Economic Impact of Tourism Sector on Saudi Arabian Economy

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I. Introduction:

Saudi Arabia is one of the developing economies, where it is rapidly changed to reflect the policy makers desire to diversify the economy. Tourism is one of the sectors which received more attention in the last few years. Looking to the impact of this sector on the rest of the economy will help us to link it to the economy in the way stimulate economic growth. Using the input-output for 1997 and its multipliers, we could track the impact of tourists' demand on the nine sectors of Saudi Arabian economy.

The objectives are to measure the impact of tourists' expenditure on sectoral output, employment, and income. These objectives can by carried out using output multiplier, employment multiplier, and income multiplier from Saudi Arabia input-output table of 1997. The input-output disaggregated to nine sectors, where tourism sector is included in the other sectors. This input-output table will assist us to measure the impact of

tourists' expenditure on the economy. In the future, we would like to see more disaggregated input-output where the tourism sector included.

The plan for this study as follow. In section II, model is discussed. Then the analysis is provided in section III. Conclusion and policy implication presented in section IV.

II. **The Model**:

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 assist us to track the effect of demands on tourism activities on each sector in the economy.

The Impact of Tourism Expenditures on the Economy:

When the demand for the products of a particular industry is increased, the industry will need to purchase more items as an input from the rest of the economy to produce the additional output. These purchases will stimulate additional output which in turn will require further purchases and so on. Thus, we can track these direct and indirect effects throughout the economy using the output, income, employment multipliers.

Now, we examine the impact of change in the final domestic consumption generated by tourism sector on the economy. When the demand by tourists change by one Riyal this will generate changes in output, income and employment in the economy.

1. The effect on output is calculated as:

$$X = (I - A)^{-1} D_t \qquad\qquad 4$$

where:

X: Column-vector of domestic output generated.

$(I-A)^{-1}$: Leontief inverse

 I: an identity matrix

 A: the domestic input-output coefficients matrix

D_t : Vector of the direct purchase by tourists in year 2000

Using the tourists' expenditure in 2000, we can estimate the impact on sectoral output by multiplying the tourists demand vector by Leontief inverse matrix.

2. The income generated is calculated as:

$$Inc = W (I - A)^{-1} D_t \qquad\qquad 5$$

 Where *W* is the labor income coefficient (i.e. the ratio of wages to gross output of each sector)

3. The impact on employment is calculated as:

$$E = L(I - A)^{-1}D_t \qquad\qquad 6$$

Where *L* is the labor-output ratios.

III. Analysis:

Table 1 report the multiplier for each sector. Output multiplier is the highest in construction sector. However, utility sector report the highest labor multiplier. Income multiplier is the highest in service. While Min. & Oil report the lowest multipliers in Output, Labor, and Income.

Table 1: Multipliers by sector

Sector	Output Multiplier	Labor Multiplier	Income Multiplier
Agriculture	1.6661013	0.019193833	0.4535449
Min. &Oil	1.0389107	0.00055204	0.039947719
Manufacturing	1.7262868	0.007051776	0.2132034
Utility	1.5687615	0.04092759	0.38802459
Construction	2.0331685	0.027858084	0.35689739
Trade	1.3755839	0.01894413	0.1758712
Transportation	1.7858622	0.009582505	0.51510919
Finance	1.1155557	0.010520093	0.13557771
Service	1.4172388	0.027227122	0.7399961

Table 2 represents the result of using the above model (equations 4-6) to calculate the direct and indirect impact of tourists' expenditures on the

economy(we focus on direct and indirect impact since it is the most important one), where Gauss software is used to solve the model, the input file in the appendix. First, we analyze the impact on gross output. In year 2000, the tourism sector account for about 5% of the gross output. As it can be seen from the table each sector' output has been affected. Trade and transportation have higher absolute amounts of direct and indirect output.

Table 2: The impact of tourists' Expenditures, 2000

Sectors	Output (Million)	Labor (Thousand)	Income (Million)
Agriculture	319.19199	4.991342	116.84452
Min. &Oil	2906.7249	1.1526094	101.91397
Manufacturing	5123.6153	24.482361	838.05934
Utility	471.84576	17.766928	144.16928
Construction	940.24302	20.289465	176.6727
Trade	16620.776	282.99661	1890.4894
Transportation	6048.648	28.310981	2255.8354
Finance	1878.8844	17.701825	223.71079
Service	4407.2651	109.42204	2942.3947
Total	38717.19447	507.1141614	8690.0901

Table 3: Output by sector, 2000

Sectors	Output	output %
Agriculture	319.19199	0.824419213
Min. &Oil	2906.7249	7.507581418
Manufacturing	5123.6153	13.23343637
Utility	471.84576	1.218698219
Construction	940.24302	2.428489544
Trade	16620.776	42.92866829
Transportation	6048.648	15.62264022
Finance	1878.8844	4.85284232
Service	4407.2651	11.38322432

The impact of tourists' spending on income is presented in table 4. The direct and indirect impact from tourists' expenditures on income is about SR8690 million. Service generate the most benefit from tourist's spending, where about 33% of the total income generated from the spending on tourism activities is captured by service sector.

Table 4: Income by sector, 2000

Sectors	Income (Million)	Income %
Agriculture	116.84452	1.344572036
Min. &Oil	101.91397	1.172760811
Manufacturing	838.05934	9.643851099
Utility	144.16928	1.659007904
Construction	176.6727	2.033036482
Trade	1890.4894	21.75454339
Transportation	2255.8354	25.95871159
Finance	223.71079	2.574320749
Service	2942.3947	33.85919709
Total	8690.0901	100

Table 5 indicates that the total employment created was 507,114 or about 12% of employment as a response to the tourists' expenditures. In term of employment within each sector, trade and service sectors have substantially higher share of employment 55% and 21% respectively. Although, service sector was generated less output, in absolute value, than transportation, it passes the transportation sector in case of employment.

Table 5: Employment by sector, 2000

Sectors	Labor 000	Labor %
Agriculture	4.991342	0.984263977
Min. &Oil	1.1526094	0.227287954
Manufacturing	24.482361	4.827780987
Utility	17.766928	3.503536166
Construction	20.289465	4.000965976
Trade	282.99661	55.80530625
Transportation	28.310981	5.582762863
Finance	17.701825	3.490698229
Service	109.42204	21.57739788

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