share a border which allows them frequent and easier to visit destination countries compared to other countries.

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After all variables have been identified, here is the demand equation of tourism demand:

$$\ell n\, TR_{mst} = \beta_1\, \ell n\, INCOME_{mt} + \beta_2\, \ell n\, INCOME_{st} + \beta_3\, \ell n\, PRICE_{mt} + \beta_4\, \ell n\, EX_{mst} + \beta_5\, \ell n\, POP_{st} + \beta_6\, \ell n\, DIST_{ms} + \beta_7\, LANG_{ms} + \beta_8\, BOR_{ms} + \square_{mst} \quad (6)$$

EMPIRICAL RESULTS

Table 2 presents the regression results of different specifications based on the gravity equations, panel over the 1998 to 2009 period. The reports for pooled ordinary least square (POLS) and Random Effect Model (REM) are based on gravity equation which includes the proxy for market size of Malaysia and source country; and distance as a proxy for transaction cost. As expected, estimated coefficient for source country and destination countries are found implied that the bigger the market size, the more tourist attracted to visit another country and thus increase tourist receipt. The coefficient of distance implies that the shorter the distance, the lower transaction cost. For instance in column 5 (REM), a reduction by 1% of bilateral distance between Malaysian and source countries will increase tourist receipt by 1.2 %.

The coefficient population of the source countries is positive and significant implied that the greater the number of source country population, the larger the target market and the more is expected to receive from tourist expenditure in Malaysia. The following estimation reveals that both estimated coefficient of border and language are positively and highly significant. If a country is sharing border with Malaysia, the expected tourist arrive in Malaysia is about 3.61 times. The ASEAN dummy has shown insignificant result in all estimation. The result is also consistent with the findings from Ismail and Samdin (2010) albeit the dependent variable is tourist arrival. It means that Malaysian is destination of many countries from all over places, not limit to country that signs free trade agreement.

Column (4) and (5) in both POLS and REM reports the result when the two important variables namely the exchange rate and the PPP ratio as a proxy for cost of living in destination country. The report reveals that a depreciation of RM2 by 1% increase 1.5% of tourist receipt in Malaysia. Meanwhile the result of estimated

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coefficient for PPP ratio is negative and significant implied that the role of cost of living in destination countries still important even though a slightly change in PPP ratio increases Malaysian tourist. Finally, the last column presents the full model where all variables are included in the equations. The results are still consistent with correctly sign and the level of significant.

TABLE 2: The Demand factors for Malaysian Tourism

Variable	POLS					REM				
	1	2	3	4	5	1	2	3	4	5
lGDPm	4.39*** (5.38)	4.07*** (9.72)	4.06*** (9.65)	4.48*** (10.95)	4.34*** (10.19)	4.36*** (15.66)	4.07*** (16.64)	4.04*** (15.82)	4.24*** (15.47)	4.10*** (15.57)
lGDPs	-0.14** (-2.29)	0.55*** (15.34)	0.55*** (14.21)	0.52*** (13.29)	0.51*** (13.74)	0.39** (1.97)	0.67*** (4.50)	0.70*** (4.21)	0.598*** (4.29)	0.495*** (3.71)
lPOPs	0.02 (0.32)	0.52*** (19.49)	0.52*** (16.67)	0.56*** (20.67)	0.56*** (20.62)	0.43** (2.23)	0.63*** (5.42)	0.66*** (5.13)	0.62*** (6.10)	0.58*** (6.06)
lDISTms		-0.98*** (-12.72)	-0.98*** (-10.14)	-1.19*** (-11.52)	-1.19*** (-11.52)		-1.02*** (-2.85)	-0.93** (-2.08)	-1.14*** (-3.17)	-1.17*** (-3.45)
BORms		1.25*** (6.80)	1.24*** (6.43)	1.08*** (6.70)	1.11*** (6.84)		1.45** (1.92)	1.35 (1.62)	1.15* (1.79)	1.27** (2.09)
LANGms		0.85*** (6.62)	0.85*** (6.20)	0.28* (1.67)	0.26 (1.50)		0.86 (1.53)	0.96 (1.50)	0.47 (0.89)	0.29 (0.59)
ASEAN			0.02 (0.09)	0.01 (0.08)	-0.00 (-0.00)			0.32 (0.35)	0.18 (0.25)	-0.02 (-0.03)
lEXMS				0.15*** (8.00)	0.15*** (8.12)				0.12* (1.95)	0.15*** (2.58)
lPm					-0.70* (-1.68)					-1.38*** (-4.74)
No. of obs	278	278	278	226	225	278	278	278	226	225
R-squared	0.11	0.78	0.78	0.85	0.85	0.029	0.78	0.77	0.85	0.85
F test/ Wald test	12.17	404.57	345.29	303.46	267.23	563.53	651.88	648.86	594.67	675.24
Cons	31.19 (-4.46)	-34.60 (-9.83)	-34.66 (-9.70)	-36.33 (-10.07)	-35.10 (-9.41)	-42.13 (-11.72)	-35.57 (-9.59)	-38.77 (-7.54)	-36.69 (-8.55)	-33.54 (-8.15)

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SUMMARY AND CONCLUSIONS

The tourism industry in Malaysia is regarded as one of the second largest foreign exchange after manufacturing sectors. Tourist industry has seen as income and earnings generated in many developing countries. Thus, it is important to identify what are the major demand factors attracting tourists to Malaysia. This study investigates the demand factors international tourism in Malaysia for the period of 1998 to 2010. The dependent variable is tourist receipt in Malaysia from 24 countries. The gravity type model is used to estimate factors that contribute to tourist arrival in Malaysia. The result reveals that the market size of country destination, Malaysia, is equally important with the source country of market size. Population for the source country also exerts positive relation with tourist arrival. Conversely, the shorter the distance, the lower the cost of transaction and transportation cost lead to increase the number of tourist in Malaysia. Another factors that equally important are the country that sharing common border and common language also positively related with demand for tourist in Malaysia.

Finally, study finding suggest that an increase of the exchange rate or depreciation of RM and the lower the cost of living also important factor in demand for tourist to Malaysia. The policy maker should take seriously identify which factors attribute to increase number of tourist if Malaysia aims to be as an International tourist attractions. The tourism promotion should also focus more on neighboring countries since these countries can contribute more on tourism growth besides maintaining the stability of the Malaysian currency and controlling the cost of living in Malaysia. Since this study focus more on tourist arrival on the demand factor, the future research should consider tourist expenditure as this can be as a factor contributing to Malaysian income.

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