THE IMPACTS OF TOURIST'S EXPENDITURES ON MALAYSIAN ECONOMY: AN INPUT-OUTPUT ANALYSIS

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ABSTRACT

This study intends to measure the impacts of tourist's expenditures on Malaysian economy by using Input-Output (I-O), multipliers, and linkages analysis. The importance of impact is described by multipliers which are refers to the multiplier of output, income, and employment. By knowing the multipliers, the total economic impacts generated by the tourist's expenditures can be computed. Apart of that, the linkages analysis normally used to measure the interaction or linkage between one sector and other sectors in an economy through backward and forward linkages. The results revealed that manufacturing, and finance, insurance, real estate and business services sectors are the main contributors to the Malaysian economy output, particularly in boosting the tourism sector's output. This study also shows manufacturing, transport, storage and communication, and finance, insurance, real estate and business services sectors as key sectors in Malaysian economy. In conclusion, since these industries showing its capability in contributing towards generating the Malaysian economy growth, the policy makers should provide the appropriate policy recommendations for future economic development strategy in tourism sector by putting more attention to the key sectors that interrelated with tourism sector.

Key words: Input-Output; Tourism; Tourist's Expenditures; Malaysian Economy; Multipliers; Linkages

1.0   INTRODUCTION

The development of tourism sector has become more important sector to both developed and developing countries, including Malaysia particularly in generating the economic growth and output. This sector contributes to the expansion in sales and output, employments, tax revenue, and income (Horvath and Frechtling, 1999). In the process of providing goods and services to the tourists, direct and indirect effects socio-economic activities are involved. The most direct effects occur within certain sector such as hotels and restaurants, wholesale and retail trade, transportation, and business services, while indirect effects is the other sectors that indirectly depend on the development of tourism sector (Dritsakis, 2004). In Malaysia, the tourism sector development was start early 1970s and Malaysia government recognized there are huge potential for tourism to expand although it is not a substantial sector to Malaysian economy during that time. But, in year 1994, the tourism sector became the second highest contributor to the Malaysia's Gross Domestic Product (GDP) after manufacturing sector. This scenario shows that the significant contribution of this sector towards to the Malaysian economic growth. If tourism sector continuously growing very well, it will lead the development in employment, income, foreign exchange rate, further regional development, diversification in economy, and increase government revenue. So, more incentives was given by the government to develop the tourism sector such as airports, highways, facilities, develop the tourist sites and provide the necessary of tourism infrastructures. Substantial awareness among both local and international tourists and the recognition of Malaysia as an

attractive tourist destination was successfully created through the aggressive promotion and marketing by the Malaysian Tourism Promotion Board (MTPB) or Tourism Malaysia (Jenkins, 1997).

According to the Ministry of Tourism Malaysia and Malaysia Tourism Promotion Board, the total tourist arrivals showing an increasing pattern for the year 2000 which amounted at 10.2 million, where most of the tourist came from Singapore, Indonesia, and Thailand. But, due to the SARS and Gulf War in 2003, the tourist arrivals into Malaysia have reduced from 12.7 million in 2001 and 13.3 million in 2002 to 10.6 million in 2003 and this scenario affected the tourist receipts as well. The tourist arrivals and receipts bounced back in 2004 and recently recorded 23.6 million and RM 53.4 million in 2009, respectively. Therefore, considering the above scenario, the purpose of this study is to measure the impacts of tourist's expenditures on Malaysian economy. By applying the multipliers and linkages analysis, the input-output model will explain impact of any changes in the demand for the regional economy and key sectors through the multiplier and linkage effects.

The rest of this paper is organized as follows: Section 2 describes on literature review Section 3 discusses the technical details of the input-output, multipliers, and linkages analysis in estimating the impacts of tourist's expenditures. Section 4 briefly explains the sources of data associated in this study. Section 5 presents results, particularly in multipliers, and linkages analysis. Finally, Section 6 summarizes some important conclusions drawn from the study.

2.0 LITERATURE REVIEW

Since understanding the tourism sector is very important in designing policy interventions, the analysis of tourism sector performance towards economic growth has become one of the most important issues in order to help policy makers identify factors associated with tourism sector. Several studies have been done in identifying the important of this sector to economic growth with various modifications of the basic procedures as well as their use on data in different type of economies such as Briassoulis (1991), Zhou et al. (1997), Horvath and Frechtling (1999), Chang (2001), Kweka, Morrissey, and Blake (2001), Tyrrell and Johnston (2001), Dritsakis (2004), Durbarry (2004), Pao (2005), and Mahendran, Chong, and Murugason (2006). In the case of Malaysia, Rashid and Bashir (2004) studied the economic impact from the changing pattern of tourist profiles for the year 2000 and 2001. They used input-output table for the year 1991 and their estimation was likely not that precise especially in the estimation of income and employment. With the different approach, Mazumder, Ahmed, and Al-Amin (2009) improved the above study by employing closed input-output model to investigate the relationship between outputs, income, employment, value added, import, and tourist's expenditure. The results show that the distribution of tourist expenditure is unequal in generating output, income, employment, value added, and import, but contributing significantly to the Malaysia economy in terms of generating output, income, employment, and value added. Recently, Mazumder, Ahmed, and Al-Amin (2011) used input-output table for year 2000 to investigate the relationship between tourism, economic impact, output and income through input-output analysis and multiplier effects. The findings of this study revealed that tourism receipts were not only contributing to the generation of output and income of direct tourism related sectors but also to the generation of significant output and income impact of other productive sectors of the economy through indirect and induced impact.

3.0   METHODOLOGY

The input-output model is a technique to examine the possible impact of any exogenous change or shock in an economy. It estimates the economic impact of exogenous changes in any of the components of final demand on sectoral output, value-added, income, taxes, and employment (Miller and Blair, 2009). The basic assumption of the input-output method is that the demand of sector *j* for the output for sector *i,* that is *Xij,* is proportional to the output level of sector *j*, if *aij = Xij /Xj,* where *aij* is direct input coefficient and *Xj* is total input of sector *j.* The equation is per the following matrix notation:

$$X = AX + F$$
$$(1)$$

Where:
A = the input-output coefficient matrix (elements a*ij*),
X = the vector of output (elements *Xi* or *Xj*),
F = the vector of final demand (elements *Fi*)

By resorting to the identity matrix *I*, the solution to the equation (1) can be written as:

$$X = (I - A)^{-1} F$$
$$(2)$$

The input-output multipliers give a detailed picture of the impact of changes in final demand on output, income, and employment throughout the economy. These multipliers will show the effect of demand in tourism activities on each sector in Malaysian economy. In measuring the impact of change in the final consumption generated by tourism sector on the economy, we will use demand by tourists change by one ringgit to estimate the changes in output, income, and employment in the economy. Then, the estimation of effect on output, income, and employment as follows:

1-   The effect on output.

$$X = (I - A)^{-1} F$$
$$(3)$$

where *X* is the output generated, $(I - A)^{-1}$ is the inverse matrix, and *F* is the vector of tourist's expenditures in 2005.

2-   The effect on income.

$$M = V (I - A)^{-1} F$$
$$(4)$$

where *M* is the income generated, *V* is the ratio of salaries and wages to gross output of each sector, $(I - A)^{-1}$ is the inverse matrix, and *F* is the vector of tourist's expenditures in 2005.

3-   The effect on employment.

$$E = L(I - A)^{-1} F$$
   (5)

where E is the employment generated, L is labour-output ratios, $(I - A)^{-1}$ is the inverse matrix, and F is the vector of tourist's expenditures in 2005.

In the input-output analysis, the linkages analysis is used to measure the interaction or relationship between one sector and other sectors in an economy. Essentially, there are two commonly used forms of linkages, which is the backward and forward linkage. The backward linkage sectors is used to explain the relationship between row and to tell us from which row sectors column sector j purchases inputs and the value of each purchase whereas the forward linkage is to explain the relationship between the sector column and to inform which column industries row sector i sells its output and the value of each sale.

The effect of linkages analysis is that it utilizes the inverse Leontief matrix technology that reveals the structure of interdependence between sectors of economic production. Index of backward linkage and forward linkage effects, can be achieved by the following equation.

Backward Linkages

$$\sum_i U_{ij} = \frac{\frac{1}{n}\sum_{i=1}^{n} b_{ij}}{\frac{1}{n^2}\sum_{i=1}^{n}\sum_{j=1}^{n} b_{ij}} \quad (6)$$

Where n is the number of sector, $\sum b_{ij}$ represents the column sum of the Leontief inverse matrix for the particular sector and $\sum_i \sum_j b_{ij}$ denoting the sum of the Leontief inverse matrix for the total sector.

Forward Linkages

$$\sum_j U_{ij} = \frac{\frac{1}{n}\sum_{j=1}^{n} b_{ij}}{\frac{1}{n^2}\sum_{i=1}^{n}\sum_{j=1}^{n} b_{ij}}$$

   (7)

Where, $\sum b_{ij}$ represents the row sum of the Leontief inverse matrix for the particular sector.

4.0   DATA SOURCES

This sub-section describes sources of tourist's expenditures and employment data for year 2005. In this study, two sets of data were employed. Firstly, Malaysian national input-output transaction table for year 2005 was utilized to determine tourism multipliers and linkages analysis using input-output methods. This table was the latest input-output table released by Department of Statistics, Malaysia with a 120 x 120 sectors. The sector was aggregated into 11 x 11 sectors by emphasising on the main sectors in Malaysian economy. This table is compiled by using the new industrial classification of the Malaysian Standard Industrial Classification (MSIC) on

the basis of the 1993 System of National Accounts (SNA). This is the latest international standard for compiling I-O as proposed by the United Nation. Secondly, the data on tourist's expenditures and employment are obtained from the Ministry of Tourism Malaysia and Malaysia Tourism Promotion Board, and Department of Statistics, Malaysia.

5.0   RESULTS AND DISCUSSION

Table 1 presents the various simple multipliers for the 11 major industries in Malaysia for 2005. Hotels and restaurants sector is the highest output multiplier with 2.1276. This is mean that by increasing a unit of final demand will increase the output multiplier on hotels and restaurants sector by 2.1276 units. Meanwhile, transport, storage and communication sector is ranked second with index value of 2.1196. Electricity, gas and water and manufacturing also contributed significantly to the Malaysian economy by having a value with 2.0213 and 1.8887, respectively. On the low side, mining and quarrying sector having the lowest output multiplier with value at 1.3266. Income multiplier recorded the highest value in manufacturing sector (0.3806), while employment multiplier recorded the highest value in hotels and restaurants (0.0330). Mining and quarrying sector recorded the lowest value in income and employment multipliers with value at 0.0447, and 0.0026, respectively.

TABLE 1: Multipliers by Sector in Malaysia, 2005

Sectors	Output	Income	Labour
Agriculture	1.5330	0.2485	0.0320
Mining and quarrying	1.3266	0.0447	0.0026
Manufacturing	1.8887	0.3806	0.0309
Electricity, gas and water	2.0213	0.0886	0.0064
Construction	1.8985	0.2236	0.0189
Wholesale and retail trade	1.7490	0.2603	0.0200
Hotels and restaurants	2.1276	0.2834	0.0330
Transport, storage and communication	2.1196	0.2301	0.0164
Finance, insurance, real estate and business services	1.8556	0.3670	0.0219
Government services	1.7940	0.3673	0.0234
Other services	1.7397	0.2626	0.0162

Sources: Malaysian Input-Output Table, 2005

Table 2 represents the result of using the above model (equation 3-5) to measure the direct and indirect impact of the tourist's expenditures on the Malaysian economy. In year 2005, total output generated from the tourist's expenditures recorded almost RM 57.0 million. Manufacturing sector has the highest absolute amounts of direct and indirect output with RM 16.2 million (28.6 per cent) and become the main contributor to the Malaysian economy; while finance, insurance, real estate and business services, and wholesale and retail trade ranked second and third with output generated at RM 9.2 million (16.3 per cent) and RM 9.1 million (16.1 per cent), respectively. On the other side, the direct and indirect impact from tourist's expenditures on income is about RM 5.8 million. Finance, insurance, real estate and business services sector generated the most benefit from tourist's expenditures, with about RM 1.2 million (20.9 per cent). Meanwhile, total employment created was 399,200 as a response to the tourist's expenditures with agriculture, and wholesale and retail trade have substantially higher amount of employment with 88,560 (21.2 per cent), and 64,860 (15.5 per cent), respectively.

TABLE 2: The Impacts of Tourist's Expenditures in Malaysia, 2005

Sectors	Output (million)	Output %	Income (million)	Income %	Employment (thousand)	Employment %
Agriculture	3,316.8	5.9	656.5	11.4	88.56	21.2
Mining and quarrying	5,072.8	8.9	82.1	1.4	2.11	0.5
Manufacturing	16,204.6	28.6	684.2	11.9	43.34	10.4
Electricity, gas and water	1,467.9	2.6	50.4	0.9	2.73	0.7
Construction	1,971.3	3.5	312.8	5.4	29.06	6.9
Wholesale and retail trade	9,119.1	16.1	903.8	15.7	64.86	15.5
Hotels and restaurants	999.5	1.8	212.5	3.7	25.15	6.0
Transport, storage and communication	4,363.6	7.7	425.5	7.4	29.39	7.0
Finance, insurance, real estate and business services	9,241.0	16.3	1,207.4	20.9	38.96	9.3
Government services	2,309.8	4.1	782.4	13.6	49.83	12.5
Other services	2,620.2	4.6	450.4	7.8	25.18	6.3
Total	56,686.7	100	5,768.0	100	399.2	100

Sources: Estimated from Equation 3-5

Based on Table 3, manufacturing, electricity, gas and water, construction, hotels and restaurants, transport, storage and communication, and finance, insurance, real estate and business services sectors having the high value of backward linkages (more than 1) compared to the other sectors in economy. This is shows that these sectors having a strong relationship between the sector particularly in purchasing the raw materials or inputs from other productive sectors in Malaysian economy. This is also means that any additional unit of output to final demand for these sectors, not only generate the additional output for its own but indirectly will be generated the other productive sector's output as well. Table 3 also reveal that forward linkages which is estimated using the inverse matrix coefficients. Manufacturing, wholesale and retail trade, transport, storage and communication, and finance, insurance, real estate and business services sectors showed strong value of forward linkages (more than 1) other sectors in economy. These values generally show that output produced in these sectors mostly used by the other productive sectors in Malaysian economy as their inputs. Manufacturing, transport, storage and communication, and finance, insurance, real estate and business services sectors were most strategic sector that having a high potential in generating output for Malaysian economy. This is shown by the high value of backward and forward linkages (more than 1 for both coefficients).

TABLE 3: Backward Linkages (BL) and Forward Linkages (FL) in Malaysia, 2005

Sectors	Backward Linkages	Rank	Forward Linkages	Rank
Agriculture	0.8409	10	0.7467	8
Mining and quarrying	0.7277	11	0.6907	10
Manufacturing	1.0360	5	2.0665	1
Electricity, gas and water	1.1087	3	0.8220	6
Construction	1.0414	4	0.7531	7
Wholesale and retail trade	0.9594	8	1.2444	3
Hotels and restaurants	1.1671	1	0.7388	9
Transport, storage and communication	1.1626	2	1.0933	4
Finance, insurance, real estate and business services	1.0178	6	1.3721	2
Government services	0.9841	7	0.6125	11
Other services	0.9543	9	0.8599	5

Sources: Malaysian Input-Output Table, 2005 and estimated from equation 6-7

6.0 CONCLUSION AND POLICY IMPLICATIONS

This paper attempts to measure the impacts of tourist's expenditures on Malaysian economy. By utilizing the 2005 input-output table, we estimate the potential effects of tourist's expenditures on selected sectors for the period of 2005. The results demonstrate that manufacturing sector is the main contributor on output in the Malaysian economy. Without ignoring the importance of finance, insurance, real estate and business services, and wholesale and retail trade has also become one of the important sectors that contributes to Malaysian economic growth, particularly in boosting the tourism sector's output. This is in line with Mazumder, Ahmed, and Al-Amin (2011) that revealed the tourist's expenditure were not only affected the direct related tourism sector, but also other productive sectors in Malaysia through indirect and induced impact. On the other hand, the linkages analysis shows manufacturing, transports, storage and communication, and finance, insurance, real estate and business services are strategic or key sectors in Malaysian economy. Therefore, considering the increasing amount in tourist receipts and tourist arrivals, future long-run strategies should encompass policies that are able to attract more tourists. So, more incentives need to give to the strategic or key sectors that interrelated with tourism sector.

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