Estimating the economic impact of tourism: A comparative analysis of Albania, Croatia, the Former Yugoslav Republic of Macedonia and Greece

Arjana Çela
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ESTIMATING THE ECONOMIC IMPACT OF TOURISM:
A COMPARATIVE ANALYSIS OF ALBANIA, CROATIA,
THE FORMER YUGOSLAV REPUBLIC OF MACEDONIA AND GREECE

A Dissertation
Submitted
in Partial Fulfillment
of the Requirements for the Degree
Doctor of Education

Approved:

Dr. Samuel V. Lankford, Committee Chair

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December 2007
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Dr. Sue A. Joseph
Interim Dean of the Graduate College

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ABSTRACT

This study assessed the economic impact of tourism on investment, government and imports expenditures in Albania, Croatia, the Former Yugoslav Republic (FYR) of Macedonia, and Greece. The objectives of this study were to develop a model to determine the impacts generated from an incremental change in tourist expenditures in the economy of Albania, Croatia, FYR of Macedonia, and Greece; to estimate the multipliers of the tourism expenditures on investment, government and imports expenditures in Albania, Croatia, FYR of Macedonia, and Greece and to investigate the differences and similarities of the economic impact of tourism between Albania, Croatia, FYR of Macedonia, and Greece.

According to the results, tourism impact on investment, government and import expenditures was not significant for FYR of Macedonia. Tourism impact on investment was significant in Albania, Croatia and Greece, due to the increasing number of tourism arrivals and tourism expenditures in these countries during the period of time pertaining to this study, 1991-2004.

Tourism impact on government expenditures was significant for Croatia and Greece in response to the rapid growth of tourism demand. In Albania, tourism impact on government expenditures was less significant, due to financing of mega infrastructure projects through foreign direct investments.

Tourism impact on imports was significant for Albania, Croatia and Greece. In Albania and Croatia no import substitution industries have been developed. In Greece such an industry for food and beverages has been developed, but there is still reliance on imported goods and services such as machinery and fuels.
When a country is deciding to embark on tourism development as a development option, or to expand tourism industry, it must be decided that long term benefits outweigh the estimated costs. An important consideration was the financing of the required investment projects in tourism infrastructure. If foreign direct investment can be found to finance some of these projects, most of the costs involved can be reduced for the government. In addition, the government can focus its efforts in promoting domestic industry in order to develop import substitution industries to reduce the offset costs from the imported goods and services.
ACKNOWLEDGMENT

I wish to express my appreciation to my advisor and committee chairman Dr. Lankford for his limitless patience and incalculable support he afforded me throughout my period of study, the development and the completion of this dissertation. Without doubt, this dissertation would not have been possible without his continuous support.

I want to also thank the other committee members, Dr. Edginton, Dr. Kirmani, Dr. Cox and Dr. Scholl. They all made many constructive comments and suggestions throughout dissertation.
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CHAPTER 1

INTRODUCTION

The Importance of Tourism Economic Impacts

The purpose of this study was to develop a model to assess the economic impact of tourism on investment, government and imports expenditure in small developing countries where the availability of data is rather limited. The countries selected for this study were Albania, Croatia, the Former Yugoslav Republic of Macedonia and Greece.

Tourism is defined as "the activities of persons traveling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes not related to the exercise of an activity remunerated from within the place visited" (WTO, 2005a). It is the largest source of exports in the world and it provides significant tax revenues, decreasing the domestic tax burden, and encourages the development of infrastructure that can benefit all citizens, rather than just tourists (WTO, 1997). Governments, particularly in developing countries encourage tourism investment because of the assumption that it will contribute to economic development of their countries (Hall, 1995; Reid, 2003).

The impacts of tourism development have been a concern for policy makers and planners in the last decades. Traditionally, tourism development strategies have been based on data related to demand. The planning and marketing of tourism generally has been oriented toward the needs and satisfaction of tourists and the provision of high-

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quality tourist products and experiences. In addition, tourism impacts, the extent to which tourism brings development to the host community is still a growing concern.

The impacts of tourism are of interest to private businesses, governmental and public agencies, and individuals living in the areas that tourists visit. Informed private decision making and public policy require that executives, officials, employees and their dependents understand the contribution that tourists make to the local economy, both through those businesses directly serving the tourists and those that supply these businesses (Crompton, Lee, & Shuster, 2001; Dwyer, Forsyth, & Spurr, 2005; Frechtling, & Horvath, 1999; Wang, 1997).

The assertion of many recent studies of tourism impact is that the community has the right to maintain local control on their quality of life and value systems (Ap, 1992; Crompton, et al., 2001; Hernandez, Cohen, & Garcia, 1996; Perdue, Long, & Kang, 1995). Tourism, more than other industries, is becoming sensitive to the rights of the communities to affirm their influence in decision making in tourism developmental processes. The benefits and costs of tourism accrue in different ways and to different groups of people in the host destination.

From the residents' point of view, tourism is receiving increasing recognition as a tool for economic growth and development of a community. As a result of relative decline in the output of traditional industries such as agriculture, mining, and forestry, many communities have used tourism as a means for rapid growth. Many countries promote tourism in an attempt to increase the gross domestic product, and its compounding and related factors as it is shown by numerous studies in Table 1.
<table>
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</tr>
</thead>
</table>
The Need of Economic Impact Studies

The interest in assessing the regional economic impacts of tourism is increasing for the following reasons:

1. Tourism is not identified in the consumer and industrial classifications for which statistics are produced. As a consequence, its contribution to the economy and local communities is not satisfactorily acknowledged (Vaughan, Farr, & Slee, 2000).

2. While tourist expenditure is a partial measure of the contribution to the socio-economic welfare of the host community, secondary benefits or indirect impacts are seen as better measures (Archer, 1982; Fletcher, 1989; Vaughan, et al., 2000). These indicators can be only obtained by undertaking specific studies of the economic impacts of tourism.

3. Economic impact studies are needed to demonstrate the economic contribution to the community (Crompton, et al., 2001; Wang, 1997). They supplement the traditional financial balance sheets provided to the government (Crompton, et al., 2001). The financial balance sheet demonstrates fiscal accountability, documents expenditures and income made and received by the government and offers evidence of good stewardship of public funds, but it does not address the broader issue of what community residents receive in return of their investment of tax funds.

While more information about the relationship between tourism and a country’s economic development is needed, models for assessing economic impacts of tourism are
not readily available in developing countries. Community developers and tourism professionals can benefit from the development of economic models to estimate the impact of tourist expenditure on Gross Domestic Product, particularly on investment, government, and imports expenditure. This information can help all decision makers formulate the most appropriate development plans. For example, when seeking public resources in order to stimulate the growth of tourism (Kanters, Carter, & Pearson, 2001; Wang, 1997), knowledge about which groups benefit most and least from an initiative can be used to develop strategies for obtaining subsidies.

Purpose of the Study and Research Objectives

The purpose of this study was to develop a model to assess the economic impact of tourism on investment, government and imports expenditures in Albania, Croatia, the Former Yugoslav Republic of Macedonia and Greece. The assessment of tourism impact on import expenditures will show if there has been an improvement in balance of payments from tourism. Tourism expenditures represent export earnings, but the expansion of tourism might increase imports of goods and services due to the domestic supply constraints, thus canceling out the benefits generated from tourists’ expenditures injection. The assessment of impact on investments will show whether tourism has contributed to an increase level of investment by the business community in the country, which, besides tourists, can also benefit the local communities. While the assessment of impact on government expenditures will show if the government has had to displace portion of public money from other public uses to accommodate the increased needs of
tourists for goods and services. Planners can also utilize the model as an instrument to further support and develop tourism in the region.

The research had the following objectives: (a) To develop a model to determine the impacts generated from an incremental change in tourist expenditures in the economy of Albania, Croatia, the Former Yugoslav Republic of Macedonia and Greece; (b) to estimate the multipliers of the tourism expenditures on investment, government and imports expenditures in Albania, Croatia, the Former Yugoslav Republic of Macedonia and Greece; and (c) to investigate the differences and similarities in the economic impact of tourism between Albania, Croatia, the Former Yugoslav Republic of Macedonia and Greece.

**Definition of Terms**

**AR or inbound tourist expenditures:** Purchases by the nonresident visitors of tourist services within the economic territory of the country of reference (WTO, 2005a)

**C or household consumption expenditure:** Purchases by the individuals and households of goods and services within the domestic economy (Yarbrough & Yarbrough, 2003).

**Economic impact of tourism:** The net economic changes in output, income, employment, investment, government and imports expenditures resulting from tourist expenditure within a host community (adopted from Clawson & Knetsch, 1966).

**G or governmental consumption expenditure:** Purchases by the government of different goods and services within the domestic economy (Yarbrough & Yarbrough, 2003).
GDP or gross domestic product: The total final output of goods and services produced by the country’s economy, within the country’s territory, by residents and nonresidents, within a giver period of time, usually a year (Todaro & Smith, 2006).

I or gross capital formation or investment: The part of national income or national expenditure devoted to the production of capital goods over a given period of time, usually a year (Todaro & Smith, 2006).

M or Import expenditures: Purchases by the nationals of foreign produced goods and services (Yarbrough & Yarbrough, 2003).

Multiplier: the increase in economic activity generated by a unit increase in tourist or other export expenditure (Archer, 1982).

Outbound tourist expenditures: Purchases by the resident visitors of foreign tourist services outside the economic territory of the country in reference (WTO, 2005a).

Tourism: The activities of persons traveling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes not related to the exercise of an activity remunerated from within the place visited (WTO, 2005a).

X or Export expenditures: The value of goods and services sold to the foreigners (Todaro & Smith, 2006).
Delimitations of the Study

The delimiting factors of this study were as follows:

1. While acknowledging social and environmental impacts of tourism in host communities, this study was focused only on economic impact of tourism in the community.

2. There are two kinds of economic impact of tourism/recreation, as stated by Clawson and Knetsch (1966). One type includes the primary benefits that tourists receive by using a tourist/recreational activity. The second type of impact includes the benefits that the host destination receives by offering tourist services. What is an expense to tourists is income or tourism economic impact to the supplier of tourist services. In this study, tourism economic impact was defined as the net economic changes in output, income, employment, investment, government and imports expenditures resulting from tourist expenditure within a host community.

3. The study focused only on assessing the economic impact of tourism in Albania, Croatia, the Former Yugoslav Republic of Macedonia and Greece.

4. Data on gross domestic product and its components, tourism expenditures and taxes were obtained from databases of United Nations Department of Statistics, International Monetary Fund, central banks, ministries of finance and tourism in selected countries for this study.
Limitations of the Study

The limiting factors of this study were as follows:

1. The assessment of tourism economic impact in this study refers to a short time forecasting rather than long term, because patterns of tourist expenditure and the inter-industry linkages change over time.

2. The assessment of tourism economic impact through Keynesian model is limited to 15 data points.

Assumptions

The following assumptions provided the foundation for this study:

1. The data provided from United Nations Department of Statistics, International Monetary Fund, central banks, ministries of finance and tourism in selected countries for this study are reliable.

2. It will be possible to obtain an accurate measurement of tourism economic impact on economy of Albania, Croatia, the Former Yugoslav Republic of Macedonia and Greece.

Characteristics of Countries in the Study

Albania, Croatia, the Former Yugoslav Republic of Macedonia (FYR Macedonia) and Greece have been selected from Southeast region of Europe for the purpose of this study.
Some of the geographical characteristics of these countries are shown in Table 2.

Table 2 *Area and Population for Albania, Croatia, FYR Macedonia and Greece*

<table>
<thead>
<tr>
<th>Geographic and Population Data</th>
<th>Albania</th>
<th>Croatia</th>
<th>FYR Macedonia</th>
<th>Greece</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area (square km)</td>
<td>28,748</td>
<td>56,542</td>
<td>25,333</td>
<td>131,940</td>
</tr>
<tr>
<td>Population (July 2006 est.)</td>
<td>3,581,655</td>
<td>4,494,749</td>
<td>2,050,554</td>
<td>10,688,058</td>
</tr>
</tbody>
</table>

Source: CIA, 2007a

The selection of the countries were due to similar features in the economic development with the transition to democracy and an open market economy as part of the change that has swept Central and Eastern Europe, and the challenges to be faced from the implications of the wars in the region. Greece, as a developed country in the region, has been selected particularly to provide a broader perspective for the region and to test the stability of the model. The analysis amongst the above-mentioned countries will generate recommendations and implications on tourism developmental policy on regional basis.

After 1990, Albania, Croatia and FYR Macedonia took the course of thorough economic transformation. Primarily, this has manifested itself in the transformation of socially owned property into private property and in the development of market oriented economy. In this regard, all efforts have been made to fully establish a market of goods and services, capital and labor.
In 1991, Albania ended communist rule and established multiparty democracy. The tradition has proven to be challenging in shifting to a market oriented economy. However, Albania has had the highest GDP growth rate in the region at 6% at 2004, and it continues to grow by tackling problems of unemployment and impoverished infrastructure. Agriculture accounts, from one-third of GDP in 1996, to one-quarter in 2003, and trade, hotels and restaurants sector and other services sector continue to grow, respectively to 20% and 24% of the GDP (Table 3). In 2004, GDP per capita was $2,553.6. The government collected 21.7% of GDP in tax revenue in 2004. However, expenditures were greater than the revenue and the government ran a deficit of 5.1 % of GDP in 2004 (IMF, August 2006).

The Albanian government has been running consistent deficits, having as its primary goal deficit reduction. The government ran also a trade deficit of 25.1% of GDP. Major exports are textiles and footwear; asphalt, metals and metallic ores, crude oil; vegetables, fruits and tobacco (CIA, 2007b). Major imports are machinery and equipment, foodstuffs, textiles and chemicals (CIA, 2007c).
Table 3 *Economic Indicators for Albania, Croatia, FYR Macedonia and Greece*

<table>
<thead>
<tr>
<th>Economic Indicators (2003)</th>
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<th>Croatia</th>
<th>FYR Macedonia</th>
<th>Greece</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP ($Mn)</td>
<td>6,064</td>
<td>28,801</td>
<td>4,666</td>
<td>173,212</td>
</tr>
<tr>
<td>Agriculture, and forestry</td>
<td>26.45</td>
<td>8.01</td>
<td>13.47</td>
<td>6.70</td>
</tr>
<tr>
<td>Industry</td>
<td>10.95</td>
<td>22.37</td>
<td>23.75</td>
<td>13.84</td>
</tr>
<tr>
<td>Construction</td>
<td>7.43</td>
<td>6.48</td>
<td>6.13</td>
<td>8.67</td>
</tr>
<tr>
<td>Trade, hotels and restaurants</td>
<td>20.47</td>
<td>15.71</td>
<td>15.35</td>
<td>20.94</td>
</tr>
<tr>
<td>Transport</td>
<td>11.09</td>
<td>10.72</td>
<td>9.54</td>
<td>8.49</td>
</tr>
<tr>
<td>Other services</td>
<td>23.61</td>
<td>36.72</td>
<td>31.76</td>
<td>41.37</td>
</tr>
<tr>
<td>GDP growth (%) (2004)</td>
<td>6</td>
<td>3.8</td>
<td>2.5</td>
<td>4.17</td>
</tr>
<tr>
<td>GDP per capita ($) (2004)</td>
<td>2,553.6</td>
<td>7,557.5</td>
<td>2,592.6</td>
<td>18,491.5</td>
</tr>
</tbody>
</table>


Croatia and FYR Macedonia declared its independence from Yugoslavia in 1991. Before the dissolution of Yugoslavia, the Republic of Croatia, after Slovenia, was the most prosperous and industrialized area. The economy emerged from a mild recession in 2000 with tourism, banking, and public investments leading the way. Other services sector contributes slightly above one-third to GDP, consistently from 1996-2004, followed with industry sector at 22% of GDP in 2003. Croatia has the highest GDP per capita amongst developing countries in the region at $7,557.5 (Table 3).
The government collected 40.4% of GDP in tax revenue in 2004 (IMF, October 2006). However, expenditures were greater than the revenues and the Croatian government ran a deficit of 4.8% of GDP in 2004 (IMF, October 2006). The government ran also a trade deficit of 23.7% of GDP. Major exports are transport equipment, textiles, chemicals, foodstuffs and fuels (CIA, 2007b). Major imports are machinery, transport and electrical equipment, chemicals, fuels and lubricants, and foodstuffs (CIA, 2007c).

At independence in September 1991, FYR Macedonia was the least developed of the Yugoslav republics, producing a mere 5% of the total federal output of goods and services. FYR Macedonia has maintained macroeconomic stability with low inflation, despite political instability in the country. It has the lowest growth rate at 2.5% in 2004, in comparison with other countries in the region (Table 3). Macedonia had a GDP per capita at $2,592.6 in 2004 (Table 3).

The government collected 33.1% of GDP in tax revenue in 2004 (IMF, August 2004). However, expenditures were greater than the revenues and the Croatian government ran a deficit of 1.6% of GDP in 2004 (IMF, August 2004), the lowest in the region. The government ran also a trade deficit of 7.7% of GDP. Major exports are food, beverages, tobacco; miscellaneous manufactures, iron and steel (CIA, 2007b). Major imports are machinery and equipment, automobiles, chemicals, fuels and food products (CIA, 2007c).

Greece as an EU developed country in the region produces the highest GDP and GDP per capita at $18,491.5, with an economic structure heavily depending on trade and other sectors respectively 20.94% and 41.37% (Table 3). The government collected
37.3% of GDP in tax revenue in 2004 (IMF, January 2006). However, expenditures were greater than the revenues and the Croatian government ran a deficit of 6.6% of GDP in 2004 (IMF, January 2006). The government ran also a trade deficit of 6% of GDP. Major exports are food and beverages, manufactured goods, petroleum products, chemicals and textiles (CIA, 2007b). Major imports are machinery, transport equipment, fuels and chemicals (CIA, 2007c).

**Significance of the Study**

While more information about the relationship between tourism and a country’s economic development is needed, models for assessing economic impacts of tourism are not readily available in developing countries, where data is rather limited. In this study, a model to assess the economic impact of tourism will be built, which would be easily utilized by all decision makers to formulate the most appropriate tourism development plans.

Furthermore, studies of economic impact of tourism often focus on a single destination. There have been relatively few attempts to conduct a comparative research how the impacts of tourism differ across various areas. The contribution of this study is to compare the economic impact of tourism among selected countries.

**Organization of the Dissertation**

This study is organized in five separated chapters. Chapter 1 provides the background framework of the research, defines tourism, economic impact scope and set the study objectives. Chapter 2 discusses the literature review relevant to the study of
tourism economic impact, and includes the economic impact process, multiplier, the magnitude of tourism impact, as well as examine multiplier models, with their procedures, assumptions, advantages and disadvantages, and their applications. Chapter 3 discusses the methodology, the model utilized, countries selected, period of study and data. Chapter 4 examines model application in each emerging tourist destinations selected for this study. Chapter 5 summarizes the results of the study, gives some recommendations and discusses needs for future research. The process is shown in Figure 1.
Figure 1 Research Process
CHAPTER 2
LITERATURE REVIEW

This study assessed the economic impact of tourism on investment, government and imports expenditures in Albania, Croatia, the Former Yugoslav Republic of Macedonia and Greece. The assessment will show if there has been an improvement in balance of payments from tourism; whether tourism has increased actual investment in the selected countries, which, will benefit the local communities; and if the government has to spend additional funds on goods and services for tourists. The Keynesian model used for the study has been utilized in several studies, including Archer, 1977; Brownrigg & Greigg, 1975; Chase, 2001; Eriksen & Ahmt, 1999; Liu & Var, 1982; Mamoozadeh, 1989; Milne, 1987; Sinclair & Sutcliffe, 1982; and Vaughan, Farr, & Slee, 2000.

The literature concerning the economic impact and models to assess it, is presented and discussed in this chapter. The chapter includes four sections. The first section presents the literature on economic impact process. The second section presents the concept of multiplier followed by the third section presenting the magnitude of economic impact and its underlining factors. Finally, the last section introduces the four main multiplier models: input-output model, social accounting matrix model, computable general equilibrium model and Keynesian model. The chronological review of the literature traces the development of research utilizing each of the four above-mentioned models to assess the economic impact of tourism.
Economic Impact Process

When measuring the economic impact of changes in tourist expenditure, it is important to recognize that economic impacts occur across a wide range of economic variables and at three different levels (Archer, 1989; Fletcher, 1989). Economic impact values can be derived for income, employment, output, government expenditures, investment and imports and can be estimated at three levels:

1. The direct impacts, also known as first-round effects, are those economic impacts generated directly from changes in tourist expenditure as it occurs in tourism-related establishments. For example, the direct income effect will include the increases in wages, salaries and profits accruing in hotels as a result of an increase in tourist expenditure in those hotels.

2. The indirect impacts, known as secondary effects, or inter-industry effects, are those effects that occur due to the increased purchases of the tourism-related businesses from other enterprises in the region. In other words, indirect effects measure the total value of supplies and services supplied to tourism-related businesses by the chain of businesses which serve tourism-related businesses.

3. Induced effects occur when the accrued local income in form of wages, salaries, profits, rent and dividends during the direct and indirect effects is respent within the local economy, and thus generating additional economic impact.

The direct economic impacts due to tourist expenditure represent the beginning of assessing the whole of economic impact. Tourists’ expenditure will either be respent or leak out. The analysis of only direct economic impact looks at tourism economic impact...
at a single point in time, thus it is a static analysis. However tourism expenditure also has
the dynamic effects due to the circular flow of income and expenditure in the economy.
The primary direct effects alone might not be sufficient to meet the target economic
impact, but the addition of secondary effects generates sufficient additional income and
employment to rejuvenate the local economies (Fletcher, 1989; Hurley, Archer, &
Fletcher, 1994).

Several researchers have described the economic impact process (Archer, 1982,
1989; 1995; Blaine, 1993; Crompton, 1995; Fletcher, 1989; Frechtling, 1994; Johnson &
Moore, 1993; Liu, 1986). The economic impact process is determined by the structure of
economy. The process starts with the injection of tourist expenditure in the area (Figure
2). This injection creates direct economic impacts, as revenue of airlines, travel agents,
shops, restaurants and other tourist attractions facilities. Not all this money forms income
to the resident population. The tourism related sectors must restock their investments to
provide for the future. Also, some profits may be paid to people and organization outside
the area. Thus, some of the direct economic impacts may leak out of the economy
(Sinclair & Sutcliffe, 1978).

With the direct economic impacts entering into a circular flow, indirect effects
occur as the recipient of those direct impacts spent part of their receipts on goods and
services required to supply tourism business. Part of business initial purchase leaks out of
the area through taxes, imports, business savings, distributed profits and payment to
employees.
Figure 2 Economic Impact Process

Sum to Total Economic Impacts in terms of:
- Output
- Personal Income
- Employment
- Government expenditures
- Investment
- Imports

Examples:
- Taxes
- Imports
- Savings
- Insurance payments
- Remittances of profits
- Remittances of wages and salaries
Induced impacts occur as well, when employees of tourism-related business and those of suppliers in the chain of indirect impact respent their earnings in the local economy. These induced impacts may be quite considerable. In some areas, they generate income effects up to three times as great as the indirect effects alone (Archer, 1982).

In summary, the total effect is the sum of direct, indirect, and induced impact (Archer, 1995; Gabe, Kinsey, & Loveridge, 1996; Liu, 1986).

**Multiplier**

Multiplier measures the increase in economic activity generated by a unit increase in tourist or other export expenditure as exogenous expenditure. The concept of multiplier was developed as first quoted by Bagehot (1882), as cited by Wright (1956). Then Kahn (1931) produced the first detailed model showing the direct and secondary effects of an increase in economic activity on an economy. He showed clearly how an increase in exports triggered an increase on income, employment, consumption and investment. The multiplier concept was advanced by Keynes (1933) with the basic model:

\[ \text{Multiplier} = \frac{1}{1-c-m} \]

where \( c \) is the marginal propensity to consume (the proportion of any increase in income which is spent on consumption) and \( m \) is the marginal propensity to import (the proportion of any increase which is spent on imports). Basically, Keynes' basic model shows that the multiplier is computed by dividing a unit of tourist expenditure by the proportion of it which leaks out of the economic system, as for example savings and imports.
Differently, Keynesian multiplier (k) shows the amount by which a change in expenditure (ΔExp) in an economy leads to a change in local economy output (ΔY) or other economic benefit variables such as income, employment, governmental revenues, imports, etc.:

$$\Delta \text{Exp} \times k = \Delta Y$$

The fundamental principle of multiplier concept is that the impact of any expenditure on the economy extends far beyond the initial recipient. So, the first round of expenditure effect the economy in terms of output, employment and personal income. Successive rounds of expenditure (indirect and induced) spread transactions through economy, by creating additional effects.

The multiplier can be expressed in different ways. Several studies have raised the question of misunderstood, misleading and mischievous multipliers (Archer, 1982; Crompton, 1995; Crompton & McKay, 1994; Crompton, et al., 2001; Hudson, 2001). If multipliers are not well understood, then there is a danger of inaccurate results drawn from the data. Despite the problems caused by the intrusion of misleading multipliers, the technique can produce valuable information for policymakers and planners. In this context, it is important to understand multipliers weaknesses and limitations.

Archer (1982) characterized multipliers as designed to measure the impact changes in economies where there are unemployed resources. It is assumed that supply in all sectors of the economy is perfectly elastic, and all factors of production are linear, have zero opportunity costs to society in terms of what they could produce elsewhere in the economy. Archer (1982) also states that multiplier analysis, despite claims to the
contrary, does not measure long term benefits gained by an economy from an expansion of tourism. Due to all these limitations and weaknesses, the estimation of multipliers should be interpreted with caution.

Magnitude of Economic Impact

The principal factors governing the magnitude of the impact made by tourism on an economy are stated by several authors (Archer, 1977, 1982, 1989; Archer & Owen, 1971; Blaine, 1993; Fletcher, 1989; Sinclair & Sutcliffe, 1978, 1982; Var & Quayson, 1985; Wall, 1997). The literature is insufficient to assess the relative influence of some of these factors. However, these factors are very important to understand the scale of impact of tourism on the economy and useful to enable multiplier comparisons amongst different countries. They are listed as below:

1. The initial amount of tourist expenditure is the most important factor in determining the overall impact of tourism. The other factors listed below determine the proportion of this expenditure which remains within the economy.

2. The value added in the first round is a portion of the first injection of expenditure on the economy forms revenue for tourism business establishments that is spent on wages, salaries, rent and interest and on profits. The larger the first round value added, the larger will be the expansion of it in other rounds.

3. Linkages between different sectors within the economy influence directly the secondary impacts. The greater the linkages amongst sectors within the economy, the greater are the secondary impacts of tourism receipts.
4. Leakages constitute portions of direct and secondary impacts that leak out the domestic economy. The lower the proportion of goods and services that can be supplied from within destination economy, the greater will be the import expenditure and the lower will be the scale of the impact made by tourism receipts.

5. The size of the impact and consequently the value of the multiplier will be reduced if domestic supply constraints inhibit the ability of an economy to provide sufficient goods and services to meet the needs of an increase in tourism.

6. The larger the economy the larger will be the multiplier effect, the smaller the economy, the smaller multiplier will be. Larger economies possess a larger proportion of goods and services required to provide the tourist industry, while in smaller economies, more imports will be needed, thus more leakages will occur.

The income multipliers attained from previous studies, demonstrating the effect of economy’ size on overall impact, are shown in Table 4 for comparison.

Tourism income multipliers show the amount of money generated in an area by a unit of tourist spending. The multipliers presented in Table 4 are gathered from different studies and in some cases, different methods have been utilized in assessment. They neither relate to the same year of assessment. Therefore, a direct comparison can not be made. However, the tourism income multipliers of smaller regions, such as the Victoria metropolitan area in Canada or the City of Carlisle, UK, are smaller than 0.5. But the income multipliers of larger countries are higher: Turkey 1.96 and UK 1.73. The larger
the area's economic base, smaller propensity to import, and the larger regional value added, the greater will be the multiplier.
Table 4 *Tourism Income Multipliers from Selected Countries/ Areas in the World*

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a Arabsheibani & Labarthe, 2002; b Hurley, Archer, & Fletcher, 1994; c Archer, 1995; d Wanhill, 1988; e Liu, 1986; f Frechtling & Horvath, 1999; g Khan, Seng, & Cheong, 1990; h Heng & Low, 1990
Multiplier Models

A wide range of models is being utilized to estimate the economic impacts of tourism. The dominant method of evaluation includes the use of models that can assess the direct, indirect and induced effects of an injection of tourist dollars into an economy. These models estimate multipliers that allow expenditures of tourists to be tracked as they filtered through the economy beyond businesses directly involved with tourism. Multipliers measure income, governmental expenditure, imports and exports, investment generated by indirect and induced expenditure (Archer, 1982, 1989; Fletcher, 1989) and they are used by both the private and the public sectors (Tisdell, 2000). Multipliers also consider leakages, the portion of tourist expenditures that does not stay in the country; the higher the leakages the lower the multiplier (UN Commission on Sustainable Development, 1996).

Various authors (Archer, 1982, 1995; Briassoulis, 1991) conclude that, in the short term, the results of multiplier models are acceptable because the interrelationships within the economy over this time period are likely to be constant. Tourism is labor intensive and generally involves the provision of personal services, which exhibit fairly stable production functions. Therefore, the static nature of these models is not a serious drawback from a methodological perspective (Cooper, Fletcher, Gilbert, & Wanhill, 1993; WTO, 1995).

The four most commonly used versions of the multiplier model are the input-output model, the social accounting matrix model, the computable general equilibrium
model, and the Keynesian model. Each one has advantages and disadvantages, which are discussed in turn.

**Input-Output Models**

The Input-Output model originates from Quesnay’s Tableau Economique in 1758. Quesnay produced a table where the economic interdependence amongst various productive sectors of the economy was demonstrated. However, this table represented only a set of national accounts and only 100 years later the notion of sectoral dependence became integrated into a general equilibrium model by Walras (Wright, 1956). The concept of multiplier was developed as first quoted by Bagehot (1882), as cited by Wright (1956) and only after the work of Kahn (1931) and Keynes (1933), the multiplier concept became an accepted economic concept.

Leontief pioneered input-output analyses, based on multiplier concept, in his seminal works on the structure of the USA economy (Leontief, 1951, 1966). Later, several adaptations were made which owe to the work of Fletcher (1989).

The objective of input-output analysis is to trace the distribution of an industry through an economy. Input-output analysis is a method of tabulating an economic system in a matrix form where rows show the sales made by each sector of the economy to each of the other sectors, and columns show the purchases made by each sector from each of the others. Tourist spending is shown as an export column and by means of matrix algebra, the impact of this expenditure on each sector and on incomes can be measured (Archer, 1989).
The principal weakness of the analysis is the assumption of linearity in the production and consumption functions, which makes no allowances for the achievement of economies of scale in the production process, or for shifts in consumption patterns (Archer, 1995; Dwyer, Forsyth, & Spurr, 2004, 2005; Fleming & Toepper, 1990; Fletcher, 1989; Frechtling, 1987, 1994; West, 1993). The input-output analysis assumes that each goods and services are produced by a single industry, so there is no joint production; the intermediate goods and services have a perfectly elastic supply; resources such as labor, land and capital, flow freely to tourism and other related industries. Another major weakness is that the model assumes that unused or underused resources exist (Archer, 1995) and it projects a status quo situation (Briassoulis, 1991; Dwyer, et al., 2004, 2005; Fletcher, 1989; Frechtling, 1994; West, 1993).

The input-output analysis is a general equilibrium approach, providing the policy makers with a comprehensive view of the economy and focusing on sectoral interdependencies which exists. But, is strongly based on the improvement in the level and quality of data available for the economy in general and for national accounts in particular (Fletcher, 1989). Data requirement is the major constraint in input-output analysis (Archer, 1982, 1995; Milne, 1987, 1992; Zhou, Yanagida, Chakravorty, & Leung, 1997). Briassoulis stated that ‘Input-output model is “data hungry”’ (1991, p. 493). The entire economy of a region must be included in the I-O model and obtaining information on household transactions and resource use, along with all industrial activity is difficult, expensive and time-consuming, particularly, in less developed countries. Most of the secondary data is unsuitable for this method, because it is rarely accurate at
the level of detail needed and mostly inter-sectoral transaction data is not available at all (Fletcher, 1989).

However, despite the above-mentioned drawbacks, input-output analysis today is the most frequently used approach to evaluate the economic impacts of tourism, primarily on consumption, income and employment (Crompton, et al. 2001; Fletcher, 1989; Frechtling, 1999). One of the earliest tourism input-output studies was carried out by Harmston (1969) to assess the tourism in Missouri. Numerous other studies, a decade later, employing input-output analysis, include studies by Lichty and Steinnes (1982) estimating the impact of tourism in a small community, Ely, Minnesota; Gartner and Holecek (1983) estimating economic impact of 1980 Greater Michigan Boat and Fishing Show; Var and Quayson (1985) measuring the economic impact of tourism in Okanagan, Canada; Mescon and Vozikis (1985) estimating the economic impact of tourism at the port of Miami.

More recently, Heng and Low (1990) conducted an input-output study for Singapore by examining the differences between Leontief and Leontief-Keynes multipliers; the differences of multipliers based on tourist countries of origin and their purpose of the trip; and the multipliers for different sectors of the economy. Overall, they found tourism industry was a significant one in Singapore and tourist dollar is mightier than those from other exports and manufacturing.

Khan, Seng and Cheong (1990) also utilized input-output analysis to estimate the economic impact of tourism in Singapore. They found out that tourism total contribution
to GDP was 12.5%; the economic multiplier (0.94) was higher than Bahamas, Fiji and Cayman Islands and the import multiplier was 0.38.

Archer (1995) assessed the contribution of tourism in Bermuda to imports, incomes, employment and governmental revenues in comparison with the contribution of other major export sectors. Input-output models were constructed for 1985, 1987 and 1992, where specific tourist sectors were included. Impacts on imports, incomes, employment and governmental revenues were computed for each of the three years, for overnight and cruise passengers. The tourism income multiplier rose from 1.095 in 1985 to 1.257 in 1992. Tourism supported 11,500 jobs. The principal contribution of other exports, primarily the financial and business sector and the military stations, is on foreign currency earnings, income generation and public sector revenues, rather than on employment.

Archer and Fletcher (1996) analyzed the impact made by 1991 tourism expenditure on incomes, employment, public sector revenue and the balance of payments in the Seychelles islands, in the Indian Ocean. Using an input-output model that divided the Seychelles economy into 18 sectors the economic impact of visitors from international destinations was analyzed. The impacts were found to vary by visitor origin, and that higher spending visitors (who were also the most efficient in generating income and employment) originated in Germany, Switzerland, Italy, United Kingdom, Ireland and other European countries.

Stynes, Nelson and Lynch (1998) estimated the economic impact of snowmobiling in Michigan to regional economies and the state as a whole using the
IMPLAN input-output model. Statewide, the economic impact of snowmobilers was $48 million in direct income and 2,500 direct jobs. With multiplier effects, the income impact was $93 million and 3,800 jobs.

Huse, Gustavsen and Almedal (1998) assessed the economic impacts in terms of economic and employment effects, comparatively amongst nine Norwegian small municipalities. Different impacts (multipliers magnitude) were depending on regional characteristics, such as local infrastructure, the age of local tourism and attributes of the type of industry.

Mistilis and Dwyer (1999) utilized input-output analysis to generate results on value added and employment effects of MICE (meetings, incentives, conventions and exhibition) industry in tourism gateways and more remote regions in Australia. They found out that economic impact of MICE tourism is likely to be greater in gateways than in non-gateways of Australia.

Frechtling and Horvath (1999) used Regional Input-Output Modeling System (RIMS II) to model the economic impact of tourism on the Washington D.C. economy. The authors found that with the RIMS II system, the use of direct-effect (or ratio) multipliers is a more appropriate than final-demand (or normal) multipliers. The tourism sector generated normal earnings levels, but employment multipliers were higher than three-quarters of other local industries. Their magnitudes suggest that the tourism sector is more highly linked to local suppliers than the average industry or that it employees tend to spend more of their earnings locally, or a combination of both.
Upneja, Shaffer, Seo and Yoon (2001) also used input-output analysis to measure the economic benefits, along with travel cost method to assess the annual value of sport fishing in Pennsylvania. The annual total value of the sport fishing resource was found to be $3.98 billion or about three times the total first injected expenditures by attendants. The authors also found an overall economic impact of sport fishing of $4.75 billion.

Kim, Chon and Chung (2003) assessed the economic impact of convention industry in South Korea by using also input-output analysis. They assessed the total expenditures by foreign delegates and by convention hosts to be about $66 million and $73 million respectively. They also estimated the output, income, employment, tax and import multipliers for every sector in the economy from convention industry.

Sun and Stynes (2004) used an input-output analysis to estimate the economic impacts of visitors spending to the Pictured Rocks National Lakeshore, Michigan, in 2001. Park visitors spent $14.8 million in the park, generating $5.6 million in total for personal income, $9.2 million as value added and supporting 470 jobs. Income multiplier was found to be 1.21. They also discussed the estimation bias and errors resulting from inconsistent responses and not representative sample data.

Wiersma, Morris and Robertson (2004) discussed the variation of tourism multipliers in New Hampshire. They do vary from region to region. The output multipliers are higher for regions of the state with a larger population and the employment multipliers are generally higher for regions with low populations. They concluded that a uniform, state-level tourism multiplier should not be applied to sub-state level. They found out, differently and more conservatively, that the tourism output
multiplier at state level was 1.5 and employment multiplier of about 0.30. Lastly, they
drove the attention to the misapplication of tourism multipliers, which might lead to an
inefficient distribution of state resources.

Daniels (2004) utilized input-output analysis to build the occupation-based
modeling to assess affected and associated wages of different job categories by tourist
spending in the sporting event of Girls Fastpitch World Series, in Mecklenburg County,
North Carolina. Input-output employment estimates demonstrate the amount of new labor
needed over a year to meet an initial change in final demand. Occupation-based modeling
modifies input-output estimates to realistically reflect the human hours and associated
wages needed in a variety of industry occupations to meet short-term tourism demand.
The author estimated that the jobs most likely to be affected by the event had full time
equivalent salaries $15,000-$40,000. Daniels (2004) also identified the occupations that
are likely to be affected by a change in final demand.

Lee and Taylor (2005) assessed the economic impact by utilizing input-output
model of 2002 FIFA World Cup in South Korea, excluding tourists whose travel was
non-event related. The World Cup was assessed to generate an economic impact of $1.35
billion of output (sales), $307 million of income, and $713 million of value added for
South Korea. The results also showed that foreign World Cup tourists provided a much
higher yield compared with foreign leisure tourists, spending an estimated 1.8 times as
much. Inclusion of the expenditure by non-World Cup tourists (42.3%) in the calculations
of impact would have resulted in significant overestimations.
As noted in this section, most of the studies examined the magnitude of tourism impact on employment, income and output. Some were assessing the economic impacts of different type of tourists. However, only Huse, et al. (1998) and Wiersma, et al. (2004) had a comparative tourism economic impacts study on several locations. The input-output studies are ubiquitous all over the world. Table 5 summarizes the nature of economic impacts generated by input-output modeling.
<table>
<thead>
<tr>
<th>Sources</th>
<th>Area/Location</th>
<th>Output/GDP</th>
<th>Income</th>
<th>Jobs</th>
<th>Imports</th>
<th>Government revenues</th>
<th>Balance of payment</th>
<th>Type of tourists</th>
<th>Type of sectors</th>
<th>Comparison amongst different regions</th>
<th>Tourism (T) and Recreation (R)</th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>T</td>
</tr>
<tr>
<td>Khan, Seng, &amp; Cheong (1990)</td>
<td>Singapore</td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
<td>T</td>
</tr>
<tr>
<td>Archer (1995)</td>
<td>Bermuda</td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
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<td>x</td>
<td>T</td>
</tr>
<tr>
<td>Archer, &amp; Fletcher (1996)</td>
<td>Seychelles</td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
<td>T</td>
</tr>
<tr>
<td>Stynes, Nelson, &amp; Lynch (1998)</td>
<td>Michigan</td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
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<td></td>
<td></td>
<td>x</td>
<td>R</td>
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<tr>
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<td>x</td>
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<td></td>
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<td>T</td>
</tr>
<tr>
<td>Mistilis, &amp; Dwyer (1999)</td>
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<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>T</td>
</tr>
<tr>
<td>Frechtling, &amp; Horvath (1999)</td>
<td>Washington, DC</td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>T</td>
</tr>
<tr>
<td>Upneja, Shaffer, Seo, &amp; Yoon (2001)</td>
<td>Pennsylvania</td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
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<td></td>
<td></td>
<td>x</td>
<td>R</td>
</tr>
<tr>
<td>Kim, Chon, &amp; Chung (2003)</td>
<td>South Korea</td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
<td>T</td>
</tr>
<tr>
<td>Sun, &amp; Stynes (2004)</td>
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<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>R</td>
</tr>
<tr>
<td>Wiersma, Morris, &amp; Robertson (2004)</td>
<td>New Hampshire</td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>T</td>
</tr>
<tr>
<td>Daniels (2004)</td>
<td>North Carolina</td>
<td>x</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td>x</td>
<td>T/R</td>
</tr>
<tr>
<td>Lee and Taylor (2005)</td>
<td>South Korea</td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
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<td></td>
<td>x</td>
<td>T/R</td>
</tr>
</tbody>
</table>
Social Accounting Matrix Model

Social accounting matrix model is an extension of input-output analysis. It addresses one of the input-output analysis limitation in not revealing the distribution effects of tourist spending across different household income segments (Holland & Wyeth, 1993). Sir Richard Stone, the pioneering designer of this matrix, states the case strongly. "It seems to me that of all the interesting and useful things that could be done to improve the national accounts, the one most worthy of consideration is the disaggregation of the household sector" (Pyatt & Round, 1985, p. 9).

Social accounting matrix describes the linkages among regional production and consumption of good and services, and the distribution and composition of income. It captures, in addition to product flows, also the income and expenditure flows of economic actors in a specified accounting period (Zhou, et al., 1997). So, social accounting matrix considers three types of activities: production activities, factors (labor and capital) and institutions (household, enterprises and government) (West, 1993).

Social accounting matrix has three advantages. First, it explains the structure of the economy in terms of the links between production, income distribution and demand within a region’s economy (Pyat & Round, 1985). Second, it allows for the calculation of regional economic multipliers to assess the impacts of tourism on production, income distribution and demand (Wagner, 1997). Third, social accounting matrix provides a framework for synthesizing and displaying the data gathered by different governmental bodies and stored in different formats (Thorbecke, 1985).
Social accounting matrix has been used traditionally to examine the structures of large regions and national economies (Pyatt & Round, 1985). Later, social accounting matrix has been developed also for village communities characterized by simple production activities (Wagner, 1997).

While more thorough than input-output analysis, social accounting matrix model is subject to its own constraints. The same criticisms concerning input-output models would also hold for using social accounting matrix to examine the economic impacts of tourism. Besides, particularly for social accounting matrix, the resulting household multipliers, though variable by income level, assume equal distribution across industry groups (Daniels, Normans, & Henry, 2004). The personal income coefficients favor high income households, regardless of the nature of new export activity. The key assumption, in terms of producer behavior, similar to input-output models, is the fixed proportion production function. So, the proportions in which each sector purchases its inputs from all other sectors are assumed to be constant over the period of the analysis. Alike input-output model, social accounting matrix requires considerable informational requirements (Mistilis & Dwyer, 1999; Pyatt, 1999).

Social accounting matrix has been utilized in several research fields, such as ecological economics, agricultural economics, policy modeling, economic modeling, development economics, as well as in tourism field.

West (1993) estimated the significance of tourism in Queensland economy by utilizing a combination of social accounting matrix with econometric analysis. Tourism in Queensland was estimated to be worth of $2.1 billion to the gross state product, in
addition to $3 billion initially spent by tourists. In 1990-1991, it was estimated that 80,000 jobs were directly or indirectly related with tourism. With a simulation of an increase of 15% in international visitors and 2.5% in domestic visitors, the gross state product would increase to $5.6 billion and 235,000 jobs would be created by 2000-2001. Most of this employment would occur in recreation sector, followed by trade, manufacturing and transport sectors. Furthermore, more investments would take place in infrastructure, providing an additional stimulus in the economy.

Wagner (1997) uses social accounting matrix to assess the economic impact of tourism in northeastern state of Parana, in Brazil. He found out that business activities imported most of their inputs; therefore, the economic impacts of any tourist spending would be small. A tourist was estimated to spend $15.12 per day, and it would take approximately 214 tourist days to generate 1 minimum salary for an employee working with a formal employment contract in the local economy. The total number of tourists estimated to visit the area was 7,500+ 2,500, estimating to generate $244,575 value of additional output, to create 32 fulltime jobs and a combined salary of $19,425.

Daniels, et al. (2004) estimated household personal income effects of a sport tourism event, the Cooper River Bridge Run, in Charleston, South Carolina. They utilized social accounting matrix model, and three other variations of occupation-based model. The social accounting matrix assessed household personal income; three other methods assessed individual wage. They concluded that in case of sport tourism events, social accounting matrix was inappropriate to estimate personal income effects for different households, since it is unable to weight by industry sector. The personal income
coefficients favored high income households, regardless of the nature of new export activity. Also, social accounting matrix did not consider specific occupations and therefore could not account for wage variation by job category. Instead, the model using averaged full-time equivalent wages demonstrated more accurately that for sport tourism, occupations with full-time equivalent salaries that range between $15,000 to $40,000 were most likely to be impacted.

As noted in this section, tourism studies utilizing social accounting matrix attempt to assess the economic impact of tourism in terms of income and jobs created. Table 6 summarizes the characteristics of economic impacts generated by social accounting matrix model.

Table 6 *Tourism Economic Impacts by Social Accounting Matrix Model*

<table>
<thead>
<tr>
<th>Sources</th>
<th>Nature of Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Area/ Location</td>
</tr>
<tr>
<td>West (1993)</td>
<td>Queensland</td>
</tr>
<tr>
<td>Wagner (1997)</td>
<td>Brazil</td>
</tr>
<tr>
<td>Daniels, Normans, &amp; Henry (2004)</td>
<td>South</td>
</tr>
</tbody>
</table>

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Computable General Equilibrium Model

Computable general equilibrium models were developed in the early 1960s to simulate the operations of a competitive market economy. The first applied computable general equilibrium model was developed by Johansen (1960) to analyze resource allocation issues and economic growth of the Norwegian economy. Harberger (1962) studied the use of general equilibrium analysis for various policies, economic shocks and changes. Such analyses were confined to two or three sectors, until the emergence of more advanced computable general equilibrium models due to the advancements in computing power and solution of algorithms in the 1970s and 1980s. For the first time in 1978, Adelman and Robinson compiled the first computable general equilibrium for a developing country (Korea) to analyze the issues of income distribution and poverty.

Computable general equilibrium incorporates an input-output framework, but it also models markets for goods and services as well as factor markets; recognize resource limitations; model consumer spending; household demands are via utility maximization, but subject to budget constraints; allow for governmental spending and taxing or borrowing, and also allow for external constraints (Dwyer, et al., 2004; Narayan, 2004). It might be static or dynamic, allowing for the tracking of changes over time (Narayan, 2004; Yao & Liu, 2000; Zhou, et al., 1997). Thus, the computable general equilibrium entails a complete specification of both the supply and demand sides of all relevant markets.

This modeling technique has proved to be an important analytical tool in the study of international trade, economic development, public finance, macroeconomics and...
natural resources (Zhou, et al., 1997). It enables complex interdependencies to be modeled unrestricted by the constraint of linearity or by problems of modeling different markets separately from each other. The computable general equilibrium approach not only accounts for intersectoral linkages, as input-output and social accounting matrix models, but also permits the prices of inputs to vary with respect to changes in output prices and the factor substitutability. It also accommodates the indirect effect of a policy change on the overall economy (Dervis, de Melo, & Robinson, 1982; Shoven & Whalley, 1992; Sugiyarto, Blake, & Sinclair, 2003).

The model is particularly useful for understanding the characteristics of the economy and for quantifying the effects of alternative policies in relation to tourism, trade liberalization, labor, financial market deregulation, taxation, public infrastructure, macroeconomic reform, economic transition, etc. (Dwyer, et al., 2004; Sugiyarto, et al., 2003; Yao & Liu, 2000). However, the most important constraint of this model is the requirement of numerous data and being time consuming (Mistilis & Dwyer, 1999). In certain circumstances, the construction of a new computable general equilibrium model, if no suitable model already exists, may not justify the expense, particularly in small regional economies (Dwyer, et al., 2004).

Computable general equilibrium models have been used in the impact studies of tourism, predominantly in Australia and some other countries where the data has been available. Adams and Parmenter (1995) constructed a 117-sector general computable equilibrium model for Australia. They simulated a 10% growth in tourism. The appreciation of the exchange rate, led to import substitution and the contraction of the
traditional export sector, leading to a worsening of balance of trade. The authors also importantly found that Queensland, as the most tourism oriented state in Australia, was a net-loser from an expansion of tourism. This was attributed to a high reliance on mining and agriculture, as traditional export sectors, which suffered a decline because of an expansion of international tourism.

Zhou, et al. (1997) analyzed the impacts on Hawaii’s economy from a reduction of visitor expenditure by using and comparing input-output model with computable general equilibrium model. From a simulation of 10% decrease of visitor expenditure, the authors found out that the output was reduced in typical tourist sectors, such as hotels, restaurants, and transportation. Input-output model showed a larger magnitude impact than computable general equilibrium model which allows for resource reallocation. Also, changes in both domestic prices and composite prices were consistent with the directional changes in output.

Alavalapati and Adamowicz (2000) developed a two sector general equilibrium to study the interactions among tourism and other sectors in economy and environmental. A small regional economy in British Columbia with two productive sectors is considered: the resource sector which includes forestry, agriculture and energy, and the composite tourism sector. Tourism is considered as an endogenous activity and modeled as a function of prices and environmental damage. As a result of a simulation of 1% increase in environmental tax on resource sector would benefit the regional economy if the environmental damage has occurred from a resource sector activity, but would hurt if the environmental damage has occurred from activities of both sectors of resources and
tourism. The authors concluded that the integration of environmental linkages into economic impacts models reveals significant different results.

Blake (2000) simulated the effect of 10% increase in tourism in Spain on its economy using the computable general equilibrium model. He found out that the national welfare increased by 0.05% of GDP, the real exchange rate was appreciated by 0.61%, and there were small increases in real household consumption, domestic tourism and investment. He also found that the increases in imports and reduction in value of other exports, offset the increased revenues of tourism.

Adams, Dixon and Rimmer (2001) estimated the associated effects of September 11 terrorist attacks in USA on tourism in Australia also by using the computable general equilibrium model. They found an aggregate job loss of 0.4% and 10% reduction in employment in heavily tourism dependent regions. The authors also assessed a 0.3% decrease of real GDP for 2002-2003.

Blake, Sinclair and Sugiyarto (2001) assessed, via the computable general equilibrium model, the impact of foot and mouth disease on tourist expenditure in the UK. Tourism revenue fell by £7.5 billion in 2001, and 21% of this amount was attributed to the decline of domestic tourism. Scotland and London were most affected, with respectively 27% of the total UK reduction in tourist expenditures and 16.8%.

Sugiyarto, et al. (2003) examine the effects in Indonesian economy of globalization via tariff reductions, in conjunction with tourism growth. Two scenarios were simulated, first in isolation and subsequently in conjunction with foreign tourism growth. The first scenario was a 20% reduction in the tariffs on imported commodities.
The second scenario was a 20% reduction in indirect taxation on domestic commodities. In the first scenario, the net effect was an increase in GDP, national welfare and foreign tourist spending. In the second scenario, the positive effects in the previous scenario were amplified. As a result of a 10% increase in foreign tourist expenditure, combined with globalization simulations, GDP increased by 0.06%, employment increased by 0.16%, the welfare was improved, consumption increased and balance of trade and of payments were improved. Authors concluded that growth of tourism amplifies the positive effects of globalization and the same time reduces its adverse effects.

Narayan (2004) employing the computable general equilibrium model, assessed the long-term impact of a 10% increase in tourist expenditure in Fiji’s economy. The expansion of tourism, by generating more expenditure in the economy, has implications in the long term for other industries. From a 10% increase in tourist expenditure, the GDP will increase by 0.5%, the balance of payments will improve, national welfare will increase by 0.67% and real consumption will increase by 0.72%. Narayan found that the appreciation of exchange rate and increase in domestic prices and wage rates due to expansion of tourism will lower the competitiveness of other traditional export sectors. However, the increases in tourism in Fiji and non-traditional exports outweigh the decrease in non-traditional exports due to tourism expansion.

Dwyer, et al. (2005) utilized computer general equilibrium model to assess the economic impact of a special event, the Qantas Australian Grand Prix, in 2000, in Australia in comparison with input-output model. Input-output model projected a greater impact on real output ($120.1 million) as compared to computer general equilibrium...
model ($24.46 million). The value added multiplier using input-output modeling is 0.844 as compared to 0.267 using computable general equilibrium model. Also, the employment multipliers were significantly different, 11.548 for input output compared to 2.5 for computable general equilibrium model. The authors concluded on the usefulness of more comprehensive analytical techniques such as computable general equilibrium model for decision making.

As noted in this section, studies utilizing computable general equilibrium model assess the economic impacts on output/ GDP and its components, as well as on national welfare. They are predominantly conducted in the last two decades. Table 7 summarizes the economic impacts generated by the computable general equilibrium model.
<table>
<thead>
<tr>
<th>Sources</th>
<th>Area/Location</th>
<th>Output/GDP</th>
<th>Investment</th>
<th>Consumption</th>
<th>Imports</th>
<th>Government revenues</th>
<th>Exports</th>
<th>Exchange rate</th>
<th>Jobs</th>
<th>Type of sectors</th>
<th>National Welfare</th>
<th>Tourism (T)</th>
<th>Recreation (R)</th>
</tr>
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<tbody>
<tr>
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<td>x</td>
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<td>x</td>
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<tr>
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<td>Indonesia</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td>T</td>
<td>T</td>
</tr>
<tr>
<td>Narayan (2004)</td>
<td>Fiji</td>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td>T</td>
<td>T</td>
</tr>
<tr>
<td>Dwyer, Forsyth, &amp; Spurr (2005)</td>
<td>Australia</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td>T/R</td>
<td></td>
</tr>
</tbody>
</table>
Keynesian Model

The Keynesian model can consider direct and secondary benefits from an incremental change in expenditures. It can consider changes in leakages from the economy with a change in expenditures. The simplest version of Keynesian multiplier is instantaneous multiplier, where the additional income generated from a change in expenditure ($\Delta\text{Exp}$) is $k*\Delta\text{Exp}$, where $k$, is income multiplier. The instantaneous multiplier does not take into account the effect of either additional flows of exports, induced by the increase of income in other regions as a result of extra sales in the region, or any extra investment which might take place in the study region as a result of an output increase (Archer, 1976). So, this version of multiplier does not allow for any leakages. Therefore, more advanced Keynesian models have been developed to include leakages, and thus providing more accurate multipliers.

Several studies have utilized the Keynesian model. Brownrigg and Greigg (1975) assessed the direct and indirect impact of tourism on income on the Isle of Skye in Scotland by utilizing Keynesian income multiplier. The multiplicand (the injection into the area) was disaggregated for several sectors and subsectors. They produced a series of income multipliers for each sector, for all items of expenditure and by various categories of tourists. The model that was built measured the direct and first round of indirect effects, but ignored the induced effects of indirect income generated through multiplier process.

A more detailed Keynesian model was utilized by Archer (1977) assessing the impact of tourism in the Bahamas. The model was developed to measure the direct,
indirect and induced impacts of tourism in Bahamas economy, based on numerous surveys and data. At the first stage tourism expenditure generated four primary revenue recourses: government revenues, local business purchases, local residents’ income and imports. The first three categories of revenues, in latter stages, induce further turnover within the economy, while the last ones leave the economy. Archer, computed the direct and indirect effects of tourism while allowing for leakages. He also estimated the induced effect for different categories of businesses. He concluded that most of direct values were greater than the indirect values added and that the hotel sector and souvenir had a very low indirect value added due to foreign ownership causing a high leakage proportion. The multiplier for cruise visitors was estimated to be at 0.7614.

Sinclair and Sutcliffe (1982) assessed the tourism impact on the gross area product in Malaga, Spain, for 1970-1975, by utilizing as well a Keynesian income multiplier model. The authors raised the importance of multiplier and multiplicand on the magnitude of the impact of tourist expenditure. Also, the type and amount of the leakage to be considered is depending upon the different type of income to be measured, for example gross area product or disposable income. The authors distinguished between first round leakages and subsequent leakages. They applied short and long term multipliers for the region. Multipliers values vary both over time and in relation to different type of injection, for example in accommodation or restaurant tourist expenditure. Also, the values of multipliers on gross area product were higher than those on disposable income. All multipliers assessed by the authors, were lower, less than one, in comparison with other previous studies due to some errors in assessing the first round multipliers.
Liu and Var (1982) conducted a differential multipliers assessment of lodging establishments based on their location, size, affiliation, ownership and scale. The most important finding was that linkages within the economy determined the size of the multipliers. They found out that locally owned businesses were generating higher regional income and small scale establishments were creating more jobs.

Milne (1987) assessed differential multipliers, at sectoral and firm scale, based on the size and ownership characteristics, for the Cook Islands tourist industry and ancillary sectors. He computed regional income generation, regional employment generation and government revenue created by different sectors due to tourism. Milne revealed that smaller, locally owned establishments generate more local income, employment and governmental revenue than their larger, overseas controlled businesses, due to their high first round import propensity. He also found out that the three largest contributors in governmental revenues were restaurants, accommodation and domestic air transportation.

Mamoozadeh (1989) utilized the Keynesian demand-based approach to assess the direct and indirect economic impact of cruise tourism on the economies of Caribbean countries for time period 1973-1987. The model was designed to estimate both the direct and indirect impact of cruise tourism on the rate of growth of income, but it did not allow for leakages. The results showed that for each 1000 cruise tourists, the GDP of Bahamas will increase by $591,000, for Bermuda by $304,000 and for Barbados by BDS705,000. The impact of cruise tourism on Bahamas was 18% of GDP (in 1987), on Barbados 4.3% of GDP (in 1974) and on Bermuda 2.5% of GDP (in 1986). Mamoozadeh concluded that
cruise tourism can not be relied upon to bring economic development. This activity was not significant enough to generate sufficient additional employment.

Eriksen and Ahmt (1999) estimated the regional tourism effects for each of 16 Danish counties by utilizing a Keynesian income multiplier model under an input-output framework. They evaluated different tourism policies with regard to employment, GDP and consumption. They found out that foreign tourists give employment to just over 47,000 people in Denmark. About one half of the jobs are derived from one-day tourism.

Vaughan, et al. (2000) assessed the economic impact of “agro” and “non-agro” tourism in Exmoor National Park, UK. They utilized proportional multiplier analysis, a combination of input-output with traditional Keynesian model. Three surveys have been administered to collect the data on operational characteristics of businesses, the spending of visitors and the spending of the residents of the area. The authors, based on the data collected, assessed the tourism impacts in terms of output, income and jobs created, and their distribution across different sectors of economy. Agro-tourists had an impact of £5 million in output, £1.7 million in income and 230 jobs created.

Chase (2001) assessed the economic impact of cruise tourism on the economies of Caribbean countries for time period 1981-1999 by employing a Keynesian version of multiplier model. The model built by Chase considered direct, indirect and induced effects from additional expenditure and allowed for leakages from imports, taxes and savings. He examined the impact of total tourist expenditures, cruise tourist expenditures and stopover tourist expenditures on investment, government and imports expenditures.
He concluded that the total tourist expenditures did have an impact government spending in Bahamas. An increase of 1% in total expenditures would increase government expenditures by approximately 41%. Total tourist expenditures did not have significant impact on imports and investment expenditures in Bahamas.

In Barbados, tourist expenditure had an impact on government expenditures. An increase of 1% in total tourist expenditures would increase governmental expenditures by 31%. Tourist expenditures had a significant impact as well as on import and investment expenditures. An increase of 1% in tourist expenditures would decrease imports expenditures by 27% and increase investment by 96%.

In Jamaica, tourist expenditures did not have an impact on governmental expenditures, but they had on imports and investment. An increase by 1% in tourist expenditures would increase imports by 30% and investment by 59%.

Chase conducted similar analyses also for two emerging tourist destinations: Antigua and Barbuda, and Dominica. He concluded that when a country first develops a cruise industry, investments in infrastructure will have a significant impact on government expenditures, unless they will be done through foreign direct investments. Also, in the beginning, in the balance of payments, there is an increase of imports. Only, the promotion of domestic industry would induce a reduction of imports expenditures.

As it can be seen, Keynesian multiplier model has been utilized worldwide to assess different kind of tourism economic impacts, predominantly the impact on output, income and jobs per different type of jobs. While the tourism impacts on investment,
governmental expenditures and imports are examined only by Chase (2001). Table 8 summarizes the economic impacts examined by Keynesian multiplier model.
Table 8 *Tourism Economic Impacts by Keynesian Multiplier Model*

<table>
<thead>
<tr>
<th>Sources</th>
<th>Nature of Economic Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Area/Location Output/GDP Investment Consumption Imports Government expenditures Income Jobs Type of sectors Type of tourists Tourism (T) Recreation (R)</td>
</tr>
<tr>
<td>Brownrigg, &amp; Greigg (1975)</td>
<td>Scotland, UK</td>
</tr>
<tr>
<td>Archer (1977)</td>
<td>Bahamas</td>
</tr>
<tr>
<td>Sinclair, &amp; Sutcliffe (1982)</td>
<td>Spain</td>
</tr>
<tr>
<td>Liu, &amp; Var (1982)</td>
<td>Hawaii</td>
</tr>
<tr>
<td>Milne (1987)</td>
<td>Cook Islands</td>
</tr>
<tr>
<td>Mamoozadeh (1989)</td>
<td>Caribbean</td>
</tr>
<tr>
<td>Eriksen, &amp; Ahmt (1999)</td>
<td>Denmark</td>
</tr>
<tr>
<td>Vaughan, Farr, &amp; Slee (2000)</td>
<td>UK</td>
</tr>
<tr>
<td>Chase (2001)</td>
<td>Caribbean</td>
</tr>
</tbody>
</table>
Summary

Economic impact process, the concept of multiplier, the magnitude of economic impact and the four multiplier models were presented in this chapter. Generally, the review of the literature utilizing multiplier models showed the assessment of tourism economic impact predominantly in terms of output, income and jobs (Table 9). It highlighted the tourism impact on other traditional sectors of the economy, such as agriculture, or services sector and also the tourism impact brought by different types of tourists. Only Chase (2001) assessed tourism economic impact on investment, governmental expenditures and imports by utilizing Keynesian multiplier model. Also, there is a lack of literature in comparing the tourism economic impacts amongst different regions. Only Huse, et al. (1998) and Wiersma, et al. (2004) had a comparison approach by utilizing input-output modeling.

In terms of assumptions, multiplier models were different, manifesting their advantages and disadvantages. However, the most feasible model able to assess the economic impact of tourism, by considering secondary benefits and leakages, and the limited availability of data and input-output matrices in small and developing countries is the Keynesian multiplier model. The Keynesian model is able to answer the research questions by generating results of tourism economic impact on investment, governmental expenditures and imports.
Table 9 *Summary of Multiplier Models Characteristics and Nature of Tourism Economic Contribution*

<table>
<thead>
<tr>
<th>Multiplier Models</th>
<th>Characteristics</th>
<th>Nature of Tourism Economic Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input-Output Model</td>
<td>Assumptions include linearity in production and consumption functions,</td>
<td>Output/ GDP</td>
</tr>
<tr>
<td></td>
<td>Assumes no joint production,</td>
<td>Income</td>
</tr>
<tr>
<td></td>
<td>Assumes perfectly elastic supply,</td>
<td>Jobs</td>
</tr>
<tr>
<td></td>
<td>Assumes free flow of resources such as labor, land and capital,</td>
<td>Type of sectors</td>
</tr>
<tr>
<td></td>
<td>Projects a status quo situation,</td>
<td>Type of tourists</td>
</tr>
<tr>
<td></td>
<td>Large data requirements.</td>
<td></td>
</tr>
<tr>
<td>Social Accounting Matrix Model</td>
<td>Includes production and consumption of good and services,</td>
<td>Income</td>
</tr>
<tr>
<td></td>
<td>Includes distribution and composition of income,</td>
<td>Jobs</td>
</tr>
<tr>
<td></td>
<td>Assumes linearity functions of production, consumption and income distribution,</td>
<td>Type of sectors</td>
</tr>
<tr>
<td></td>
<td>Large data requirements.</td>
<td></td>
</tr>
<tr>
<td>Computable General Equilibrium Model</td>
<td>Models markets for goods and services as well as factor markets,</td>
<td>Output</td>
</tr>
<tr>
<td></td>
<td>Recognizes resource limitations,</td>
<td>Exports</td>
</tr>
<tr>
<td></td>
<td>Allows for governmental spending and taxing or borrowing,</td>
<td>Type of sectors</td>
</tr>
<tr>
<td></td>
<td>Static or dynamic,</td>
<td>National welfare</td>
</tr>
<tr>
<td></td>
<td>Tracks changes over time,</td>
<td>Consumption</td>
</tr>
<tr>
<td></td>
<td>Large data requirements and time consuming.</td>
<td>Investment</td>
</tr>
<tr>
<td>Keynesian Multiplier Model</td>
<td>Considers secondary benefits,</td>
<td>Output/ GDP</td>
</tr>
<tr>
<td></td>
<td>Considers leakages,</td>
<td>Income</td>
</tr>
<tr>
<td></td>
<td>Short-term forecasting,</td>
<td>Jobs</td>
</tr>
<tr>
<td></td>
<td>Feasible for small regions,</td>
<td>Type of sectors</td>
</tr>
<tr>
<td></td>
<td>Less data requirements.</td>
<td>Type of tourists</td>
</tr>
</tbody>
</table>

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CHAPTER 3

METHODOLOGY

The purpose of this chapter focuses on Keynesian multiplier model used to assess the economic impact of tourism in Albania, Croatia, the Former Yugoslav Republic of Macedonia and Greece. The purpose of this study was three fold: to estimate the impact of the tourism industry on investment, government and imports expenditures in Albania, Croatia, the Former Yugoslav Republic of Macedonia and Greece. The topics discussed in this chapter include the model, the background of the tourism industry in the selected countries for the purpose of this study, and the period of study and typology of data.

The Model

In many countries, tourist expenditures have become one of the main sources of improvement of balance of payments by the inflow of foreign exchange earning and of increase of gross domestic product (GDP). The contribution of tourists earning in gross domestic product of a country and in balance of payment is conceptualized in Figure 3. In terms of final demand for a country, tourist expenditures are considered as exogenous expenditure, as exports of goods and services. They constitute a compounding element of gross domestic product as well as of balance of payments.
Figure 3 Tourism Expenditure Contribution in Gross Domestic Product and Balance of Payments

Source: Heng, & Low, 1990.
Presently, the balance of payments does not give a comprehensive picture of the impact of tourism on the economy (Heng & Low, 1990). The travel account reconciles expenditures made by overseas tourists in host country and by the residents of this country abroad. There is no reference of secondary effects and of implications of direct tourist expenditure on investment, government and imports expenditures. Thus, the travel account provides only a partial picture. Only an economic impact study would assess the economic impact of tourism on economy in general and on GDP components separately.

The methodology being chosen is the Keynesian multiplier model. Fletcher & Archer (1991) suggest that the Keynesian Model analysis is cost-effective and is particularly well suited to regional or small area analysis where it may be impractical or too expensive to undertake a full input-output analysis. The Keynesian model has smaller, less exacting data requirements than the other models (Milne, 1992; Sinclair & Sutcliffe, 1982).

The Keynesian model is generally used if there is insufficient data to construct more advanced models (Tisdell, 2000). The availability and accuracy of data is very problematic in southeast region of Europe. Adjustments cannot be made for deficiencies or errors in the existing data (Frechtling, 1987). Fleming and Toepper (1990) suggest that accuracy and information are related to the budget available for the study. Wang (1997) and Dwyer, et al. (2004) indicate that there should be an appropriate balance between the accuracy/benefits of the information and costs of the analysis.

The version of the Keynesian model to be utilized in this study is based on McDonald (1997) and Chase (2001). This model considers leakages from imports, taxes
and savings and at the same time considers the direct, indirect and induced expenditure from an additional unit of tourist expenditure. The basic Keynesian model consists of the following equations:

**Equation 1** \[ Y_t = C_t + I_t + G_t + X_t - M_t \]

And,

**Equation 2** \[ C_t = c_0 + c_1 (1-T_t) Y_t + c_t \]

**Equation 3** \[ I_t = i_0 + i_1 (1-c_1 + c_1 T_t) Y_t + s_t \]

**Equation 4** \[ G_t = g_0 + g_1 T_t Y_t + u_t \]

**Equation 5** \[ M_t = m_0 + m_1 (1-T_t) Y_t + w_t \]

**Equation 6** \[ X_t = X_t \]

Where,

- \( Y \) = Gross Domestic Product
- \( C \) = Consumption
- \( I \) = Investment
- \( G \) = Governmental Expenditure
- \( X \) = Exports
- \( M \) = Imports
- \( T \) = Tax Rate
- \( t \) = Time
- \( c_1, i_1, g_1, m_1 \) = Coefficients
- \( c_0, i_0, g_0, m_0 \) = Intercept terms
- \( e, s, u, w \) = Error terms
Equation 1 is an identity. It calculates gross domestic product using the expenditure method.

Equation 2 represents the consumption as a function of current income. In the equation \( c_1 \) is the marginal propensity to consume out of after tax income. Any after tax income that is not consumed is saved, and is a leakage.

Equation 3 represents the total investment or after tax income that is not consumed and is invested domestically. In the equation, \( i_1 \) is the marginal propensity to invest of after tax income.

Equation 4 represents government revenue from taxation, which is then funneled back into the economy in the form of government expenditure. Taxation is considered as a leakage in the model.

Equation 5 represents imports from other countries, which are a function of the level of after tax income in a country. These expenditures represent a leakage from the model.

Equation 6 represents the exports of the country, which are exogenous, since exports are influenced by factors outside the economy.

To consider the impact of tourism, an additional variable, total tourist expenditure was included. So the model will be modified in all its equations except its first and second one, as following:

\[
Y_t = C_t + I_t + G_t + X_t - M_t
\]

And,
Equation 8 \[ C_t = c_0 + c_1 (1-T_t) Y_t + e_t \]
Equation 9 \[ I_t = i_0 + i_1(1-T_t + c_1 T_t)Y_t + i_2 AR_t + s_t \]
Equation 10 \[ G_t = g_0 + g_1 T_t Y_t + g_2 AR_t + u_t \]
Equation 11 \[ M_t = m_0 + m_1(1-T_t)Y_t + m_2 AR_t + w_t \]
Equation 12 \[ X_t = x_0 + x_1 AR_t \]

Where,

AR = Total tourist expenditure

\( m_2, i_2, g_2, x_1 = \) Coefficients

\( x_0 = \) Exports after subtracting tourist expenditures

Traditionally, the most important rationale in developing a tourism industry is the expected macroeconomic benefits to the country. Tourism offers the opportunity to acquire foreign exchange that can finance major investment projects or improve the balance of payment, thus financing the deficits. This model is able to consider a possible improvement in the balance of payments, since it considers increased expenditures from tourism, while considering imports leakages. The government revenue generated by tourism can lessen the tax burden and provide funds to invest in better public services and infrastructure (Zhou, et al., 1997).

Tourism Industry across Countries in the Study

Tourism is identified as a key Albanian development sector. It has grown significantly through years, accounting for 10% of GDP in 2004 and bringing into the economy US$ 756 million in 2004 (Table 10). There is an increase of visitors in Albania.
by 42% in 2004, an increase of tourist spending by 71%, as well as on investment bed-
places capacity by 58%.

Table 10 *Tourism Indicators for Albania*

<table>
<thead>
<tr>
<th>Tourism Indicators</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>Change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arrivals of visitors and tourists (overnight visitors)</td>
<td>397</td>
<td>349</td>
<td>388</td>
<td>506</td>
<td>598</td>
<td>687</td>
<td>42.21</td>
</tr>
<tr>
<td>Number of bed-places (units)</td>
<td>3,575</td>
<td>5,919</td>
<td>7,677</td>
<td>7,996</td>
<td>8,420</td>
<td>8,500</td>
<td>57.94</td>
</tr>
<tr>
<td>Number of rooms (units)</td>
<td>2,644</td>
<td>2,954</td>
<td>3,881</td>
<td>4,107</td>
<td>4,161</td>
<td>4,200</td>
<td>37.05</td>
</tr>
<tr>
<td>Average length of stay (nights)</td>
<td>1.50</td>
<td>1.70</td>
<td>2.20</td>
<td>2.10</td>
<td>2.10</td>
<td>2.20</td>
<td>31.82</td>
</tr>
<tr>
<td>Tourism Expenditure in the country (US$ Mn)</td>
<td>218</td>
<td>398</td>
<td>451</td>
<td>492</td>
<td>537</td>
<td>756</td>
<td>71.16</td>
</tr>
<tr>
<td>Tourism Expenditure in other countries (US$ Mn)</td>
<td>35</td>
<td>290</td>
<td>269</td>
<td>387</td>
<td>507</td>
<td>668</td>
<td>94.76</td>
</tr>
<tr>
<td>Share of tourism expenditure in GDP (%)</td>
<td>6.3</td>
<td>10.8</td>
<td>11.0</td>
<td>10.9</td>
<td>9.4</td>
<td>10.0</td>
<td>37.00</td>
</tr>
</tbody>
</table>


Tourism continues to grow significantly in Croatia, contributing from 13% to GDP in 1999 to 21% of GDP in 2004, an increase of 38%, and bringing US$ 7,191 million in the country. The tourists in Croatia stay longer than in Albania and FYR Macedonia (Table 11). Croatia has an increased of visitation by 38% and increase of tourist spending in the country by 64% in 2003.
Table 11 *Tourism Indicators for Croatia*

<table>
<thead>
<tr>
<th>Tourism Indicators</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>Change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arrivals of visitors and tourists (overnight visitors) ('000)</td>
<td>33,020</td>
<td>43,057</td>
<td>46,673</td>
<td>48,681</td>
<td>50,266</td>
<td>52,886</td>
<td>37.56</td>
</tr>
<tr>
<td>Number of bed-places (units)</td>
<td>193,716</td>
<td>199,474</td>
<td>181,983</td>
<td>187,947</td>
<td>193,538</td>
<td>199,033</td>
<td>2.67</td>
</tr>
<tr>
<td>Number of rooms (units)</td>
<td>80,009</td>
<td>81,272</td>
<td>74,107</td>
<td>77,347</td>
<td>77,113</td>
<td>79,174</td>
<td>-1.84</td>
</tr>
<tr>
<td>Average length of stay (nights)</td>
<td>5.29</td>
<td>5.49</td>
<td>5.50</td>
<td>5.06</td>
<td>5.25</td>
<td>5.08</td>
<td>-4.13</td>
</tr>
<tr>
<td>Tourism Expenditure in the country (US$ Mn)</td>
<td>2,595</td>
<td>2,871</td>
<td>3,463</td>
<td>3,952</td>
<td>6,581</td>
<td>7,191</td>
<td>63.9</td>
</tr>
<tr>
<td>Tourism Expenditure in other countries (US$ Mn)</td>
<td>806</td>
<td>634</td>
<td>677</td>
<td>852</td>
<td>709</td>
<td>872</td>
<td>7.57</td>
</tr>
<tr>
<td>Share of tourism expenditure in GDP (%)</td>
<td>13.0</td>
<td>15.6</td>
<td>17.4</td>
<td>17.4</td>
<td>22.8</td>
<td>21.0</td>
<td>38.09</td>
</tr>
</tbody>
</table>


Tourism in FYR Macedonia, due to political instability has decreased at 1.5% of GDP, by bringing US$77 million in the economy, or 4% less than in 1999 (Table 12). There is a decrease of the visitors in FYR Macedonia in 1998, but increasing gradually in the following years, with 13% increase in 2004. However tourists spending in the country have decreased by 4%.
Table 12 *Tourism Indicators for FYR Macedonia*

<table>
<thead>
<tr>
<th>Tourism Indicators</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>Change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arrivals of visitors and tourists (overnight visitors) ('000)</td>
<td>2,404</td>
<td>3,089</td>
<td>1,829</td>
<td>2,202</td>
<td>2,341</td>
<td>2,759</td>
<td>12.86</td>
</tr>
<tr>
<td>Number of bed-places (units)</td>
<td>16,418</td>
<td>16,147</td>
<td>16,342</td>
<td>16,488</td>
<td>16,297</td>
<td>16,479</td>
<td>0.003</td>
</tr>
<tr>
<td>Number of rooms (units)</td>
<td>6,758</td>
<td>6,636</td>
<td>6,726</td>
<td>6,813</td>
<td>6,825</td>
<td>6,918</td>
<td>2.31</td>
</tr>
<tr>
<td>Average length of stay (nights)</td>
<td>4.20</td>
<td>3.90</td>
<td>3.80</td>
<td>4.20</td>
<td>4.20</td>
<td>4.00</td>
<td>-5.00</td>
</tr>
<tr>
<td>Tourism Expenditure in the country (US$ Mn)</td>
<td>80</td>
<td>88</td>
<td>49</td>
<td>55</td>
<td>65</td>
<td>77</td>
<td>-3.89</td>
</tr>
<tr>
<td>Tourism Expenditure in other countries (US$ Mn)</td>
<td>42</td>
<td>58</td>
<td>60</td>
<td>61</td>
<td>71</td>
<td>84</td>
<td>50.00</td>
</tr>
<tr>
<td>Share of tourism expenditure in GDP (%)</td>
<td>2.2</td>
<td>3.4</td>
<td>1.4</td>
<td>1.5</td>
<td>1.4</td>
<td>1.5</td>
<td>-46.67</td>
</tr>
</tbody>
</table>


Tourism contributes at 6.3% of GDP in 2004 in Greece, having decreased from 1999 by 16% (Table 13). However, the number of visitors and tourists is increasing with 14% and their spending in the country is increasing by 31%. The bed-places and rooms capacity has increased by 12% from 1999 to 2004.
Table 13 *Tourism Indicators for Greece*

<table>
<thead>
<tr>
<th>Tourism Indicators</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>Change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arrivals of visitors and tourists (overnight visitors) ('000)</td>
<td>24,770</td>
<td>26,663</td>
<td>28,735</td>
<td>29,098</td>
<td>28,754</td>
<td>n/a</td>
<td>13.85 (2003)</td>
</tr>
<tr>
<td>Number of bed-places (units)</td>
<td>584,973</td>
<td>593,990</td>
<td>608,104</td>
<td>626,914</td>
<td>644,898</td>
<td>668,271</td>
<td>12.46</td>
</tr>
<tr>
<td>Number of rooms (units)</td>
<td>308,452</td>
<td>312,993</td>
<td>320,467</td>
<td>330,348</td>
<td>339,540</td>
<td>351,891</td>
<td>12.34</td>
</tr>
<tr>
<td>Average length of stay (nights)</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Tourism Expenditure in the country (US$ Mn)</td>
<td>8,839</td>
<td>9,262</td>
<td>9,216</td>
<td>10,005</td>
<td>10,842</td>
<td>12,809</td>
<td>30.99</td>
</tr>
<tr>
<td>Tourism Expenditure in other countries (US$ Mn)</td>
<td>4,014</td>
<td>4,564</td>
<td>4,189</td>
<td>2,453</td>
<td>2,439</td>
<td>2,880</td>
<td>-39.38</td>
</tr>
<tr>
<td>Share of tourism expenditure in GDP (%)</td>
<td>7.3</td>
<td>8.3</td>
<td>7.9</td>
<td>7.5</td>
<td>6.3</td>
<td>6.3</td>
<td>-15.87</td>
</tr>
</tbody>
</table>


Tourism in Croatia contributes to GDP by 21%, which is the highest contribution amongst other countries subject of this study (Table 14). It is followed by Albania, Greece, and FYR Macedonia by respectively 10%, 6%, and 2%. The largest number of arrivals was in Croatia followed by Greece.
Table 14 *Comparison of Tourism Indicators amongst Albania, Croatia, FYR Macedonia, and Greece*

<table>
<thead>
<tr>
<th>Tourism Indicators (2004)</th>
<th>Albania</th>
<th>Croatia</th>
<th>FYR Macedonia</th>
<th>Greece</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arrivals of visitors and tourists (overnight visitors) ('000)</td>
<td>687</td>
<td>52,886</td>
<td>2,759</td>
<td>n/a</td>
</tr>
<tr>
<td>Number of bed-places (units)</td>
<td>8,500</td>
<td>199,033</td>
<td>16,479</td>
<td>668,271</td>
</tr>
<tr>
<td>Number of rooms (units)</td>
<td>4,200</td>
<td>79,174</td>
<td>6,918</td>
<td>351,891</td>
</tr>
<tr>
<td>Average length of stay (nights)</td>
<td>2.20</td>
<td>5.08</td>
<td>4.00</td>
<td>n/a</td>
</tr>
<tr>
<td>Tourism Expenditure in the country (US$ Mn)</td>
<td>756</td>
<td>7,191</td>
<td>77</td>
<td>12,809</td>
</tr>
<tr>
<td>Tourism Expenditure in other countries (US$ Mn)</td>
<td>668</td>
<td>872</td>
<td>84</td>
<td>2,880</td>
</tr>
<tr>
<td>Share of tourism expenditure in GDP (%)</td>
<td>10.0</td>
<td>21.0</td>
<td>1.5</td>
<td>6.3</td>
</tr>
</tbody>
</table>

Despite being at different stages of development, tourism in all above-mentioned countries is being viewed as potentially able to generate significant impacts in the economy and acting as a catalyst of change (Albanian Ministry of Territory Adjustment and Tourism, 2003; Jordan, 2000; Serovic, 2001). Hall (2000) stated several roles that tourism may play in post-communist countries of Southeast Europe, among which are the encouragement of investment, generation of hard currency and improvement of balance of payment, and improvement of local infrastructure. However, no research has been conducted in the region to estimate the above-mentioned economic impacts of tourist expenditure in these countries. Given this, decision-makers in Albania, Croatia and FYR Macedonia need to be equipped with a tourism impact assessment in order to better...
understand the relationship between tourism and other sectors of the economy. Including Greece in the analysis would provide a broader analysis of tourism economic impacts for the developing countries decision makers in the same region.

**Period of Study and Data**

The time period of the study will be from 1991-2004. This period reflects the post-communist era and independence time for Croatia and FYR Macedonia.

Data for the model was collected from various sources. Data for GDP and the breakdown of various components of GDP for each year and country subject in this study was provided from United Nations Department of Statistics. The data on tourism expenditures were obtained from central banks of countries in the study and from the World Bank. The data on taxes was obtained from the International Monetary Fund and ministries of finance in respective countries.
CHAPTER 4
MODEL APPLICATION

This chapter applies the Keynesian multiplier model developed in the previous chapter to four countries in Southeast Europe: Albania, Croatia, FYR Macedonia and Greece. This chapter provides an overview of the model application and it discusses the multiplier data on investment, government expenditures and imports for Albania, Croatia, FYR Macedonia and Greece.

Albania has a rapid and steady increase of tourism expenditures in the country, in particular after 1998 (Figure 4). Macedonia after a decrease of tourism expenditures, is gradually recovering.

![Figure 4. Tourism expenditures in Albania and the FYR Macedonia for 1990-2004](Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.)
Tourism expenditures in Croatia and Greece have increased also and at absolute terms they are the highest in the region (Figure 5). However the highest rate of increase for 1991-2004 of tourism expenditures is in Albania, followed by Croatia, Greece and the FYR Macedonia.

Figure 5. Tourism expenditures in Croatia and Greece for 1990-2004

The topics discussed in this chapter include an overview of the model application and the multiplier results for each of the countries in the study.

Model Application Overview

The model developed in this paper was applied to the countries concerned for the timeframe 1991-2004. The year 1991 was chosen as a starting date, since this is the first
year that two of the countries in the study were politically independent. Three different regressions, with enter method, for each of the three multipliers: investments, government and imports and were used to evaluate the impact of tourism on each country. Statistical Package for Social Sciences was utilized to analyze the data. The data for all countries is given in the US dollar currency.

On initial runs of regressions, the Variance Inflationary Factor detected multicollinearity in all independent variables. Each of the independent variables in the base equations had its contribution to income, tax revenue or income available for investment from the injection of tourism expenditures in the economy. The adjustment to correct the multicollinearity considered the effect of leakages from the economy in terms of imports as a percent of GDP for each country. The percentage of imports to GDP was subtracted from one and the resulting percent was multiplied by tourism expenditure and then subtracted from GDP variable in the base equations (McElroy, & Tinsely, 1982). This adjustment corrected also for double counting of tourism expenditures in the equations. Most of the collinearity was reduced by the adjustment made. However, no additional corrections were made to correct the remaining multicollinearity in order not to create any other problems or bias in the data set (Griffiths, Hill, & Judge, 1993; Gujarati, 2003).

To ensure the best fit of the regression models built for each of the analysis, several transformations were considered. The investment, governmental expenditures and import variables were transformed into their square roots or squares. In order to ensure qualitative comparison of multipliers between countries, transformations needed to be
utilized similarly in every country’s investment, governmental expenditures and import variables. But, neither square root nor square transformation did improve the model fit for all the countries in the study. Thus, the results were drawn from variables where no transformation was undertaken. Therefore the multipliers generated constitute only rough estimates of the impacts generated by tourism on investment, governmental expenditures and on imports.

In regard to the missing values for the data analysis of the four countries in the study, since tourism expenditures demonstrate a certain trend increasing every year, the linear interpolation method was utilized to estimate the missing values to complete the data set. For this purpose, tourism expenditures (ARt) was regressed to GDP (Yt), then the coefficients were identified in order to estimate the predicted values to be used only for the missing values in different years. The missing values of tax data, since there is no increasing trend through years, were estimated by the mean value of the data set.

Multiplier Data for Albania

The estimates of GDP and its components were available from the United Nations Statistics Department for 1991-2004. Tourism expenditures data were provided by the Bank of Albania and the Development Data Group of World Bank (2006). Tax data was obtained from International Monetary Fund.
Investment Multiplier

The investment multiplier ($i_2$) considered tourism expenditures ($AR_t$) and available income for investment $[(1-T_t+c_1T_t)Y_t]$ regressed on investment expenditures ($I_t$), as in equation 9:

$$I_t = i_0 + i_1(1-T_t+c_1T_t)Y_t + i_2AR_t + s_t$$

First the consumption multiplier ($c_1$) needed to be estimated. For this reason the consumption multiplier ($c_1$) considered tourism expenditures ($AR_t$) and income $[(1-T_t)Y_t]$ regressed on consumption expenditures ($C_t$), as in equation 8:

$$C_t = c_0 + c_1(1-T_t)Y_t + c_2AR_t + e_t$$

The analysis found that $c_1 = .427$.

The analysis to identify the investment multiplier indicated that tourism expenditures did have an impact on investment expenditures (Table 15). The tourism expenditures variable was significant at 5% level. For every 1% increase in tourism expenditure, investments would increase by 347%. Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
Table 15 *Albanian Investment Multiplier for Tourism Expenditures*

<table>
<thead>
<tr>
<th>Equation Components/ Independent Variables</th>
<th>Unstandardized B Coefficients</th>
<th>Standard Error</th>
<th>t Stat</th>
<th>Sig.</th>
<th>$R^2$</th>
<th>R Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-317,484,393</td>
<td>155,299,162</td>
<td>-2.044</td>
<td>.064</td>
<td>.982</td>
<td>.965</td>
</tr>
<tr>
<td>Available to Invest $^{b}$</td>
<td>.531</td>
<td>.133</td>
<td>3.979</td>
<td>.002</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$(1-T_t+c_1T_t)Y_t$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tourism Expenditures (AR)</td>
<td>3.472</td>
<td>.472</td>
<td>7.361</td>
<td>.000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Enter method. Dependent variable is Investments. Missing values of tourism expenditures were replaced by linear interpolation method. Missing values of tax data were replaced by the mean value method.

a. $F(2, 12) = 166.179, p = .000$

b. Available to invest revenue is the value of GDP adjusted for taxes and residual from consumption.

**Government Multiplier**

The government multiplier ($g_0$) considered tourism expenditures ($AR_t$) and tax revenue ($T_tY_t$) regressed on government expenditures ($G_t$), as in equation 10:

\[
G_t = g_0 + g_1T_tY_t + g_2AR_t + u_t
\]

The results indicated that tourism expenditures did not have an impact on government expenditures (Table 16). Tourism expenditure variable were not statistically significant at 5% level. However, they were significant at 10% level, suggesting that tourism may have some impact on governmental expenditures. The governmental expenditures may increase by 34.5% for every 1% increase in tourism expenditures.
Table 16: Albanian Government Expenditure Multiplier for Tourism Expenditures

<table>
<thead>
<tr>
<th>Equation Components/Independent Variables</th>
<th>Unstandardized B Coefficients</th>
<th>Standard Error</th>
<th>t Stat</th>
<th>Sig.</th>
<th>R²</th>
<th>R Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>197,600,335</td>
<td>39,673,739</td>
<td>4.981</td>
<td>.000</td>
<td></td>
<td>.896</td>
</tr>
<tr>
<td>Tax Revenue(^b) (TtYt)</td>
<td>.265</td>
<td>.194</td>
<td>1.367</td>
<td>.197</td>
<td></td>
<td>.804</td>
</tr>
<tr>
<td>Tourism Expenditures (AR)</td>
<td>.345</td>
<td>.171</td>
<td>2.015</td>
<td>.067</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. Enter method. Dependent variable is Governmental Expenditures. Missing values of tourism expenditures were replaced by linear interpolation method. Missing values of tax data were replaced by the mean value method.

a. F (2, 12) =24.561, p=.000
b. Tax revenue is the value of GDP from taxes available for governmental expenditures.

Import Multipliers

The import multiplier \( m_2 \) considered tourism expenditures \((AR_t)\) and income \([(1-T_t)Y_t]\) regressed on import expenditures \((M_t)\), as in equation 11:

\[
Equation 13 \quad M_t = m_0 + m_1(1-T_t)Y_t + m_2AR_t + w_t
\]

The results showed that tourist expenditures did have an impact on import expenditures. The tourist expenditure variable was statistically significant at the 5% level (Table 17). This suggests that for every 1% increase in tourism expenditure, import would increase by 295%.
Table 17 *Albanian Import Multiplier for Tourism Expenditures*

<table>
<thead>
<tr>
<th>Equation Components/ Independent Variables</th>
<th>Unstandardized B Coefficients</th>
<th>Standard Error</th>
<th>t Stat</th>
<th>Sig.</th>
<th>R²</th>
<th>R Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>731,907,683</td>
<td>218,639,817</td>
<td>3.348</td>
<td>.007</td>
<td></td>
<td>.908</td>
</tr>
<tr>
<td>Income (b [(1-Tt)Yt] )</td>
<td>-.032</td>
<td>.212</td>
<td>-.150</td>
<td>.884</td>
<td></td>
<td>.825</td>
</tr>
<tr>
<td>Tourism Expenditures (AR)</td>
<td>2.954</td>
<td>.685</td>
<td>4.313</td>
<td>.001</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Enter method. Dependent variable is Import. Missing values of tourism expenditures were replaced by linear interpolation method. Missing values of tax data were replaced by the mean value method.

a. \( F (2, 11) = 25.952, p = .000 \)
b. Income is the value of GDP after taxes corrected for imports and tourism expenditures.

Multipler Data for Croatia

The estimates of GDP and its components were available from the United Nations Statistics Department for 1991-2004. Tourism expenditures data were provided by the Development Data Group of World Bank (2006) and the tax data was obtained from International Monetary Fund.

Investment Multiplier

The investment multiplier \((i_2)\) considered tourism expenditures \((AR_t)\) and available income for investment \([(1-T_t + c_tT_t)Y_t]\) regressed on investment expenditures \((i_t)\), as in equation 9:

Equation 9 \[ I_t = i_0 + i_1(1-T_t + c_tT_t)Y_t + i_2AR_t + s_t \]
First the consumption multiplier \( (c_1) \) needed to be estimated. For this reason the consumption multiplier \( (c_1) \) considered tourism expenditures \( (AR_t) \) and income \( [(1-T_t)Y_t] \) regressed on consumption expenditures \( (C_t) \), as in equation 8:

\[
C_t = c_0 + c_1 (1-T_t) Y_t + c_2 AR_t + e_t
\]

The analysis found that \( c_1 = .603 \).

The analysis to identify the investment multiplier indicated that tourism expenditures did have an impact on investment expenditures (Table 18). The variable was significant at 5% level. For every 1% increase in tourism expenditures, there is an increase of 112% in investments.

Table 18 Croatian Investment Multiplier for Tourism Expenditures

<table>
<thead>
<tr>
<th>Equation Components/ Independent Variables</th>
<th>Unstandardized B Coefficients</th>
<th>Standard Error</th>
<th>t Stat</th>
<th>Sig.</th>
<th>( R^2 )</th>
<th>( R ) Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-1,542,521,603</td>
<td>549,171,470</td>
<td>-2.809</td>
<td>.016</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Available to Invest(^b)</td>
<td>.523</td>
<td>.095</td>
<td>5.511</td>
<td>.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>((1-T_t + c_1 T_t)Y_t)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tourism Expenditures (AR)</td>
<td>1.119</td>
<td>.097</td>
<td>11.591</td>
<td>.000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\( ^b \) Available to invest revenue is the value of GDP adjusted for taxes and residual from consumption.

\( ^a \) Enter method. Dependent variable is Investments. Missing values of tourism expenditures were replaced by linear interpolation method. Missing values of tax data were replaced by the mean value method.

\( ^a \) \( F (2, 12) =86.705, p=.000 \)

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Government Multiplier

The government multiplier ($g_2$) considered tourism expenditures ($AR_t$) and tax revenue ($T_tY_t$) regressed on government expenditures ($G_t$), as in equation 10:

Equation 14: \[ G_t = g_0 + g_1T_tY_t + g_2AR_t + u_t \]

The results showed that tourism expenditures did have an impact on government expenditures. The variable was significant at 5% level. The result suggests that an increase of 1% of tourism expenditure would increase governmental expenditures by 55% (Table 19).

Table 19 *Croatian Government Expenditure Multiplier for Tourism Expenditures*

<table>
<thead>
<tr>
<th>Equation Components/ Independent Variables</th>
<th>Unstandardized B Coefficients</th>
<th>Standard Error</th>
<th>t Stat</th>
<th>Sig.</th>
<th>$R^2$</th>
<th>R Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>2,766,028,266</td>
<td>437,275,012</td>
<td>6.326</td>
<td>.000</td>
<td>.900</td>
<td>.811</td>
</tr>
<tr>
<td>Tax Revenue ($T_tY_t$)</td>
<td>.109</td>
<td>.142</td>
<td>.770</td>
<td>.456</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tourism Expenditures ($AR$)</td>
<td>.547</td>
<td>.077</td>
<td>7.103</td>
<td>.000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. Enter method. Dependent variable is Governmental Expenditures. Missing values of tourism expenditures were replaced by linear interpolation method. Missing values of tax data were replaced by the mean value method.

a. $F (2, 12) = 25.715, p = .000$
b. Tax revenue is the value of GDP from taxes available for governmental expenditures.

Import Multipliers

The import multiplier ($m_2$) considered tourism expenditures ($AR_t$) and income

$[(1-T_t)Y_t]$ regressed on import expenditures ($M_t$), as in equation 11:
Equation 11  \[ M_t = m_0 + m_1(1-T_t)Y_t + m_2AR_t + w_t \]

The results showed that tourism expenditure did have an impact on import expenditures (Table 20). The tourism expenditure variable was significant at 5% level. For every 1% increase in tourism expenditures, there is an increase of 223% increase of imports.

<table>
<thead>
<tr>
<th>Equation Components/ Independent Variables</th>
<th>Unstandardized B Coefficients</th>
<th>Standard Error</th>
<th>t Stat</th>
<th>Sig.</th>
<th>R²</th>
<th>R Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>9,236,040,324</td>
<td>719,619,254</td>
<td>12.835</td>
<td>.000</td>
<td>.984</td>
<td>.968</td>
</tr>
<tr>
<td>Income[ ((1-T_t)Y_t) ]</td>
<td>-1.639</td>
<td>.183</td>
<td>-8.952</td>
<td>.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tourism Expenditures (AR)</td>
<td>2.232</td>
<td>.127</td>
<td>17.589</td>
<td>.000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. Enter method. Dependent variable is Import. Missing values of tourism expenditures were replaced by linear interpolation method. Missing values of tax data were replaced by the mean value method.

a. F (2, 12) =183.669, p=.000
b. Income is the value of GDP after taxes corrected for imports and tourism expenditures.

Multiplier Data for FYR of Macedonia

The estimates of GDP and its components were available from the United Nations Statistics Department for 1991-2004. Tourism expenditures data were provided by the Development Data Group of World Bank (2006) and the tax data was obtained from International Monetary Fund.
Investment Multiplier

The investment multiplier ($i_2$) considered tourism expenditures ($AR_t$) and available income for investment $[(1-T_t+c_tY_t)Y_t]$ regressed on investment expenditures ($I_t$), as in equation 9:

$$I_t = i_0 + i_1(1-T_t+c_tY_t)Y_t + i_2AR_t + s_t$$

First the consumption multiplier ($c_1$) needed to be estimated. For this reason the consumption multiplier ($c_1$) considered tourism expenditures ($AR_t$) and income $[(1-T_t)Y_t]$ regressed on consumption expenditures ($C_t$), as in equation 8:

$$C_t = c_0 + c_1(1-T_t)Y_t + c_2AR_t + e_t$$

The analysis found that $c_1 = .667$.

The analysis to identify the investment multiplier indicated that tourism expenditures did not have impact on investment expenditures (Table 21). The tourism expenditure variable was not significant at 5%.
Table 21 *Macedonian Investment Multiplier for Tourism Expenditures*

<table>
<thead>
<tr>
<th>Equation Components/ Independent Variables</th>
<th>Unstandardized B Coefficients</th>
<th>Standard Error</th>
<th>t Stat</th>
<th>Sig.</th>
<th>R²</th>
<th>R Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>290,345,167</td>
<td>149,802,455</td>
<td>1.938</td>
<td>.076</td>
<td>.717</td>
<td>.514</td>
</tr>
<tr>
<td>Available to Invest**</td>
<td>.188</td>
<td>.060</td>
<td>3.130</td>
<td>.009</td>
<td></td>
<td></td>
</tr>
<tr>
<td>((1-T_t + c_i T_t) Y_t)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tourism Expenditures</td>
<td>2.503</td>
<td>2.165</td>
<td>1.156</td>
<td>.270</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(AR)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Enter method. Dependent variable is Investments. Missing values of tourism expenditures were replaced by linear interpolation method. Missing values of tax data were replaced by the mean value method.

a. F (2, 12) = 6.339, p = .013
b. Available to invest revenue is the value of GDP adjusted for taxes and residual from consumption.

**Government Multiplier**

The government multiplier \((g_2)\) considered tourism expenditures \((AR_t)\) and tax revenue \((T_t Y_t)\) regressed on government expenditures \((G_t)\), as in equation 10:

\[
Equation 15 \quad G_t = g_0 + g_1 T_t Y_t + g_2 AR_t + u_t
\]

The results showed that tourism expenditure did not have impact on governmental expenditure (Table 22). The tourism expenditure variable was not significant at 5% level.
Table 22 Macedonian Government Expenditure Multiplier for Tourism Expenditures

<table>
<thead>
<tr>
<th>Equation Components</th>
<th>Unstandardized B Coefficients</th>
<th>Standard Error</th>
<th>t Stat</th>
<th>Sig.</th>
<th>R²</th>
<th>R Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>333,031,287</td>
<td>116,097,260</td>
<td>2.869</td>
<td>.014</td>
<td>.792</td>
<td>.627</td>
</tr>
<tr>
<td>Tax Revenue b(T,Yt)</td>
<td>.515</td>
<td>.127</td>
<td>4.060</td>
<td>.002</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tourism Expenditures (AR)</td>
<td>2.205</td>
<td>1.652</td>
<td>1.335</td>
<td>.207</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. Enter method. Dependent variable is Governmental Expenditures. Missing values of tourism expenditures were replaced by linear interpolation method. Missing values of tax data were replaced by the mean value method.

a. F (2, 12) = 10.090, p = .003
b. Tax revenue is the value of GDP from taxes available for governmental expenditures.

Import Multipliers

The import multiplier (m₂) considered tourism expenditures (AR_t) and income [(1-T_t)Y_t] regressed on import expenditures (M_t), as in equation 11:

Equation 11 \[ M_t = m_0 + m_1(1-T_t)Y_t + m_2AR_t + w_t \]

The results indicated that tourism expenditure did not have an impact on import expenditures (Table 23). The tourism expenditure variable was not significant at 5% level.
Table 23 *Macedonian Import Multiplier for Tourism Expenditures*

<table>
<thead>
<tr>
<th>Equation Components/Independent Variables</th>
<th>Unstandardized B Coefficients</th>
<th>Standard Error</th>
<th>t Stat</th>
<th>Sig.</th>
<th>R²</th>
<th>R Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>1,596,861,580</td>
<td>391,847,342</td>
<td>4.075</td>
<td>.002</td>
<td>.408</td>
<td>.167</td>
</tr>
<tr>
<td>Income[^b^] ([(1-T_t)Y_t])</td>
<td>.163</td>
<td>.208</td>
<td>-.785</td>
<td>.447</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tourism Expenditures (AR)</td>
<td>8.258</td>
<td>5.693</td>
<td>1.450</td>
<td>.173</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Enter method. Dependent variable is Import. Missing values of tourism expenditures were replaced by linear interpolation method. Missing values of tax data were replaced by the mean value method.  
\(^a^\) F (2, 12) =1.199, p=.335
\(^b^\) Income is the value of GDP after taxes corrected for imports and tourism expenditures.

**Multiplier Data for Greece**

The estimates of GDP and its components were available from the United Nations Statistics Department for 1991-2004. Tourism expenditures data were provided by the Development Data Group of World Bank (2006) and the tax data was obtained from International Monetary Fund.

**Investment Multiplier**

The investment multiplier \((i_2)\) considered tourism expenditures \((AR_t)\) and available income for investment \([(1-T_t+c_tT_t)Y_t]\) regressed on investment expenditures \((i_t)\), as in equation 9:

\[
I_t = i_0 + i_1(1-T_t+c_tT_t)Y_t + i_2AR_t + s_t
\]
First the consumption multiplier \((c_1)\) needed to be estimated. For this reason the consumption multiplier \((c_1)\) considered tourism expenditures \((AR_t)\) and income \([(1-T_t)Y_t]\) regressed on consumption expenditures \((C_t)\), as in equation 8:

\[
C_t = c_0 + c_1 (1-T_t) Y_t + c_2 AR_t + e_t
\]

The analysis found that \(c_1 = .604\).

The analysis to identify the investment multiplier indicated that tourism expenditure did have impact on investment expenditures (Table 24). The variable was significant at 5% level. It suggests that 1% increase in tourism expenditure increases the investment expenditure by 168%.

| Table 24 Greek Investment Multiplier for Tourism Expenditures |
|-------------------|-------------|-------------|--------|------|---------|
| Equation Components/ Independent Variables | Unstandardized B Coefficients | Standard Error | t Stat | Sig. | R² | R Square |
| Intercept | -6,550,603,688 | 2,180,736,514 | -3.004 | .011 | .981 | .962 |
| Available to Invest\(^b\) | .325 | .038 | 8.609 | .000 |
| \((1-T_t+c_1T_t)*Y_t\) | | | | |
| Tourism Expenditures (AR) | 1.677 | .220 | 7.635 | .000 |

*Note.* Enter method. Dependent variable is Investments. Missing values of tourism expenditures were replaced by linear interpolation method. Missing values of tax data were replaced by the mean value method.

a. \(F (2, 12) = 152.591, p = .000\)
b. Available to invest revenue is the value of GDP adjusted for taxes and residual from consumption.
Government Multiplier

The government multiplier (g2) considered tourism expenditures (ARt) and tax revenue (TtYt) regressed on government expenditures (Gt), as in equation 10:

Equation 10 \[ G_t = g_0 + g_1 T_t Y_t + g_2 A R_t + u_t \]

The results showed that tourism expenditure did have an impact on government expenditures (Table 25). The tourism expenditure variable was significant at 5% level. For every 1% increase in tourism expenditure, governmental expenditure would increase by 66%.

Table 25 *Greek Government Expenditure Multiplier for Tourism Expenditures*

<table>
<thead>
<tr>
<th>Equation Components/Independent Variables</th>
<th>Unstandardized B Coefficients</th>
<th>Standard Error</th>
<th>t Stat</th>
<th>Sig.</th>
<th>R²</th>
<th>R Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-2,910,030,439</td>
<td>1,508,987,434</td>
<td>-1.928</td>
<td>.078</td>
<td>.978</td>
<td>.956</td>
</tr>
<tr>
<td>Tax Revenue (^b) (TtYt)</td>
<td>.581</td>
<td>.070</td>
<td>8.249</td>
<td>.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tourism Expenditures (AR)</td>
<td>.661</td>
<td>.186</td>
<td>3.556</td>
<td>.004</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Enter method. Dependent variable is Governmental Expenditures. Missing values of tourism expenditures were replaced by linear interpolation method. Missing values of tax data were replaced by the mean value method.

a. F (2, 12) = 129.710, p = .000
b. Tax revenue is the value of GDP from taxes available for governmental expenditures.
Import Multipliers

The import multiplier \( m_2 \) considered tourism expenditures \( (AR_t) \) and income \( [(1-T_t)Y_t] \) regressed on import expenditures \( (M_t) \), as in equation 11:

\[
Equation 16 \quad M_t = m_0 + m_1(1-T_t)Y_t + m_2AR_t + w_t
\]

The results indicated that tourism expenditure did have impact on import expenditures (Table 26). The tourism expenditure variable was significant at 5% level. For every 1% increase in tourism expenditures, there is an increase of 240% of imports.

Table 26 *Greek Import Multiplier for Tourism Expenditures*

<table>
<thead>
<tr>
<th>Equation Components/ Independent Variables</th>
<th>Unstandardized B Coefficients</th>
<th>Standard Error</th>
<th>t Stat</th>
<th>Sig.</th>
<th>R²</th>
<th>R Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-1,120,077,750</td>
<td>3,155,139,003</td>
<td>-.355</td>
<td>.729</td>
<td>.968</td>
<td>.937</td>
</tr>
<tr>
<td>Income (^b) ([(1-T_t)Y_t])</td>
<td>.376</td>
<td>.070</td>
<td>5.347</td>
<td>.000</td>
<td>.968</td>
<td>.937</td>
</tr>
<tr>
<td>Tourism Expenditures (AR)</td>
<td>2.395</td>
<td>.301</td>
<td>7.955</td>
<td>.000</td>
<td>.968</td>
<td>.937</td>
</tr>
</tbody>
</table>

*Note.* Enter method. Dependent variable is Import. Missing values of tourism expenditures were replaced by linear interpolation method. Missing values of tax data were replaced by the mean value method.

\( a. F (2, 12) = 89.811, p=.000 \)

\( b. \) Income is the value of GDP after taxes corrected for imports and tourism expenditures.

Summary

From the regression analysis conducted, it was concluded that tourism expenditures in Albania did have a significant impact on import and investment...
expenditures, showing that more should be imported ($m_2 = 2.954$) and invested ($i_2 = 3.472$) to respond to an increase of tourism expenditures. Instead the impact of tourism expenditures on governmental expenditures was significant at 10% level (Table 27), where government should dedicate additional funds ($g_2 = 0.345$) to accommodate additional tourism demands.

In Croatia, the impact of tourism expenditure on imports and investment was significant (Table 27), showing that more is imported ($m_2 = 2.232$) and invested ($i_2 = 1.119$) in respect to an increase of tourism demand. The impact on governmental expenditures was significant also at 5% level, in the sense that more governmental expenditure ($g_2 = 0.547$) should be made to accommodate and support additional tourist expenditures.

Table 27 *Multipliers across Countries*

<table>
<thead>
<tr>
<th>Multipliers</th>
<th>Albania</th>
<th>Croatia</th>
<th>FYR Macedonia</th>
<th>Greece</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investment Multiplier ($i_2$)</td>
<td>3.472*</td>
<td>1.119*</td>
<td>2.503</td>
<td>1.677*</td>
</tr>
<tr>
<td>Government Multiplier ($g_2$)</td>
<td>0.345**</td>
<td>0.547*</td>
<td>2.205</td>
<td>0.661*</td>
</tr>
<tr>
<td>Import Multiplier ($m_2$)</td>
<td>2.954*</td>
<td>2.232*</td>
<td>8.258</td>
<td>2.395*</td>
</tr>
</tbody>
</table>

* Significant at 5% level  
** Significant at 10% level

In FYR Macedonia, tourism expenditure did not have a significant impact on import, government and investment expenditures (Table 27).
In Greece, tourism expenditure did have a significant impact on import expenditure \( (m_2=2.395) \) (Table 27). The impact was significant for government expenditure at 5% level as well; where more governmental expenditure \( (g_2=.661) \) should be spend for an additional tourism demand. Tourism expenditure had also a significant impact on investment expenditure \( (i_2=1.677) \).
CHAPTER 5

SUMMARY AND CONCLUSIONS

The impacts of tourism development have been of interest to policy makers and planners, to private businesses, governmental and public agencies, and to the local communities. The purpose of this study was to build a model to assess the economic impact of tourism on investment, government and import expenditures in Albania, Croatia, the FYR of Macedonia and Greece. This chapter summarizes the procedures, discusses the findings the study, states implications and gives recommendations, and finally draws conclusions. The findings are divided into three sections, one for each of three multipliers assessed on: investments, government and imports expenditures. Each of these sections states the main findings and makes an analysis of the results received. Then, the implications of the results, the potential uses of the model and future research are discussed, and the conclusions are drawn.

Summary of Procedures

Balance of payments does not give a complete picture of the impact of tourism on the economy, since it does not provide any reference of indirect and induced effects of tourism (Heng & Low, 1990). Only an economic impact study would assess the entire economic impact of tourism on economy generally, and particularly on each of GDP components. Keynesian model has been utilized in this study as a multiplier model that allows expenditures of tourists to be tracked as they filtered through economy sectors.
beyond the ones directly involved with tourism (Archer, 1982, 1989; Fletcher, 1989). By utilizing this model, the researcher achieved the following research objectives:

- Developed a model to determine the multiplier effects generated from an incremental change in tourists expenditures in Albania, Croatia, FYR of Macedonia and Greece;
- Estimated the tourism impact on investment, government and import expenditures in Albania, Croatia, FYR of Macedonia and Greece;
- Investigated the differences and similarities of the economic impact of tourism amongst Albania, Croatia, FYR of Macedonia and Greece.

Fletcher and Archer (1991) suggested that Keynesian multiplier analysis is cost-effective and is particularly well suited to regional or small area analysis where it may be impractical to undertake more advanced methods. The Keynesian model has smaller, less exacting data requirements than the other models (Milne, 1992; Sinclair & Sutcliffe, 1982) and therefore it can be used if there is insufficient data to construct more advanced models (Tisdell, 2000).

The version of the Keynesian model utilized in this study is based on McDonald (1997) and Chase (2001). This model considers leakages from imports, taxes and savings and at the same time considers the direct, indirect and induced expenditure from an additional unit of tourist expenditure.

The model was applied to the countries concerned for the timeframe 1991-2004. The year 1991 was chosen as a starting date, since this is the first year that two of the countries in the study were politically independent. Three different multiple regressions,
with enter method, for each of the three equations of GDP components: investments, government and imports were used to assess the multiplier underlining the impact of tourism on each country. Statistical Package for Social Sciences (SPSS) was utilized to analyze the data. The data for all countries is given in the US dollar currency.

To ensure the best fit of the regression models built for each of the analysis, several transformations were considered. The investment, governmental expenditures and import variables were transformed into their square roots or squares. In order to ensure qualitative comparison of multipliers between countries, transformations needed to be utilized similarly in every country’s investment, governmental expenditures and import variables. But, neither square root nor square transformation did improve the model fit for all the countries in the study. Thus, the results were drawn from variables where no transformation was undertaken. Therefore the multipliers generated constitute only rough estimates of the impacts generated by tourism on investment, governmental expenditures and on imports.

Data for the model was collected from various sources. Data for GDP and the breakdown of various components of GDP for each year and country subject in this study was provided from United Nations Department of Statistics. The data on tourism expenditures were obtained from central banks of countries in the study and from the World Bank. The data on taxes was obtained from the International Monetary Fund and ministries of finance in respective countries.

In regard to the missing values for the data analysis of the four countries in the study, since tourism expenditures demonstrate a certain trend every year, the linear interpolation
method was utilized to estimate the missing values to complete the data set. For this purpose, tourism expenditures ($AR_t$) was regressed to GDP ($Y_t$), then the coefficients were identified in order to estimate the predicted values to be used only for the missing values in different years. For the tax data, since there is no trend through years, the missing values were estimated by the mean value of the data set.

**Summary of the Findings**

Investment Multiplier

*Regression results.* The results of the regression analysis identifying the tourism impact on investment expenditures for four countries included in the study are shown in table 28. Tourism impact on investment expenditures was significant for Albania, Croatia and Greece. For FYR of Macedonia, tourism impact was not significant.

Table 28 *Investment Multiplier across Countries*

<table>
<thead>
<tr>
<th>Multipliers</th>
<th>Albania</th>
<th>Croatia</th>
<th>FYR Macedonia</th>
<th>Greece</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investment Multiplier ($i_2$)</td>
<td>3.472*</td>
<td>1.119*</td>
<td>2.503</td>
<td>1.677*</td>
</tr>
<tr>
<td>Qualitative Comparison</td>
<td>+*</td>
<td>+*</td>
<td>+</td>
<td>+*</td>
</tr>
</tbody>
</table>

* Significant at 5% level

**Analysis.** In Albania, Croatia and Greece, tourist arrivals and tourism expenditure experienced a significant increase. Albania had embarked on a major upgrading of tourist...
facilities and expanding its infrastructure. Tourist expenditure in Albania at the start of the study period, 1990, were at $56 million and rose dramatically to $735 million in 2004, an increase of 1,212.5%. This substantial increase in tourism demand would require major investment to sustain. This explains the increase in the rate of investment expenditures for tourism expenditures in order to accommodate additional tourism demands.

Croatia and Greece are longer established tourist destinations than Albania. However, there is a continuous increase in tourism expenditure in both countries as well. In Croatia, in 1990 tourism expenditures increased from $4.67 billion to $7.19 billion in 2004, an increase of 54%. In Greece, tourism expenditures significantly increased from $4.4 billion in 1990 to 12.8 billion in 2004, an increase of 190.9%. This explains the significance impact in investment expenditures due to an increase in tourism demand in both countries.

In particular Albania and Croatia after 1990s have embarked on a major upgrading of tourist facilities. This also explains the positive coefficients and the increase in the rate of investment expenditures for tourism expenditures. These results were supported also by the research conducted by Chase (2001) for cruise tourism impact in Caribbean countries.

In FYR Macedonia, tourism expenditures increased slowly by 28%, from $60 million in 1990 to $77 million in 2004. This explains the non-significant impact of them on investment expenditures.
Government Multipliers

Regression analysis. The results of the regression analysis identifying the tourism impact on government expenditures are presented in table 29. Tourism impact on government expenditures was significant for Albania, Croatia and Greece. For FYR of Macedonia, tourism impact was not significant.

Table 29 Government Multiplier across Countries

<table>
<thead>
<tr>
<th>Multipliers</th>
<th>Albania</th>
<th>Croatia</th>
<th>FYR Macedonia</th>
<th>Greece</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government Multiplier ($g_2$)</td>
<td>.345**</td>
<td>.547*</td>
<td>2.205</td>
<td>.661*</td>
</tr>
<tr>
<td>Qualitative Comparison</td>
<td>+**</td>
<td>+*</td>
<td>+</td>
<td>+*</td>
</tr>
</tbody>
</table>

* Significant at 5% level  
** Significant at 10% level

Analysis. In FYR Macedonia, tourist expenditures did not have any significant impact on investment expenditures and not on government expenditures due to a small increase of tourism expenditures during the period of time in the study.

For Albania, tourism expenditures had a significant impact at $p=.1$ on government expenditures, showing that there is some impact on government expenditures. Significantly part of the government expenditures is being utilized for deficit reduction. Given that in Albania tourism expenditures had a significant impact on investment expenditures, the financing for this investment projects must have come from other sources as well, besides government ones. Foreign direct investments have been quite
substantial for Albania during the entire period of the study, besides some investments from private sector. This was the case in Antigua and Barbuda, as studied by Chase (2001).

While for Croatia and Greece tourism expenditures had a significant impact at p=.05 on government expenditures, suggesting that most of the investment projects have been financed by governmental funding and foreign direct investments have been rather minimal. This constituted a different outcome from that being reached by Chase (2001) in Bahamas and Barbados. He argued that in long established tourism destinations, as Greece in this study, once a certain level of government expenditures was reached, additional levels of government spending became inconsequential. But, the current situation in Greece shows that government still needs to support to upgrade tourism facilities for additional tourism demand.

**Import Multipliers**

**Regression Analysis.** The results of the analysis identifying the tourism impact on import expenditures are presented in table 30. Tourism impact on import expenditures was significant for Albania, Croatia and Greece. For FYR of Macedonia, tourism impact was not significant.
Table 30 Import Multiplier across Countries

<table>
<thead>
<tr>
<th>Multipliers</th>
<th>Albania</th>
<th>Croatia</th>
<th>FYR Macedonia</th>
<th>Greece</th>
</tr>
</thead>
<tbody>
<tr>
<td>Import Multiplier</td>
<td>2.954*</td>
<td>2.232*</td>
<td>8.258</td>
<td>2.395*</td>
</tr>
<tr>
<td>Qualitative Comparison</td>
<td>+*</td>
<td>+*</td>
<td>+</td>
<td>+*</td>
</tr>
</tbody>
</table>

* Significant at 5% level

Analysis. Albania’s tourism expenditures had a significant impact on import expenditures. Despite the fast growth of tourism demand, Albania still hasn’t developed some import substitute industries. Therefore, an increase of tourism expenditures did change significantly the rate of import expenditures. The Albanian imports are primarily on equipments, foodstuff and textiles (CIA, 2007c).

Croatia also had a significant impact of tourism expenditures on import expenditures. The tourism demand was not increasing domestically produced goods and services. It was rather contributing to increasing the rate of import expenditures. Croatian imports are primarily on transport and electrical equipments, fuels and foodstuff (CIA, 2007c).

It is expected that Greece, as a long established tourist destination, should have developed some import substitution industries for tourism goods and services. But the analysis showed that tourism expenditures had a significant impact on import expenditures. Greece exports food and beverages, but it does import machinery, transport equipment and fuels (CIA, 2007c). The cost of imported machinery, equipments and,
above all, fuels are large, explaining in this way the significance of tourism impact on imports.

**Implications and Recommendations**

In many areas and countries, governments usually take tourism as a development priority because some economic benefits are expected. Overall, through the economic impact process, tourism is expected to increase employment, increase local business revenues, improve balance of payments by bringing foreign currency, increase tax revenues, enhance community infrastructure and diversify economic base (Table 1).

However, when a country develops the tourism industry, there are significant costs that need to be considered. Major investment projects in tourism infrastructure must be made and the balance of payments is affected negatively accordingly. The investment projects in the countries in this study showed that they enhanced community infrastructure as well, particularly in Albania, thus supporting the research made by Adams & Parmenter, 1995; Ap, Var, & Din, 1991; Borden, Fletcher, & Harris, 1996; Brayley, Var, & Przeclawski, 1991; Fleming & Toeppper, 1990; Long, Perdue, Allen, 1990; Madrigal, 1995; McCool & Martin, 1994; Perdue, Long, & Allen, 1990; Sadler & Archer, 1975; West, 1993; Zhou, Yanagida, Chakroavorty, & Leung, 1997.

But, the infrastructure projects required by tourism contribute to an increase in imports, since they require large imports of construction related goods and services, as in Albania. This is also the case when periodic upgrades of tourism facilities become necessary, resulting in unfavorable changes in balance of payments, as in Albania and Croatia. Depending how these projects will be financed, will determine the impact on
government expenditures. If the country pays for the infrastructure by itself, as Croatia and Greece in this study, then there will be an increase of government expenditures. This increase of government expenditures in response to the growth of tourism industry would imply a decrease of government expenditures for other purposes. If a country is able to attract foreign direct investment to fund some of these mega infrastructure projects, in particular at the initial stage, then they will not have a very significant impact on government expenditures, as it was the case of Albania in this study.

For the balance of payment, for countries newly engaged in developing tourism industry, as Albania, there is an increase in imports. Most of the goods and services are being imported and therefore they are affecting negatively the balance of payments. This was inconsistent with the results generated in other researches (Archer, 1982, 1989, 1995; Archer & Fletcher, 1996; Carey, 1991; Chase, 2001; Drakos & Kutan, 2003; Durbary, 2004; Dwyer & Forsyth, 1998; Frechtling & Horvath, 1999; Fletcher, 1989; Heng & Low, 1990; Hudman & Hawkins, 1989; Milne, 1992; Naryan, 2004; Oh, 2005; Oh & Morzuch, 2005; Sadler & Archer, 1975; Smith, 1995; Sugiyarto, Blake, & Sinclair, 2003 and Vanegas & Croes, 2003).

The other countries in the region, in particular Greece, are tourism destinations established in decades, and it is expected that they might have developed import substitution industries and should have decreased their reliance on imported goods and services. Greece has developed domestic industry for food and beverages and is not reliant on imports for these goods. However, the cost of imported machinery, equipments and, above all, fuels is heavily influencing the balance of payments. The countries in the
study and, more broadly, countries in the west of Balkans are heavily reliant on imported expensive fuels, particularly in the beginning of years 2000 with soaring energy markets. These countries need to embark soon on new strategies for renewable energy sources, since the outcomes of tourism industry may be offset soon by the cost of imported sources. As for the other imported goods and services, as it is the case predominantly in Albania, as tourism continues to increase, domestic industry needs to be promoted and the import substitution industry needs to be developed in order that the reliance on imports falls.

Some recommendations which address the model utilized are as follows:

- The Keynesian Model utilized in this study can be applied in other small countries to assess the tourism impact particularly on investments, government and import expenditures.

- The model can be used to evaluate the impact of different typology of tourism in the national economy, providing in this way a very useful instrument for policy decision-making.

- Especially, for countries that haven’t developed extensive tourism databases, this model, though very basic, it can reveal significant amount of information to set any type of tourism industry.

- If several transformations need to be undertaken to ensure the best fit of the regression model, they need to be consistent among the countries in the analysis in order to guarantee the qualitative comparison of multipliers among countries.
For missing values in time series, linear interpolation method is recommended, by replacing the missing values with the predicted values. For other missing values in series where no trend is shown through years, the mean value ensures approximate value to complete the data set.

**Future Research**

This kind of analysis in this study is a starting point for measuring the economic impacts of tourism in the country. Future research suggestions are as follows:

1. To assess economic impacts of different types of tourism in the country.

This study focused on measuring the impact of total tourism in the country. Further research can be conducted in order to identify the impact of special types of tourism in the economy, such as of heritage tourism, coastal tourism or ecotourism, providing in this way useful instruments for policy and decision-making processes when different alternatives of tourism development are being under discussion.

2. To integrate the research with other tourism impact research disciplines.

This study measured the tourism impact and it is constrained by the lack of conceptual discourse derived from other disciplines than economic ones. Although this study was primarily concerned with the economic impacts of tourism industry, there are important non-economic effects that the industry has on community. The focus on only the economic impacts of tourism appears to be insufficient in assessing the tourism impact on a country. Therefore a future research study might consider quantifying the socio-cultural, psychological and environmental impacts of tourism in one community. Aiming to increase the social welfare of communities through tourism, it requires non-
economic impacts to be assessed and incorporated into the policy making and decision making process.

3. To develop techniques to measure the distribution of tourism impact.

The focus of this study was devoted to identify the tourism impact at country level. Further, it may be useful to focus the research on objective measurements of how the tourism impact is being distributed in communities. This level of analysis would identify if unequal distribution of benefits across segments, and beyond the tourism sectors. By identifying the linkages between tourism and other sectors, implications can be drawn that the tourism industry must be better integrated into the local economy.

4. To forecast tourism demand and to assess its relative impact in tourism planning.

Another growing use of economic impact analysis is to forecast tourism impacts in the future. Such an analysis would provide good information for tourism managers and planners in setting goals and objectives. The effectiveness of promotional campaigns can be assessed and it can be determined whether to focus most of the efforts. Such an analysis would be proven to be highly useful for planning, marketing strategies and policy analysis.

Conclusions

The main purpose of this study was to build a model to assess the economic tourism impact of tourism (direct, indirect and induced impacts) on investment, government and import expenditures in national economies of Albania, Croatia, the FYR of Macedonia and Greece. Tourism impact on investment, government and import
expenditures was not significant for FYR of Macedonia due to the small increase in tourism arrivals and expenditures. Tourism impact on investment was significant in Albania, Croatia and Greece, due to the increasing number of tourism arrivals and tourism expenditures in these countries during the period of time subject of this study.

Tourism impact on government expenditures was significant for Croatia and Greece in response to the rapid growth of tourism demand. Most of the investment projects, such as upgrading of tourism facilities, were being financed by government funding. In Albania, tourism impact on government expenditures was less significant (at p=.1), due to financing of big infrastructure projects through foreign direct investments instead.

Tourism impact on imports was significant for Albania, Croatia and Greece. Albania, in particular as newly established tourism destination, and Croatia, through time need to develop import substitution industries. In Greece such an industry for food and beverages has been developed, there is still reliance on imported goods and services such as machinery and fuels.

The model, though rather basic, provides good cost information for tourism policy decision making by considering leakages from imports, taxes and savings and considering direct, indirect and induced impacts. When a country is deciding to embark on tourism development as a development option, or to expand tourism industry, it must be decided that long term benefits outweigh the estimated costs. An important consideration is the financing of the required investment projects in tourism infrastructure. If foreign direct investment can be found to finance some of these projects,
most of the costs involved can be reduced for the government. While the government can focus its efforts in promoting domestic industry in order to develop import substitution industries to reduce the offset costs from the imported goods and services.


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