The Economic Impact of Tourism in Egypt

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Finally, as is always the case, remaining errors, results, and conclusions remain the responsibility of the authors.

Abstract

This paper adopts a comprehensive approach to assess the impact of foreign tourism on the Egyptian economy, which extends beyond their spending on hotels and restaurants. The study uses the economic impact analysis (EIA) methodology to trace direct and secondary effects of foreign tourists' spending on output, value added, employment, and tax revenue.

The results indicate that the impact of foreign tourists' spending on GDP far exceeds the commonly held figure of around 1 percent. In fact, with respect to value added and output, foreign tourists' spending is 2-3 times that share and the direct impact of foreign tourists' spending on total output in 1999 was $ 3.6 billion dollars (4.4 percent of GDP). Adding indirect effects, the total contribution to output reaches $ 9.6 billion (11.6 percent of GDP).

As for employment, foreign tourists' spending directly supported 1.2 million jobs in various economic sectors. The total number of jobs directly and indirectly associated with foreign tourists' spending is 2.7 million. The study also estimates tax revenue from foreign tourists' spending at over L.E. 3.6 billion, which corresponds to 5.1 percent of total direct and indirect taxes.

The study therefore concludes that tourism's ability to contribute positively to Egypt's economic goals earns that activity a higher rank on Egypt's policy priority list.

ملخص

تستهدف هذه الورقة تقييم الأثر الاقتصادى لإنفاق السائحين الأجانب وذلك من منظور شامل يأخذ فى الاعتبار الأوجه المختلفة لهذا الإنفاق وليس مجرد الإنفاق على الفنادق والمطاعم كما هو متعارف عليه فى الحسابات القومية. وتتبنى الدراسة أسلوب "تحليل الأثر الاقتصادى" المباشر وغير المباشر لإنفاق السائحين الأجانب على الناتج والقيمة المضافة والعمالة وحصيلة الضرائب.

وقد توصلت الدراسة إلى أن أثر إنفاق السائحين الأجانب على الإقتصاد المصرى يفوق نسبة ال ١٪ من الناتج القومى، وهى النسبة السائدة للتعبير عن مساهمة هذا القطاع بما يزيد عن الضعف. فقد تم تقدير أثر إنفاقهم المباشر بحوالى ٣,٦ مليار دولار عام ١٩٩٩، وهو ما يمثل ٤,٤٪ من الناتج المحلى الإجمالى، ويزيد هذا الرقم إلى ١١,٦٪ من إجمالى الناتج المحلى عندما نضيف الأثر غير المباشر لإنفاق السائحين على القطاعات الأخرى

أما بالنسبة للعمالة، فنجد أن إنفاق السائحين الأجانب يساهم فى توفير ١,٢ مليون فرصة عمل فى الأنشطة الاقتصادية المختلفة، وترتفع هذه المساهمة الى ٢,٧ مليون فرصة عمل إذا ما أخذنا فى الاعتبار الأثر غير المباشر لهذا الإنفاق. فضلاً عن هذا، قدرت الدراسة أن حصيلة الضرائب المرتبطة ارتباطاً مباشراً بإنفاق السائحين الأجانب تفوق ماقيمته ٣,٦ مليار جنيه مصرى ،وهوما يعادل ٥,١% من إجمالى الضرائب المباشرة وغير المباشرة.

وبناً على ذلك، خلصت الدراسة إلى أن قطاع السياحة يستحق بجدارة أن يوضع على قائمة أولويات السياسات الاقتصادية فى مصر وذلك لما يتمتع به هذا القطاع من قدرة على المساهمة الإيجابية فى تحقيق الأهداف الاقتصادية.

I. Introduction

Tourism has been grown rapidly over the past decade. Aggregate trends and patterns indicate that receipts from international tourism increased by an average of 8.2 percent annually for the past decade, reaching $ 440 billion in 1998, while international arrivals during the same period rose by a yearly average of 4.3 percent to reach $ 635 million in 1998. Tourism, along with information technology, is expected to lead economic activity in the next two decades, with a growth rate in job creation one-and-a-half times that of any other industrial sector. Regarding export earnings, tourism has become the world's largest export earner and an increasingly important item on the Balance of Payments for many countries. Furthermore, foreign currency receipts from international tourism reached $439 billion in 1998, a sum larger than that of any other product or service including exports of petroleum products, motor vehicles, telecommunications equipment, or textiles.

While there is fairly detailed information on tourists' arrivals, nationalities, their estimated expenditures and so forth, there is limited information on the contribution of this sector to output, employment, and income. These shortcomings characterize tourism information and statistics in both developed and developing countries alike. The lack of a solid, comprehensive, and internationally uniform information base on the economic impact of tourism has triggered efforts, particularly by developed countries, to address this weakness.[١] Progress has been slow, however. Except for a few developed countries, statistical information on the whole remains scanty, incomplete, and for the most part focused on simple calculations of international arrivals without any subsequent analysis of the impact of tourism activity on its respective economy.[٢]

This situation deprives both the tourism authorities and companies of information essential to making public policy and developing business strategies. Furthermore, the current status of tourism information reduces social awareness of tourism's importance as a factor promoting economic growth and as a source of employment. National accounts focus only on the 'hotels and restaurants' sector despite that foreign

[١] Refer to efforts by the OECD, Canada, the US, the EU and others to overcome this information difficulty with this sector.
[٢] See for example, papers presented at the World Trade Organization's conference on the measurement of the economic impact of tourism, June 15-18, 1999, Nice France.

tourists' expenditures on these services represent only a fraction of their total expenditures in the whole economy. National accounts, therefore, inevitably underestimate tourism's contribution to GDP. Because tourism is not properly reflected in the existing national accounting framework, it is not adequately taken into account in government policy development.

Egypt's coverage of tourism data is not different from that of many other countries. National accounts data focus on the contribution of hotels and restaurants to GDP – a sum equivalent to around 1 percent, with a less-than-one percent estimated share in total employment. These figures grossly underestimate the effect of foreign tourists' expenditures on Egyptian goods and services. Foreign tourists spend an average of 30 – 40 percent of their total spending on hotels and restaurants. The remaining 60 – 70 percent filter into other sectors of the economy such as transportation, recreational services, retail, and others. The effect of touristic spending on the demand for other sectors' output, employment, and so forth cannot be directly attributed to tourism unless we trace these expenditures in each of the affected sectors.

This study aims to quantify the economic impact of tourism on the Egyptian economy as a whole. Starting with an evaluation of foreign tourists' total expenditures on goods and services inside and outside hotels and restaurants, it thus provides a link between currently available information on foreign tourists' expenditures and economic activity such as output/sales, income, and employment.

The study is organized as follows: Section II focuses on the limitations of available tourism information, Section III estimates the economic impact of foreign tourists' spending on the Egyptian economy, Section V summarizes the results and concludes the study.

II. Tourism Data in Egypt: Limitations, Origins of the Problem, and Remedies

This section outlines tourism data available in Egypt, highlighting information limitations that hinder evaluation of the impact of tourism on economic activity. It then briefly reviews origins of the problem and outlines possible remedies to overcome these limitations.

Limitations

According to national account data in Egypt, hotels and restaurants (the only activity representing tourism) contributed 1.3 percent of GDP in 1998/99 (See Table 1). This compares to 19.5 percent contributed by industry and mining and 4.5 percent from petroleum. The share of hotels and restaurants in total employment is equally modest, where workers employed in this sector represent less than 1 percent of total employment (See Table 2). These estimates underestimate the contribution of tourism to economic activity for several reasons.

First, the impact of tourists' expenditures on food and beverages outside hotels and restaurants, real estate services, and retail, which affect sectors such as food production, retail, and housing, is not easily identifiable, even though these effects may be significant at the local level in tourist-dependent areas. Second, even services that are closely linked to tourism such as travel agencies, bazaars, and recreation services, are allocated to aggregate categories such as transportation and trade, finance and insurance, where the contribution of foreign tourists' expenditures to these sectors is not easily separated.

Table 1. Contribution to GDP at Factor Cost, 96/97, 97/98, 98/99 (%)

	96/97	97/98	98/99		96/97	97/98	98/99		96/97	97/98	98/99
Total Commodity Sector	49.3	49.9	49.0	Total Production Services	33.4	32.1	32.8	Total Social Services	17.3	18.0	18.2
Agriculture	15.7	17.3	17.4	Transportation & Suez Canal	10.4	9.4	9.3	Housing & Real Estate	1.9	1.8	1.9
Industry & Mining	18.1	18.5	19.5	Trade, Finance & Insurance	21.2	21.6	22.3	Utilities	0.4	0.4	0.4
Petroleum & Products	8.5	6.7	4.5	Hotels and Restaurants	1.8	1.1	1.3	Social Insurance	0.1	0.1	0.1
Electricity	1.6	1.8	1.6					Government Services	7.2	7.8	7.9
Construction	5.3	5.6	5.9					Social and Personal Services	7.8	7.9	7.9

Source: Ministry of Economy, Monthly Economic Digest, various issues.

Table 2. Distribution of Workers, by Sector, 1997/98 (%)

Total Commodity Sector	**51.4**	**Total Production Services**	**16.1**	**Total Social Services**	**32.7**
Agriculture	29.0	Transportation & Suez Canal	4.5	Housing and Real Estate	1.3
Industry and Mining	13.6	Trade, Finance & Insurance	10.7	Public Utilities & Social Insurance	22.1
Petroleum & Products	0.3	Hotels and Restaurants	0.9	Social Services	9.0
Electricity	0.8				
Construction	7.7				

Source: Ministry of Planning.

Other sources of information on tourism in Egypt, while not providing direct assessment of its contribution to the economy, supply valuable sector information, as well as information necessary for estimating the impact of tourism's impact on the economy. Two critical sources of information on foreign tourism come from the Ministry of Tourism. Based on information from the Passport and Immigration Authority, the Ministry regularly documents tourists' arrival trends, their nationalities, and their length of stay. In addition, in collaboration with the Central Agency for Public Mobilization and Statistics (CAPMAS), the Ministry conducts a bi-annual survey of foreign tourists following guidelines established by the World Tourism Organization (WTO).[٣] Among other things, the survey gathers information on tourists' average expenditures by nationality, and the distribution of these expenditures across different expenditure items such as accommodation, transportation, and so forth. A sample of tourists is selected over the span of the year to account for seasonality in tourist flows. Tourists are asked to respond to a questionnaire that addresses, in addition to their spending patterns, questions about the purpose of the visit, age and occupational background, rating of services, and their complaints and problems while visiting Egypt. This study uses expenditure data from that survey as a starting point for estimating the impact of foreign tourists' expenditure on the economy.

[٣] New World Tourism Organization guidelines which recommend that expenditures of expatriate citizens during their 'vacations' at home be included in tourist receipts have not yet been implemented in Egypt. Due to the large number of Egyptian citizens working in the Gulf countries, Egypt's tourism revenues may therefore not be comparable to tourism receipts of other countries which have already implemented these WTO guidelines.

The Central Bank of Egypt uses foreign tourist arrivals and estimated tourist expenditures from these two sources to calculate tourism receipts for the Balance of Payments figures.[٤] Because tourists' expenditures estimates are not available on an annual basis, estimates of tourists' expenditures from the most recent tourist expenditure survey are adjusted for inflation corresponding to each expenditure category and other secondary sources. These numbers feed into Balance of Payments and Current Accounts numbers. Thus, data highlighting trends in receipts, the importance of tourism receipts to other foreign currency sources such as the Suez Canal, workers' remittances, and oil and merchandize exports are available on an annual and quarterly basis (See Table 3).

Table 3. Principal Sources of Foreign Exchange Earnings ($ million)

Fiscal Year	93/94 Value	%	94/95 Value	%	95/96 Value	%	96/97 Value	%	97/98 Value	%
Tourism receipts	1,779	17.1	2,298	18.0	3,009	25.6	3,646	28.1	2,941	24.4
Workers' remittances	3,489	33.6	3,455	27.1	2,991	25.5	3,354	25.8	3,660	30.4
Suez Canal Dues	1,990	19.1	2,058	16.1	1,885	16.1	1,848	14.2	1,777	14.8
Petroleum exports	1,362	17.1	2,175	17.0	2,226	18.9	2,577	19.8	1,728	14.4
Other Exports:										
Agriculture	275	2.3	616	4.8	321	2.7	271	2.1	244	2.0
Manufacturing	1,233	10.8	2,166	17.0	1,314	11.2	1,304	10.0	1,685	14.0
Total	10,129	100	12,770	100	11,745	100	13,002	100	12,034	100

Source: Central Bank of Egypt

Current Account numbers show that tourism is becoming the most important source of foreign currency, with a share of over 28 percent of Egypt's 'major four' sources of foreign receipts.[٥] In 1998/99, Tourism generated $ 3.2 billion, which is equivalent to 29 percent of total service exports and 37 percent of non-factor service exports for the same year (Table 4).[٦]

[٤] The Central Bank produces another banking-sector based estimate of tourism revenues. This estimate is usually lower than that of the survey because it focuses on tourism revenues that go through the banking system.

[٥] Because of the Luxor attack in 1997, tourism's share fell behind workers' remittances in 1997/98, yet maintained second place.

Table 4. Tourism Receipts: Current Account Indicators ($ millions)

	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99
Trade Balance	**-7,175**	**-6,174**	**-7,003**	**-7,310**	**-7,853**	**-9,498**	**-10,220**	**-11,771**	**-12,524**
Exports	4,250	3,880	3,725	3,337	4,957	4,608	5,345	5,128	4,445
Petroleum	2,334	1,898	2,111	1,772	2,176	2,226	2,578	1,728	1,000
Other Exports	1,916	1,982	1,614	1,565	2,781	2,383	2,768	3,400	3,445
Services (net)	**3,576**	**4,464**	**3,561**	**3,674**	**4,042**	**5,792**	**6,193**	**4,692**	**5,946**
Service Receipts	**7,153**	**8,189**	**8,332**	**8,677**	**9,556**	**10,636**	**11,241**	**10,455**	**11,015**
of which Tourism	1,646	2,529	2,375	1,779	2,299	3,009	3,646	2,941	3,235
Total Merchandize + Service Exports	**11,403**	**12,069**	**12,057**	**12,015**	**14,513**	**15,244**	**16,586**	**15,583**	**15,460**
Balance of Goods and Services	**-3,599**	**-1,710**	**-3,442**	**-3,636**	**-3,811**	**-3,707**	**-4,027**	**-7,079**	**-6,578**
Current Account Balance	**3,820**	**2,670**	**2,295**	**410**	**386**	**-185**	**119**	**-2,479**	**-1,709**
Tourism receipts/ merchandise exports(%)	39	65	64	53	46	65	68	57	73
Tourism receipts/ Total service receipts (%)	23	31	29	21	24	28	32	28	29
Tourism receipts/ Merchandize + service exports (%)	14	21	20	15	16	20	22	19	21

Source: Ministry of Economy, Monthly Bulletin, Different Issues

Results of the Ministry of Tourism's most recent Foreign Visitor Expenditure Survey undertaken in 1996 show that Egypt has been successful in diversifying its tourism product. In 1996, nearly 45 percent of survey respondents cited leisure as their prime reason for visiting Egypt followed by museums and antiquities (34 percent), business and commercial visits (9 percent) and visiting relatives (6 percent) (See Table 5).

Table 5. Total and Average Expenditure by Type of Visit, 1996

Purpose of visit	% of visitors	Average expenditure per night ($)
Museums & Antiquities	34.0	169
Leisure	44.7	108
Medical	2.5	92
Studying	2.5	48
Conferences	0.8	179
Visiting relatives	6.2	75
Business & Commercial Visits	8.9	155
Incentive/Familiarization trips	0.3	183
Other	0.1	58
Total	100.0	122

Source: Ministry of Tourism, Foreign Visitor Expenditure Survey, 1996

[7] According to the World Tourism Organization, Egypt earned $3.8 billion in 1999. These figures are not reflected yet in the Balance of Payments (BOP) numbers available through the Central Banks' annual data.

The results of the visitor expenditure survey show that tourism development has a large impact on the economy in general. On average, most nationalities spend roughly 30 percent of their total expenditure on accommodation, food and drink in hotels. However, they also spend almost half of their total expenditure on such things as entertainment and cultural (18.8 percent), shopping (18.3 percent) and on other food and drink outside of hotels (11.3 percent), which feed directly into the local economy (See Table 6).

Table 6. Distribution of Expenditure, by Nationality (% of Total Expenditure)

Spending Category	Nationality						
	Arab	European	USA	African	Asian	Other	Total
Accommodation outside of hotels	7.0	1.1	1.1	1.9	2.2	0.3	4.6
Food & drink outside of hotels	16.0	4.7	4.1	5.3	4.8	1.6	11.3
Accommodation, food & drink in hotels	19.7	47.4	48.1	44.8	44.6	51.3	31.0
Domestic transportation	7.8	10.1	9.6	9.9	10.8	10.5	8.7
Museums, tourist attractions etc	2.0	6.0	6.5	6.5	6.5	8.8	3.7
Medical expenditure	3.1	0.0	0.0	0.0	0.1	0.0	1.9
Studying	2.3	0.2	0.3	1.7	3.2	0.5	1.6
Entertainment & cultural expenditure	22.0	14.8	13.7	14.3	11.9	13.8	18.8
Shopping	20.0	15.8	16.7	15.7	15.8	13.2	18.3
Other	0.1	0.0	0.0	0.0	0.1	0.0	0.1
Total	100	100	100	100	100	100	100

Source: Ministry of Tourism, Visitor Expenditure Survey, 1996

Therefore, data outlining tourism estimated expenditures and how they translate into tourism foreign currency revenues on the Balance of Payments are available. However, the manner in which these figures translate into demand, income and employment in other sectors of the economy is not clear. This is because of data problems that stem from the nature of tourism activity itself and are not specific to Egypt. Many developing and developed countries share these problems because of the specific nature of tourism as an activity, as will be discuss next.[v]

Origins of the Problem

Tourism's economic contribution is not clearly recognized, mainly because tourism is not a clearly identifiable industry. Tourism involves many different products (transportation, lodging, meals, entertainment, retail sales, etc.) and is defined more by who purchases the good or service than what is purchased. Restaurants sell meals to both tourists and local residents. The proportion of sales to tourists by any given

[v] The Ministry of Tourism collects a host of other data sets that address other data needs of the industry. See for example Ministry of Tourism (1997), *Tourism in Figures* for Egypt's share in world tourism, arrival and receipts' trends, distribution of tourists by nationalities, and numbers and regional distribution of Egypt's hotels and restaurants.

industry varies extensively across industries and regions. Not all sales, even of hotels, are necessarily to tourists.[^] This makes careful accounting of tourism's economic contribution difficult. One can't simply add up sales, income and employment reported in government statistics for a set of well-defined economic sectors to estimate tourism's economic contribution.

Furthermore, travel and tourism is not properly organized as a single category of productive activity (industry) in the UN System of National Accounts (SNA) framework. Because it is not in the SNA, travel and tourism statistics are under-developed, and subject to widespread guesswork, biased evaluations, and approximations. Both the quotation below and Table 7, which highlights the number of industries that are involved in the travel & tourism industry both directly indirectly, illustrate the involvement of tourism in various economic sectors. These characteristics are particularly important when considering the role of travel and tourism in job creation, its concentration in small and medium-size enterprises, its regional diversification capacity, and its labor-intensive nature.

> "When the indirect effects of tourist expenditure are taken into account, there is only one industry, defense, which is not affected to some extent."
> **World Tourism Organization, April 1983, annex 1.**

Table 7. Tourism Industry: A Comprehensive Picture

The Core of Tourism Business		
Accommodation:	Food and Beverage:	Reservation Systems
Hotels/Resorts	Restaurants	Auto Clubs
Motels	Fast Food	Entertainment/Arts Venues
Hostels	Wine Merchants	Museums/Historical Sites
Caravans	Travel Agencies	Construction/Real Estate
Camping	Tour Companies	Distillers/Brewers/Bottlers
Transportation:	Souvenirs	Auto/Aircraft Manufacturers
Airlines	Luggage	Motor Fuel Producers
Cruise Ships	Hotel/Restaurant Suppliers	Clothing Manufacturers
Rail	Taxi Services	Communication Networks
Car Rental	Cameras and Film	Education/Training Institutes
Bus Coaches	Maps, Travel Books	Recreation/Sporting Equipment
Attractions:	Shopping Malls	Food Producers
Man Made	Service Stations	Advertising Media
Natural	Sporting Events	Cartographers/Printers
	Banking Services	

Source: Australian National Tourism Strategy 1992

[^] A Tourist is defined as a visitor who stays at least one night in a collective or private accommodation in the country visited (Recommendations on Tourism Statistics, WTO/United Nations, 1993).

Remedies

Countries have addressed the need for an accurate assessment of tourism's contribution to GDP at two distinct levels, which to a great extent follow the developed-developing lines. Developed countries, although not all of them, have opted for the creation of Tourism Satellite Accounts (TSAs).[٩] These accounts develop separate tourism accounts at the primary data collection level. Parallel to the UN national accounts sectors, these accounts provide the appropriate input-output relationship for all tourism-related economic activities, and not just hotels and restaurants. Thus, for example, a fraction of the income made by a grocery store near a tourist resort will be included in the tourism satellite accounts. Similar allocation of activities is done in transport, medical services, and so forth. Developing countries data collection capabilities do not usually lend themselves to such a detailed level of data collection. Thus, they rely more on what is called 'the economic impact analysis of tourism'.

Economic impact analyses assess the contribution of tourism to economic activity in the context of existing input-output data.[١٠] The most important contribution of the economic impact analysis is that it assesses the direct and indirect contribution of tourism to economic activity without having to wait until a country invests in an extensive TSA primary data collection system. In the context of assessing tourism's contribution through economic impact analyses, tourists' expenditures are assigned to the corresponding sectors, producing direct impact of tourists' expenditure on various sectors. The economic impact analysis then follows linkages between tourists' expenditures on goods and services and demand for intermediate goods that are necessary to produces these goods and services, as well as consumption demand resulting from income earned by workers and businesses producing these goods and services. This study adopts this economic impact analysis approach.[١١]

[٩] For discussion of Tourism Satellite Accounts, see Delisle (1999), WTO (1998) and Frechtling (1999).
[١٠] An input-output model (I-O model) is a mathematical model that describes the flows of money (in sales returns) between sectors within a region's economy. Flows are predicted by knowing what each industry must buy from every other industry to produce an extra pound's worth of output.
[١١] For a complete discussion of the economic impact analysis, see Archer (1973), Archer (1982), Archer (1984), Stynes (1997) and Stynes (1998).

III. Economic Impact Analysis of Foreign Tourists' Expenditures in Egypt

Even though people may guess that tourism in Egypt affects the livelihood of a large segment of the economy, there is no concrete evidence to support this intuition. How does, for example, an increase of 50 percent in Egypt's tourism receipts affect demand for hotels and restaurants' services? or employment in transportation? How would a doubling of tourism receipts affect income in recreational services or retail? On the macroeconomic level, by how much could a 100 percent increase in foreign tourists' expenditures increase total employment (decrease unemployment), increase total demand for output of various sectors, or contribute to potential tax revenue? And, when a shock hits demand and its effect extends far beyond the hotels and restaurants, is it feasible to quantify these effects? This study attempts to provide the tools to answer these questions.

To assess the economic impact of foreign tourists' spending on the overall economic activity in Egypt, this study first traces the flows of economic activity from foreign tourists' spending to businesses in different sectors of the economy where tourists spend their money, and then to:

- Other businesses – supplying goods and services to tourist businesses,
- Households – earning income by working in tourism or supporting industries, and
- Government – through various taxes and charges on tourists, businesses and households.

In order to conduct economic impact analysis of tourist expenditure, we need the following data sets: visitor spending surveys, analysis of secondary data from government economic statistics, input-output models, and different sets of multipliers (Frechtling, 1994). These elements are captured in the following equation:

Economic impact of tourist spending = Number of visitors * Average spending per visitor * Multiplier

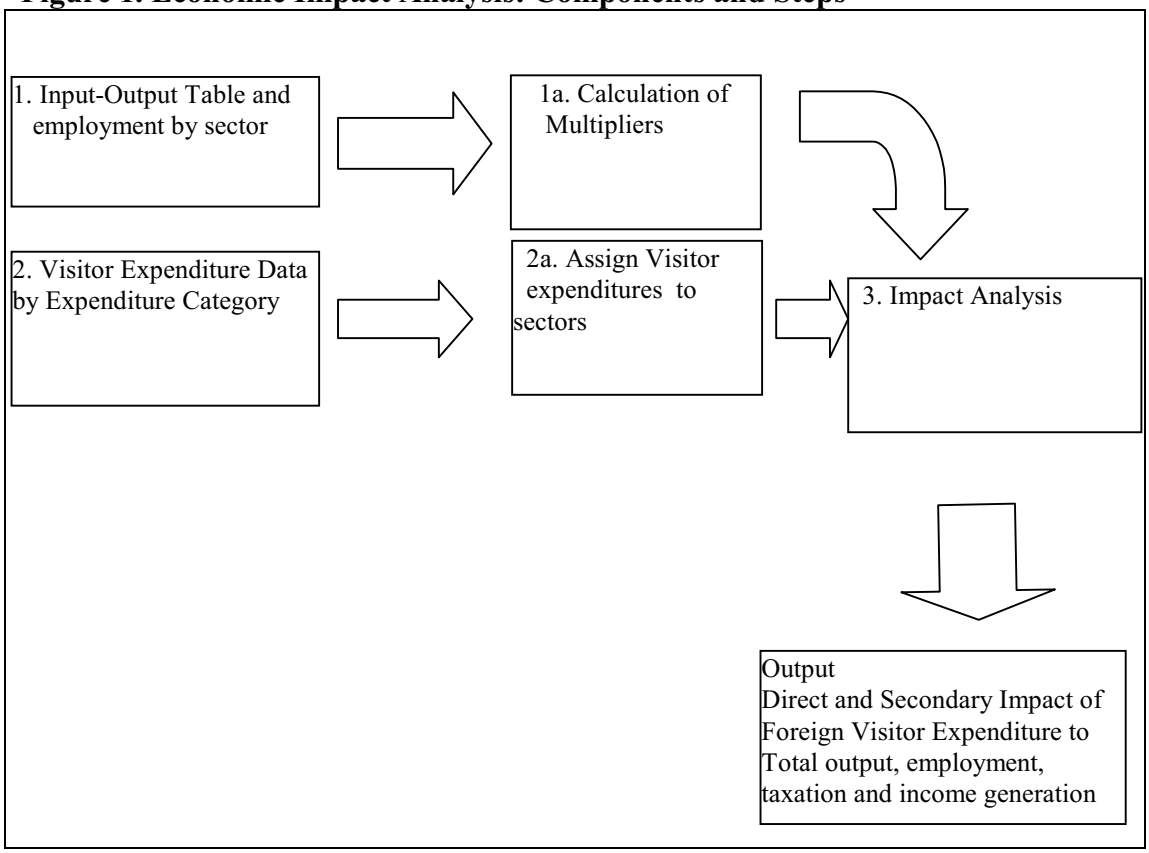
International visitors are counted at points of entry.[١٢] Total visitor spending is obtained by multiplying the number of visitors by an average spending per visitor. Spending

[١٢] Domestic tourism is more difficult to measure, generally requiring large-scale household surveys to measure patterns of trip-taking within a country.

levels of different types of visitors may be measured in surveys of random samples of visitors, for example when leaving the country.

Spending estimates can be converted to various measures of economic impacts using economic ratios and multipliers for tourism-related industries. For example, tourism spending in hotels can be converted to the associated income and jobs using ratios of sales to income and sales to jobs in the hotel industry. This approach is summarized in the following diagram:

Figure 1. Economic Impact Analysis: Components and Steps



Therefore, the economic impact of tourism spending produces the following indicators:

١. ***Direct effects,*** which are production changes associated with the immediate effects of changes in tourism expenditures.

٢. ***Indirect effects,*** which are the production changes resulting from various rounds of re-spending of tourism industry receipts in industries supplying products and services to the tourism industry.

٣. ***Induced effects***, which are the changes in economic activity resulting from household spending of income earned directly or

indirectly as a result of tourism spending. Indirect and induced effects are both sometimes referred to as secondary effects. Type I multipliers account for direct and indirect effects, but exclude induced effects. Type II multipliers include induced effects in the total effects.

From the 1996 Tourist Expenditure survey conducted by CAPMAS and the Ministry of Tourism, the number of tourists in each group is multiplied by the group's estimated average expenditure on different types of goods and services. Each tourist surveyed is asked now much of his expenditure is allocated to each spending category in the left-hand side column of Table 8. The right-hand side column of Table 8 represents the National Accounts sector to which the corresponding expenditure category is assigned.

Table 8. Sector Allocation of Tourist Expenditures

Spending Category	**Applies to Sector:**
Accommodation outside hotels	Real estate and housing
Food and drink outside hotels	Hotels and restaurants
Accommodation, food and drink in hotels	Hotels and restaurants
Domestic transportation	Transportation
Museums, tourist attractions, etc.	Entertainment and cultural services
Entertainment and cultural expenditures	Entertainment and cultural services
Medical Expenditures	Social and society services
Studying	Social and society services
Shopping	Wholesale and retailing
Other	Locally produced goods (manufacturing sectors

Simply assigning tourists' expenditures (net of import components) to the relevant economic sector produces direct effects. Secondary effects (indirect and induced) are estimated through calculation of a host of different multiplier indicators. Important among those are the following multipliers:[١٣]

[١٣] Appendix 3 gives a detailed explanation for the economic impact methodology.

١. The final-demand output multiplier of an industry represents the total dollar (or pound) change in output that occurs in all industries, for each additional dollar (or pound) change in final demand in the industry in question;

٢. The final-demand income multiplier of an industry represents the total dollar (or pound) change in earnings (wages, salaries, proprietor's income, and other labor income) of households employed by all industries, for each additional dollar (or pound) change in the final demand of the industry;

٣. The final-demand employment multiplier of an industry represents the total change in number of jobs in all industries, for each additional 1 million-dollar change in final demand in the industry.[١٤]

To capture secondary effects, this study relies on Egypt's 1991/92 input-output table, tracing the effect of how spending in different sectors creates cycles of demand for intermediate goods produced by other sectors, and cycles of demand for consumption goods by workers in various sectors of the economy. Using this methodology and starting with our information about total spending by foreign tourists in 1996, the study traces these cycles of demand into their respective sectors creating estimates of the total effect these expenditures have on output and sales in the whole economy. [١٥]

Furthermore, tourist expenditures and demand for different goods and services translate into demand for workers to produce these goods and services, as well as to income of wages, salaries, and proprietors income, which individuals utilize in their household expenditures. Thus, labor income and employment multipliers were calculated for foreign tourists' expenditures in 1996.

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[١٤] For the final-demand employment multiplier, the size of the multiplier depends on the currency used in quoting tourism expenditures. Unlike sales, income, and other currency-denominated multipliers, where both the triggering and the resulting parameters are in currency unit, employment multipliers translate currency numbers into job estimates. Thus, while tourist expenditures ($3.0 billion) or its equivalent in LE (3.39X 3.0 billion) will create the same number of jobs, the value of the job-multiplier will be 3.38 times higher for figures quoted in dollars. For our analysis, we have quoted employment multipliers in terms of dollar values to be consistent with other data on tourist expenditures quoted in dollars.

[١٥] The Ministry of Planning has produced an Input-Output table for year 1996/97. The 1996/97 I/O is an update of the 1991/92 Input-Output table with the same technical coefficients, except that the Ministry of Planning uses secondary data about growth in different sectors to change these sectors' relative sizes. Multipliers from each of the 1991/92 and the 1996/97 input-output tables were calculated for this study. However, because the 1996/97 maintains the original table's technical relationship, the resulting multipliers are not very different from the 1991/92 ones. Because the original table has 38 sectors, in addition to employment, income and other necessary information, we decided to rely on the original 1991/92 Input-Output table.

Table 9 summarizes results of economic impact using the 1996 tourist expenditure survey.[١٦] Total tourists' estimated expenditures for that year amounted to $3.01 billion. Results of the analysis show that tourists' estimated total expenditures directly contribute a total of $2.86 billion to different sectors of the economy, an amount up to 4 times the contribution of hotels and restaurants to GDP in 1996/97- 1998/99.[١٧] This is primarily because a tourist spends only 30 – 40 percent of his/her income on hotels and restaurants while the remaining 60 – 70 percent of expenditures go to other sectors and are, therefore, not included in hotels and restaurants' activity.[١٨]

Relating direct effects of foreign tourists' expenditures to Egypt's 1996 GDP at factor cost, direct effects of foreign tourists' expenditures is equivalent to 4.3 percent of Egypt's 1996 GDP at factor costs and 4.1 percent of GDP at market prices.[١٩] However, comparing demand in tourism to GDP may be overestimating the contribution of foreign tourists' spending to GDP. To convert demand numbers to value-added contribution of tourism to GDP, we rely on ratios of value-added to sales from a survey of hotels and restaurants in 1999 (65 percent) and estimates of value-added to sales for other sectors from the 1991/92 Input-Output Table (an average of 60 percent). This produces a value-added contribution of foreign tourists' spending which equals 2.9 percent of GDP.

If taken in absolute terms, a share of 2.9 percent of GDP may not indicate an especially important sector. But, when compared to other sectors that are perceived by most Egyptians as major sectors, we find that foreign tourists' spending to GDP (total value-added of the whole economy) is more than the value-added created in the spinning and weaving industry (2.78 percent), ready-made garments (1.09 percent), iron, steel and mineral product industry (1.78 percent), or even financial institutions

[١٦] The same analysis has been conducted for the 1994 tourist expenditure survey. Results are available upon request.

[١٧] An average import margin across the whole economy was deducted from each sector's output to capture the local contribution of tourism expenditure to GDP only. Import components in the production of goods and services in each sector are removed from value added in the I-O coefficients, for the estimation of the secondary effects. Therefore, we do not need to account for them one more time.

[١٨] Tourists spend on average 31 percent of their total expenditure in hotels (accommodation, food and beverage). They spend an additional 11 percent on food and beverages outside hotels. It is, however, reasonable to assume that the bulk of the additional 11 percent goes to expenditure on food and beverages in restaurants.

[١٩] Even though the contribution of hotels and restaurants to national accounts includes tourism services purchased by Egyptians, Egyptians' total expenditures on hotels and restaurants is less than expenditures by foreign tourists outside hotels and restaurants. According to results of a survey of tourist establishments conducted in September 1999, foreigners account for two-thirds of their activity.

(1.78 percent). Therefore, even when we use the most conservative estimates of the contribution of foreign tourists' demand to GDP, we find that foreign tourism (as more comprehensively defined) is as important, if not more important, than many sectors in the economy.

These figures are calculated by comparing a pound of value-added in tourism to a pound of value-added in other sectors. We must remember, however, that tourism is an export service. This means a good or service consumed by foreign tourists in Egypt is equivalent to a good or service exported outside Egypt earning the economy hard currency. For a developing country with a significant trade account deficit, the premium attached to value-added created in tourism (an industry that is predominantly export-oriented) makes a pound of value added created in tourism more important than a pound of value-added in industries where only a fraction of value-added is associated with hard currency.

The labor income corresponding to these expenditures is $529 million, with workers in hotels and restaurants receiving 32.5 percent of that income, and the entertainment and cultural services sector earning 39 percent. The total employment associated with 1996 tourists' spending of $3.0 billion is 978,000 workers or 5.7 percent of total employment. From this figure, hotels and restaurants employ 210,000 workers. The remaining workers are in entertainment services (120,000) and in transportation (455,000).

Potential contribution to taxation from foreign tourist expenditures is estimated to be LE 2.8 billion, or 7.2 percent of total tax revenues. These potential tax revenues must not be interpreted, however, as the actual contribution of hotels and restaurants to tax revenues. These are a combination of indirect taxes (sales tax) and wages and salaries tax on labor income, as well as income tax on owners' surplus. No account was taken of any exemptions that may reduce this potential revenue. [٢٠] Again, and similar to the perspective of analysis, tourism comprises all sectors where a tourist spends his/her money. Thus, this estimated tax revenue is spread across all affected sectors. [٢١]

[٢٠] Estimated tax revenue was taken to be a sales tax of 10 percent of all output and a 20 percent average income tax (covering both wages and salaries, and surplus income).

[٢١] Caution must be exercised when interpreting 'potential tax revenues'. Without taking into account 'effective taxes', where the effects of tax breaks and holidays are deducted, it is not possible to get the actual expected tax revenue associated with foreign tourists' expenditures. Without access to actual tax records of establishments in different sectors, or at least a profile of how different sectors benefit from

These are the direct effects of tourist expenditures on businesses where tourists directly interact such as a hotel where he/she stays, a restaurant where he/she eats a meal, or a shop where he/she purchases a good. These businesses, however, in turn demand other goods and services from other industries, which feed in their production function.[٢١] For example, hotels order food and beverages, linens, cleaning services, rely on the services of utilities and so forth. This is where reliance on input-output tables produces the total impact of tourist expenditures on ALL sectors in the economy and not just on the sectors where tourists are in direct contact.

As discussed above, Type I multipliers (sales, income, jobs, etc.) take into account only indirect effects, i.e. the demand that tourist expenditures create in other economic sectors. Type II multipliers capture the induced effects as well, accounting for the added cycle of consumption from income generated in conjunction with tourist expenditures. The total effects in Table 9 employ Type II multipliers, capturing indirect and induced effects. (For a detailed explanation of the methodology used, please refer to Appendix 3)

According to the estimated results appearing in Table 9, the Type II output multiplier for foreign tourists' expenditures is 2.64. Why is this result different from the widely used 1.7 multiplier for hotels and restaurants? First of all, the 1.7 multiplier is the hotels-and-restaurants-only multiplier. Our larger value results from expanding the definition of tourism activity to account for more than just hotels and restaurants. However, it should be noted that the 1.7 multiplier is a Type I multiplier for hotels and restaurants. The hotels and restaurants Type II multiplier is 2.66. Similarly, the Type I multiplier for tourism expenditures in the more comprehensive perspective, which this paper takes, is 1.5.

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different investment incentives tax breaks, potential tax revenues have to be interpreted as an upper limit on tax revenues associated with foreign tourists' expenditures.

[٢٢] Linkages and multiplier analysis here pertains to sales and not to value-added. The reader is cautioned to keep this distinction in mind.

Table 9. Summary of Economic Impacts of Foreign Visitor Spending, 1996

Economic Measure	Direct	Implicit Multiplier	TOTAL
Output/Sales ('000s $)	2,860,933	2.64	7,563,611
as a % of GDP at factor cost	4.3		11.3
as a % of GDP at market prices	4.1	2.64	10.7
Total Labor Income ('000s $)	529,287	2.18	1,154,160
Jobs	978,156	2.21	2,160,531
as a % of total employment	5.7		12.6
Potential Tourism Taxation ('000s LE)	2,851,378	2.64	7,538,348
as a % of total direct and indirect taxation	7.2		19.1
Memorandum Items			
Total Visitor Spending (‘000s $)			3,012,584
Capture Rate (%)			95.0
Implicit effective spending multiplier			2.51

In Table 9, the last column accounts for total effects that result from demand that foreign tourists’ expenditures create in other industries, as well as demand for goods and services created by wages and salaries and owners’ income created in all these sectors. Our estimates show that once all these effects are captured, tourism’s contribution to the whole economy equals 10.7 percent of GDP at market prices, and 11.3 percent of GDP at factor cost. Total effects of foreign tourists’ expenditures on employment are 12.6 percent of employment, while total potential tax revenue is 19 percent of direct and indirect tax revenues.

Caution must be exercised when interpreting these total effects, however. The contribution of foreign tourists’ spending is not comparable to the 17 percent GDP contribution of agriculture and the 19.5 percent contribution of industry to GDP. Total effects capture cycles of demand (and expenditure) that include demand for other industries’ output and demand by household consumption. Unless similar total effects are estimated for agriculture and industry, the relative importance of tourism becomes overstated.

So how does tourism, as thus far defined, compare to other main sectors in terms of the size of its multipliers? The Type II output multiplier for agricultural food production is 2.04, while oil extraction and natural gas is only 1.17, and ready-made garments’ Type II sales multiplier is 3. For employment multipliers, however, Type II-

created employment per $1 million of tourists' expenditures creates 329 jobs.[۲۳] This compares to only 13.28 jobs for each $1 million of exports or output in oil extraction. As it should be intuitively expected, a sector like oil exhibits limited linkages in the economy both in terms of employment and labor income. This should not come as a surprise, given the nature of the production function for oil extraction. Yet for income in financial institutions, an additional $1 million contributes more to the economy than tourism does. This can be partly explained by the relatively low skill and low wage level that characterizes a large part of workers in tourism as compared to workers in financial institutions.

Therefore, in terms of its job creation potential, tourism ranks highest compared to the group of sectors. As for output (sales) and labor income multipliers, tourism and ready-made garments produce similar magnitudes of linkages: Tourism compares favorably with food production, agricultural food, construction and building. Financial institutions have the highest demand and labor income multipliers, however. (Appendix 4 uses a hypothetical example of a $100 million increase in exports or output of sectors such as agricultural products, ready-made garments, oil extract, and financial services.)

Tables 10 through 13 give a detailed account of direct, secondary, and total impacts of tourists' expenditures on sales, labor income, jobs, and tax revenues, respectively. Each table breaks down tourists' expenditures into the sectors corresponding to the expenditures patterns, in order to estimate each of these sector's share in direct, secondary, and total effects. For example, hotels and restaurants' share in direct sales effects is 51 percent, followed by 22 percent for sales direct effects for entertainment and cultural services. Labor income, entertainment and cultural services gain a share of close to 40 percent, indicating a higher labor income/output ratio compared to that for hotels and restaurants.

[۲۳] This estimate has to be distinguished from estimates of the cost of creating a job in a specific sector, where figures such as $250,000 per job are made. This latter estimate is an investment needed per job estimate. Our study's job creation estimate refers to coverage of wages and salaries to produce the $ 1 million of sales. No estimation of necessary investment is possible, given the ongoing analysis.

Table 10. Sales Effect, 1996 (000s $)

Sector	Direct	as a %	Secondary	as a %	Total	as a %
Hotels and Restaurants	1,459,282	51.0	2,427,408	51.6	3,886,690	51.4
Real Estate and Housing	72,658	2.5	77,038	1.6	149,696	2.0
Transportation	290,589	10.2	264,798	5.6	555,387	7.3
Locally Produced Goods	151,651	5.3	245,410	5.2	397,061	5.2
Entertainment and Cultural Services	635,564	22.2	1,292,546	27.5	1,928,109	25.5
Social and Society Services	48,989	1.7	229,398	4.9	278,387	3.7
Retail Services	202,201	7.1	166,080	3.5	368,281	4.9
Total	2,860,933	100	4,702,677	100	7,563,611	100

Table 11. Labor Income Effect, 1996 (000s $)

Sector	Direct	as a %	Secondary	as a %	Total	as a %
Hotels and Restaurants	172,074	32.5	305,085	48.8	477,159	41.3
Real Estate and Housing	11,204	2.1	10,994	1.8	22,198	1.9
Transportation	46,988	8.9	35,377	5.7	82,365	7.1
Locally Produced Goods	19,808	3.7	34,365	5.5	54,174	4.7
Entertainment and Cultural Services	207,812	39.3	184,955	29.6	392,767	34.0
Social and Society Services	49,695	9.4	31,015	5.0	80,710	7.0
Retail Services	21,706	4.1	23,082	3.7	44,788	3.9
Total	529,287	100	624,873	100	1,154,160	100

Table 12: Jobs Effect, 1996

Sector	Direct	as a %	Secondary	as a %	Total	as a %
Hotels and Restaurants	209,785	21.4	524,615	44.4	734,400	34.0
Real Estate and Housing	6,261	0.6	13,982	1.2	20,244	0.9
Transportation	454,775	46.5	65,151	5.5	519,926	24.1
Locally Produced Goods	93,216	9.5	166,649	14.1	259,865	12.0
Entertainment and Cultural Services	119,852	12.3	312,206	26.4	432,058	20.0
Social and Society Services	38,519	3.9	55,536	4.7	94,055	4.4
Retail Services	55,748	5.7	44,237	3.7	99,984	4.6
Total	978,156	100	1,182,375	100	2,160,531	100

Table 13. Tax Effect, 1996 (LE 000)

Type of Taxation	Direct	as a %	Secondary	as a %	Total	as a %
Income tax w/ no incentives	1,842,727	64.6	3,028,994	64.6	4,871,722	64.6
Consumption tax	1,008,651	35.4	1,657,976	35.4	2,666,627	35.4
Total without possible tax breaks	2,851,378	100	4,686,970	100	7,538,348	100

Updating the analysis for the impact of foreign visitor expenditures in 1999, this study uses total tourism revenue data from the WTO, applying the multipliers from our previous analysis, and relating estimates to GDP, income and taxation (no total employment figures are available for 1999 yet). Summary estimates for 1999 show that direct effects of foreign tourists' expenditures relative to GDP at factor cost is 4.4, and 4.1 percent for GDP at market prices. These numbers are comparable to the 1996 results, a year where tourism was doing reasonably well. The estimated labor income in all sectors directly related to foreign tourist expenditures rose from $529 million to an estimated $671 million. Estimated potential tax revenue rose from LE 2.3 billion in direct effects in 1996 to LE 3.7 billion in direct effects in 1999. Yet, because of a growing tax base for 1999, and despite the growth in LE value, the share in total potential tax revenue fell from a potential 7.2 percent of total direct and indirect taxation to 5.1 percent in 1999. Similarly, total potential tourism tax revenue fell from 19.1 to 13.5 percent of total direct and indirect tax revenue for 1999. The number of direct jobs rose to 1.2 million and the total impact on jobs rose from 2.1 million to 2.7 million workers. No calculation of employment shares is possible without same-year estimates for employment in each sector.

Table 14. Economic Impacts of Foreign Visitor Spending, 1999

Economic measure	Direct	Implicit Multiplier	TOTAL
Output/Sales ('000s $)	3,624,250	2.64	9,568,000
as a % of GDP at factor cost	4.4		11.6
as a % of GDP at market prices	4.1		10.8
Total Labor Income ('000s $)	670,504	2.18	1,461,698
Jobs	1,239,134	2.21	2,738,488
as a % of total employment	NA		NA
Potential Tourism Taxation ('000s LE)	3,654,893	2.64	7,538,348
as a % of total direct and indirect taxation	5.1		13.5
Memorandum Items			
Total Visitor Spending ('000s $)			3,815,000
Capture Rate (%)			95.0
Implicit effective spending multiplier			2.51

IV. Summary and Conclusion

The study shows that the direct effects of foreign tourists' expenditures are roughly 4 times the 1 percent contribution of hotels and restaurants to GDP in national accounts. Direct employment created by foreign tourists' expenditures was close to a million workers in 1996, or 5.7 percent of total employment for that year, compared to a 0.9 percent share in employment for hotels and restaurants in the last few years. This is due, in large measure, to the fact that foreign tourists spend only a fraction of their expenditures inside hotels and restaurants. In Egypt's case, what is spent inside hotels and restaurants is 30 – 40 percent of the total, compared to 60 – 70 percent of total expenditures' spending that does not feed into hotels and restaurants contribution to GDP.

When compared to sectors of special importance to the Egyptian economy, for example spinning and weaving, ready-made garments, or financial institutions, we find that foreign tourists expenditures is equivalent to 2.9 percent of GDP, where spinning and weaving, ready-made garments and financial institutions are 2.8, 1.1, and 1.8 percent of GDP, respectively. Considering that all of foreign tourists' demand generates foreign currency, in contrast to other sectors, then tourists' consumption of goods and services is the equivalent of Egypt exporting these services to be consumed by foreigners in their countries. This is a particularly important point in the context of a developing country with a growing trade account deficit. Developing countries have usually placed a premium on value added in export-oriented sectors. This premium increases with pressures on national currency, trade, or current account deficits.

In addition, tourism, as any other activity, has linkages with other sectors in the economy. These linkages create demand in other sectors and demand by workers in the tourism industry that goes toward creating other cycles of spending and consumption. Therefore, to fully account for tourism's contribution to economic activity, in addition to overcoming the limited coverage in national accounts, we need to trace the linkages of tourism to other sectors of the economy and compare these linkages to those of other sectors in the economy.

Adding indirect effects, the output impact of foreign tourists' expenditures relative to GDP becomes much larger, reaching over 10 percent of GDP. Even though we have to keep in mind that our analysis estimates output and not value-added secondary

effects, the argument remains clear: Foreign tourists' expenditures, through their linkages with other industries' output or value-added, contribute a lot more to the economy than their direct effects on output or value-added.

Accounting for the impact of foreign tourists' expenditures on labor income and employment, we find that foreign tourists' spending directly contributed a total of over $500 million of labor income and close to a million jobs. Adding (direct, indirect and induced) effects, foreign tourists' expenditures account for 12.6 percent of the total number of workers.

The magnitude of secondary effects is determined by the size of linkages between foreign tourists' expenditures and economic sectors; i.e. multipliers for foreign tourists' spending. Comparing multipliers for foreign tourists' expenditures to other main sectors, we find that the Type II output multiplier for agricultural food production is 2.04, oil extraction and natural gas is only 1.17, while that for tourism is 2.64. For employment multipliers, however, $1 million of tourists' expenditures create 329 jobs. This compares to only 13 jobs in oil extraction, 183 job in construction and building, and 192 jobs in ready-made garments created for each additional $1 million of exports or output in these sectors.

The implications of the study findings are clear. At a minimum, the study should enhance the ability of businesses inside and outside the tourism industry to strategically plan their activity in accordance with information on foreign tourists' arrivals and expenditures. With an improved assessment of foreign tourism's linkages to other sectors, firms can better predict their needs, utilize their opportunities, and avoid possible supply bottlenecks.

However, the implications of the study results are a lot more important to government and industry policies. The most immediate implication relates to where tourism should rank on Egyptian policymakers' priority list. Inevitably, as an activity that greatly contributes to foreign currency earnings through its linkages and indirect effects, tourism will earn itself a higher place on Egypt's economic policy agenda. Furthermore, the ability of tourism to contribute to government policy priorities such as increasing employment, and contributing to other sectors' economic growth can only enhance tourism's position in Egypt's economic policies.

Once tourism's priority position is established, efforts to develop Egypt's tourism strategy will become a goal not just for policymakers in the tourism sector, but to policymakers at the macroeconomic level as well. A concerted effort to develop Egypt's tourism will allow the country to capitalize on its considerable tourism potential and the growing importance of tourism industry worldwide.

Appendix 1
Information Sources

Table A1.11: Egypt 1991/92 Input-Output (I-O) model – 38 Sectors.

1. Agricultural food production	20. Porcelain & china
2. Agricultural non-food production	21. Glass products
3. Livestock production	22. Other mineral products
4. Oil extraction and natural gas	23. Iron, steel& mineral products
5. Other minerals	24. Machinery and equipment
6. Food production	25. Transport means
7. Beverages	26. Other manufacturing industry
8. Tobacco	27. Electricity, gas and water
9. Cotton ginning	28. Construction and building
10. Spinning and weaving	29. Wholesale and retailing
11. Ready-made garments and tailoring	30. Restaurants and hotels
12. Leather products excluding shoes	31. Loading and warehousing
13. Shoes	32. Transportation
14. Wood products excluding furniture	33. Financial institutions
15. Furniture	34. Insurance
16. Paper and printing	35. Real estate and housing
17. Chemical products excluding refining	36. Social and society services
18. Oil derivatives	37. Entertainment & cultural services
19. Rubber & plastic products	38. Personal services

Table A1.12: Egypt 1996/97 Input-Output (I-O) model – 32 Sectors.

1.	Agriculture – crops	2	Agriculture - livestock
3	Cotton ginning	4	Mining, quarrying
5	Crude petroleum	6	Food industries
7	Beverages	8	Tobacco
9	Yarn, textiles	10	Garments, shoes
11	Furniture, wood products	12	Paper, paper products
13	Printing, publishing	14	Leather, leather products
15	Rubber, rubber products	16	Chemical, plastic products
17	Petroleum products	18	Coal products
19	Non-metallic mineral products	20	Basic metal industries
21	Metal products	22	Machinery, non-electrical
23	Electrical machinery	24	Transport equipment
25	Other manufactures	26	Electricity
٢٧	Construction, building & Maintenance	28	Transportation, communication
29	Trade, finance & insurance	30	Restaurants & hotels
31	Housing, utilities	32	Personal services, other

Source: Ministry of Planning

Table A1.13 Egypt's Macro economic indicators, 1991/92-1998/99

	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99
GDP at market prices (billion LE)	139.1	157.3	175.0	204.0	229.4	256.3	280.2	302.0
Real GDP growth (%)	1.9	2.4	3.9	4.7	5.0	5.3	5.7	--
GDP per capita ($)	740	708	897	1,010	1,081	1,211	1,312	
Population (millions)	55.2	56.4	57.7	59.0	60.2	61.5	62.7	
Population growth rate (%)	1.8	2.2	2.2	2.3	2.1	2.1	2.0	
Fiscal deficit, % GDP	-8.1	-3.8	-2.1	-1.2	-1.1	-0.9	-1.0	-1.3
Inflation (CPI) (%)	21.1	11.2	9.0	9.4	7.3	6.2	3.8	3.8
Exchange rate LE:$ (Ave.)	3.32	3.33	3.37	3.39	3.39	3.39	3.41	
Current account balance, % GDP	5.3	5.2	0.8	0.6	-0.3	0.2	-3.4	-1.9
Tourism receipts ($ billion)	2.53	2.38	1.78	2.30	3.01	3.65	2.94	3.2

Source: Central bank of Egypt, Ministry of Planning, CAPMAS

Other Data Sources:

Employment Data: CAPMAS, the 1996 population census, 1991/92 Input-Output tables.

Visitor Expenditure Surveys 1994 & 1996, Ministry of Tourism & CAPMAS.

Total Expenditure by Nationality and Number of Nights, Tourism Data – Ministry of Tourism.

Egyptian Federation of Tourist Chambers data.

Appendix 2

Tourism Multipliers: Interpretation and limitations

Multipliers capture the secondary effects of tourism spending by tracing the circulation of tourism dollars within the economy. They reflect the degree of interdependencies within a regional economy and the propensity of businesses and households to purchase goods and services from local suppliers rather than from outside the region. Multipliers generally increase with the size of the region and the diversity and degree of development of the economy. Multipliers are lower in countries that depend heavily on imported goods and services and higher in those that are relatively self-sufficient. Multipliers therefore vary for different countries or regions. They also vary across different economic sectors, depending on the mix of labor and other inputs, and the propensity to purchase inputs from local suppliers. A tourism multiplier is really an average of the multipliers for the different sectors that receive tourist spending and will therefore also vary with the pattern of tourist spending.

Multipliers are generally derived from input-output models of the region's economy. An input-output model is a representation of the flows of economic activity between sectors within a region. The model captures what each business or sector must purchase from every other sector in order to produce a dollar's worth of goods or services. Using such a model, flows of economic activity associated with any change in spending may be traced either forwards (spending generating income which induces further spending) or backwards (visitor purchases of meals leads restaurants to purchase additional inputs -- groceries, utilities, etc.).

There are many different kinds of multipliers, which can lead to some confusion and misuse. One should begin with a clear understanding of the distinction between a direct effect and the two types of secondary effects -- indirect and induced.

Direct effects are the sales, income and jobs in businesses that receive the tourist spending. For example, an increase in the number of tourists staying overnight in hotels would directly yield increased sales in the hotel sector. The additional hotel sales and associated changes in hotel payments for wages and salaries, taxes, and supplies and services are direct effects of the tourist spending.

Indirect effects are the resulting changes in economic activity in backward-linked industries, i.e. those businesses from whom the direct tourism businesses purchase goods and services. For example, changes in sales, jobs, and income in the linen supply industry due to a change in hotel sales represent indirect effects. Businesses supplying products and services to the linen supply industry represent another round of indirect effects, eventually linking hotels to varying degrees to many other economic sectors in the region.

Induced effects are the changes in economic activity resulting from household spending of income earned directly or indirectly as a result of tourism spending. For example, hotel and linen supply employees supported directly or indirectly by tourism, spend their income in the local region for housing, food, transportation, and the usual array of household product and service needs. The sales, income, and jobs that result from household spending of added wage, salary, or proprietor's income are induced effects.

The total effects of tourism spending may be computed as the sum of direct, indirect and induced effects. A Type I multiplier only includes the indirect effects, while the Type II multiplier includes both kinds of secondary effects. Type II multipliers will therefore be larger than Type I.

Type I multiplier = (direct + indirect effects)/direct effects

Type II multiplier = (direct + indirect + induced effects)/ direct effects

These ratio multipliers may be expressed in terms of sales, income, jobs, value added, or any other measure of economic activity. If not stated, they are usually sales multipliers. When using input-output models, any of these multipliers may be produced for individual economic sectors. Thus, one can compare the amount of direct or total income resulting from a dollar of sales in the hotel sector with a dollar of sales in restaurants, retail trade, or manufacturing.

Multipliers derived from different sources may not be in agreement. Multipliers rest on a number of simplifying assumptions of the underlying models as well as the quality of the economic data. If national employment statistics undercount jobs in tourism-related industries, the employment multipliers will also underestimate employment effects. I-O models also assume that production functions are linear (no scale economies or diseconomies), that all firms in an industry employ a common production function, and that household consumption is a simple function of labor

income. I-O models do not account for induced government spending or capital investment, nor do they reflect the infrastructure costs associated with tourism.

Economic effects may be measured in terms of sales, income, value added, jobs, or tax receipts. Each of these measures provides a somewhat different picture of the importance of different sectors or industries to the economy. Industries like petroleum generate high sales, but not nearly as many jobs as more labor-intensive industries, like tourism. Job estimates, however, may provide a somewhat inflated view of tourism's importance, if wages and salaries are lower and the industry has more part time or seasonal jobs. In most cases, income or value added are better indicators of the economic importance of an industry than either sales or jobs.

Goods that tourists purchase at retail establishments require some special procedures to properly estimate impacts. If tourists buy goods that have been imported from elsewhere, only the retail margin should be attributed to the local economy (also wholesale and transportation margins if applicable).

Notes:
1. Main Sources: Archer (1973, 1982 & 1984), Richardson (1985), Hawaii, Dept. of Business, Economic Development and Tourism (1998) and Stynes (1998).

Appendix 3
Detailed Methodology

Stage 1: The Input-Output Model

An I-O model is designed to show the role and importance of each industry in the economy in terms of its output, value added, income, employment, and the industry's interaction with the rest of the economy. This model provides the factual basis for estimating output, income and employment multipliers, which are frequently used in economic impact analyses. A full I-O model consists of a number of different tables. The following are the most important tables.

١. The Transactions Table

The staring point of the model is the transactions table. It depicts a comprehensive and detailed account of sales and purchases of goods and services among producing industries, final consumers (households, visitors, exports, government, etc.), and resource owners (labor, capital, land) in an economy during a particular time period, usually a year.

The columns of the I-O transactions table are the producing or "selling" industries and sectors of the economy. The rows of the table are the purchasing or "buying" industries and sectors. Therefore, the intersection of each row and column shows how much the industry to the left sold to the industry (or sector) directly above.

An input-output transactions table is a double entry accounting system and so it must follow that total sales (row total) is equal to total purchases (column total) for each industry. Inter-industry sales and payments flows can be expressed as a system of equations, representing the distribution of each sector's total output (sales) among various industrial purchasers and final demand sectors.

2. Direct Requirements Table

The next step in input-output analysis after construction of the transactions table is the derivation of the "direct requirements" table. Elements in each column of the direct requirements table are obtained by expressing each column entry of the transactions table as a proportion (coefficient) of the corresponding column total. The coefficients of the direct requirements table show the amount of input (purchases) required by the column sector from each of the row sectors (sellers) to produce one pound of output

from that column sector. The direct requirement computations are usually limited to the columns containing the producing industries of the transactions table. Thus, most of the final demand sector columns are usually omitted. However, the personal consumption expenditures (or household) sector column may be treated as a producing sector since a substantial portion of household income is injected into the economy in the form of purchases from industries. The direct requirements column for households is obtained by dividing each entry in personal consumption expenditures by total labor income in the economy.

3. Total Requirements Table

The direct requirements table shows the direct or initial effects on all producing sectors due to a change in final demand. These direct effects lead to a series of successive or indirect impacts on the producing sectors. For example, from the Egyptian 1991/92 I-O model, agricultural food production supplies about 9 piastres worth of agricultural food commodities for each pound increase in food production manufacturing final demand. The agricultural food production sector has to purchase inputs from various suppliers to produce 9 piastres of agricultural food products required by the food production sector. These suppliers, in turn, would need to purchase inputs to meet the demands for their commodities. The indirect impact would continue through each of the various industries which supply an input to manufacturing, although each successive transaction will be smaller than the preceding one due to the leakage of purchasing power from the economy in the form of imports. To capture all indirect effects of a one dollar increase in manufacturing output, this analysis needs to be applied to each of the manufacturing's input suppliers. Measuring total requirements this way would be exceedingly tedious, especially when the number of endogenous sectors is large. Fortunately, total requirements can be estimated easily using matrix algebra. The last expression of the inter-industry equations can be written in a more compact form as

$$X = AX + Y$$

Where: X represents the 38 by 1 vector of industry total output, A represents the 38 by 38 matrix of input coefficients, and Y is the 38 by 1 vector of final demand. This can be generalized to any number of industries. Employing the identity matrix and

matrix algebra, the vector of total industry output can be solved as:

$$X = (I - A)^{-1} Y,$$

where $(I-A)^{-1}$ is the total requirements table, or Leontief inverse matrix.

Each column of the total requirements table indicates the direct and indirect impacts on endogenous sectors of a one-pound increase in the column sector's final demand. For example, a one pound increase in agricultural food production's final demand increases output in the economy by about LE1.17 of which LE1.07 comes from agricultural food production itself and the remaining 10 piastres from other endogenous sectors.

Stage 1a: Input-Output Multipliers

Various input-output multipliers can be derived from the tables to estimate the effects of a change in an industry's final demand. Three of the most commonly used input-output multipliers are output, income, and employment multipliers. Multipliers are derived based on direct and indirect effects arising from changes in final demand. The direct effects measure the initial effect attributable to the exogenous change, while the indirect components measure the subsequent intra- and inter-industry purchases of inputs as a result of initial changes in outputs of the directly affected industries. If labor income and personal consumption expenditures (PCE) are also included in the model as industries, multipliers can measure the effects of demand changes on household spending that result from changes in household income through direct and indirect effects. These are known as the induced effects. Depending upon whether the household sector is included in the model or not, there are two types of multipliers, namely Type I and Type II. They are calculated as follows:

Type I multiplier = (Direct effect + Indirect effect)/Direct effect
Type II multiplier = (Direct effect + Indirect effect + Induced effect)/Direct effect

Both Type I and II multipliers are widely employed in real-world applications. As they are the ratio of total effect to various direct effects, there are many multipliers under each type. The most common ones are the final-demand multipliers and the direct-effect multipliers.

Final-demand multipliers measure the changes in variables of interest (output, income, or jobs) for an additional dollar (or million dollar) change in the final demand in an industry. A direct-effect multiplier measures the economy-wide change in a variable as a result of a unit change of the same variable in an industry.

The calculation of multipliers begins with the transactions table. The direct requirements table, also known as the technical coefficients matrix, is created by dividing each element of the inter-industry transactions table by its corresponding column sum or total of industry inputs (purchases). This direct requirements table is subtracted from an identity matrix and then inverted. The resulting matrix is the total requirements or the Leontief inverse matrix, which gives the direct and indirect effects of one pound (dollar) change in final demand.

Income Multipliers

Final-demand income multipliers measure the economic impact of changes in an industry's final demand in terms of changes in the industry's payments (labor income) to households. The Type I income multipliers are derived based on information contained in the direct requirements table and total requirements table. The labor income row shows the labor income payments to households for every dollar worth of output produced by each sector. These are called direct income coefficients, which are used to convert the total requirements to income equivalents by multiplying each row of the total requirements table by the corresponding sector's direct income coefficient. The column totals of the resulting matrix are the final-demand multiplier, which give the total income effects of a one-dollar change in column sector's final demand. The Type I direct-effect income multiplier is computed by dividing the final-demand income multiplier by the respective direct income coefficient.

Employment Multipliers

Employment multipliers are derived in the same fashion as income multipliers. The only difference is that the direct income coefficients are replaced by the direct employment coefficients (employment to output ratios), obtained by dividing the employment row by industry output. The final-demand employment multiplier indicates the number of jobs per additional million dollars of final demand. Even though wages and output are in terms of pounds, for the calculation of employment

multipliers, values were converted to dollars to match tourist expenditures quoted in dollars. Ideally, we would want every thing to be quoted in pounds. The issue arises only for employment, for sales (output and income), the same multipliers apply as long as both the trigger and result variables are denoted in the same currency.

Type II Multipliers

Type II multipliers are derived by adding the labor income row and personal consumption expenditures column to the input-output model, as if the pair represented an additional industry. The conceptual procedures are same as those of Type I multipliers.

Stage 2: Visitor Expenditure Data by Expenditure Category

Using the national visitor expenditure surveys for the average expenditure per night by different nationality groupings and applying the total number of nights stayed by those groups provides us with total aggregate expenditure by nationality. Summing these figures provides us with total (all groups) expenditure figure. Expenditure by Nationality and Spending Category is calculated by applying expenditure by Nationality and Spending Category expressed as a percent of total expenditure for that nationality to Total Expenditure by Nationality. Taking the distribution of expenditure across spending categories from the survey across different national groupings and applying these distributions to the total expenditures for these groups will give expenditure by each group on separate spending categories. Summing across groups and categories will give the total expenditure on each spending category.

Stage 2a: Assign Visitor Expenditure to Sectors

Assigning each spending category to a sector allows us to highlight which multipliers we will apply to each spending category.

Spending category	**Applies to sector**
Accommodation outside of hotels	Real Estate & housing
Food & drink outside of hotels	Hotels & restaurants
Accommodation, food & drink in hotels	Hotels & restaurants
Domestic transportation	Transportation
Museums, tourist attractions etc	Entertainment & cultural services
Medical expenditure	Social & society services
Studying	Social & society services
Entertainment & cultural expenditure	Entertainment & cultural services
Shopping	Average of prominent tourist-related manufacturing consumer goods sectors
Other	Selected manufacturing average

The spending category totals are adjusted to take care of retail margins and leakages (imported) products.

Stage 3: Impact Analysis

Applying the appropriate multipliers across spending categories allows us to calculate the direct, indirect and induced effects of foreign visitor expenditure. The Input-Output (I-O) approach determines economic impacts by combining visitor spending with the use of an I-O model of the national economy.

Both the 1991/92 and the 1996/97 Input-Output tables were used to calculate multipliers. There were no significant differences in sectors where no aggregation occurs. However, the 1996/97 table consists of 32 sectors, as opposed to the 38 sectors of the 1991/92 I/O table. Results in the paper are based on the 1991/92 table, to get the currency denominated multipliers. As for employment multipliers, the results are based on the 1996 Census data for the distribution of employment across sectors. These are scaled down to correspond to 1991/92 total employment totals. The resulting number of workers in each of the 38 sectors is then used to create the employment multiplier for 1991/92.

Appendix 4

Effects of a Hypothetical $100 million Increase in Demand or Exports

Table A4.1: Effect of a $100 Million Increase in Exports or Output, Different Sectors

Selected Industries	Output Multipliers1	Income Multipliers2	Employment Multipliers (jobs)3	Output	Labor Income	Employment
	Type II	Type II	Type II	mill $	mill $	jobs
Agricultural food production	2.04	0.31	292.73	203.76	30.71	29,273
Oil extraction & natural gas	1.17	0.05	13.28	116.57	4.68	1,328
Food production	1.89	0.17	84.90	189.18	17.13	8,490
Ready-made garments & tailoring	3.00	0.44	191.63	300.22	43.56	19,163
Construction & building	2.43	0.31	183.64	243.05	31.46	18,364
Financial institutions	3.09	0.68	207.69	309.38	67.93	20,769
Tourism (foreign expenditure)	2.64	0.40	329.15	264.38	40.34	32,915

Note: Calculated from I-O 1991/92 tables and tourist expenditure for 1996.

Table A4.2: Effect of a $100 Million Increase in Direct Foreign Visitor Expenditure ($ million)

Sales effects						
Sector	**Direct**	**as a %**	**Secondary**	**as a %**	**Total**	**as a %**
Hotels & restaurants	51.01	51.0	84.85	51.6	135.85	51.4
Real estate & housing	2.54	2.5	2.69	1.6	5.23	2.0
Transportation	10.16	10.2	9.26	5.6	19.41	7.3
Locally produced goods	5.30	5.3	8.58	5.2	13.88	5.2
Entertainment & cultural services	22.22	22.2	45.18	27.5	67.39	25.5
Social & society services	1.71	1.7	8.02	4.9	9.73	3.7
Retail services	7.07	7.1	5.81	3.5	12.87	4.9
Total	100.00	100	164.38	100	264.38	100
Jobs Effect						
Sector	**Direct**	**as a %**	**Secondary**	**as a %**	**Total**	**as a %**
Hotels & restaurants	3,196	21.4	7,992	44.4	11,188	34.0
Real estate & housing	95	0.6	213	1.2	308	0.9
Transportation	6,928	46.5	993	5.5	7,921	24.1
Locally produced goods	1,420	9.5	2,539	14.1	3,959	12.0
Entertainment & cultural services	1,826	12.3	4,756	26.4	6,582	20.0
Social & society services	587	3.9	846	4.7	1,433	4.4
Retail services	849	5.7	674	3.7	1,523	4.6
Total	14,902	100	18,013	100	32,915	100

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