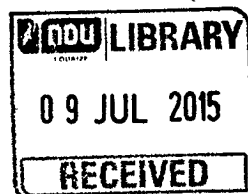# Notre Dame University-Louaize
Faculty of Business Administration & Economics
Graduate Division

Correlation and Causation between Tourism Development and
Economic Growth in Lebanon

Submitted by: Nisrine I. Samara

Supervised by: Dr. Charbel Bassil

**A Thesis Submitted in Partial Fulfillment of the
Requirements for the Degree of the Master of Business
Administration (M.B.A.)**

2014

Approval Certificate

Correlation and Causation between Tourism Development and Economic Growth in Lebanon

BY

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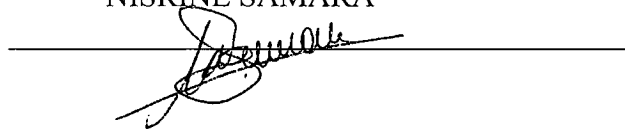Committee Chair Name and Signature: Dr. Roy Khoueiry

DECLARATION

I hereby declare that this thesis is entirely my own work and that it has not been submitted as an exercise for a degree at any other University.

NISRINE SAMARA

ABSTRACT

The purpose of this thesis is to study the direction of the causality between tourism development and economic growth in Lebanon, and to investigate the existence of a long-run relationship between the two variables. In order to reach our objectives, we estimate a Vector Auto Regression model and apply the Granger causality test. Our findings suggest a unidirectional causality running from economic growth to tourism development thus support the Growth Led Tourism hypothesis. They also identify a positive relationship in the short-run between tourism development and economic growth, and the Impulse Response Function reveal a positive relation between them, marked by the positive reaction of either variable in response to a positive shock in the other.

Those findings support the necessity to formulate policies aiming to enhance the tourism sector in Lebanon, as well as programs of action towards economic development. Limitations to this research included the unavailability of data which ruled out the initial choice of variables. The value of this study lies in the originality of its application in Lebanon. Moreover, its results further assert the need to develop the tourism sector and promote the expansion of the economy in Lebanon.

Keywords: *economic growth, tourism development, Granger causality test, Vector Auto Regression model, Impulse response function.*

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CONTENTS

Chapter 1: INTRODUCTION

Over the past few decades, tourism has emerged as one of the leading industries in international economy. Capital inflows created by international tourism turned out to be critical factors in boosting economic growth and global economic connections in several developing countries. In this chapter, we start by presenting a general outlook about the importance of tourism around the world. The importance of our topic will be presented in section two. Then in section three, we set clear objectives to our thesis and we formulate our research questions and hypotheses. Finally, the last section presents a concise overview of all the chapters of the thesis.

1. General Background

According to the World Tourism Organization (2010), due to the ever increasing number of countries investing tremendously in tourism development, tourism has become one of the leading drivers of socio-economic growth. This is achieved through the creation of employment opportunities and new enterprises, the development of infrastructure, as well as tourism earnings. Also according to the World Tourism Organization, the world witnessed a 48-fold increase in global tourism revenues between 1970 and 2009, thus the latter increased from USD 17.9 billion to USD 852 billion. Consequently, the tourism industry's importance as a main driver of economic growth significantly increased as many developing countries have reaped its benefits through tourism revenues and job opportunities.

As for Lebanon, characterized by a service-based economy, tourism was always considered as a major drive force for the Lebanese economy. In fact, it is renowned by its strategic location, moderate climate, as well as its historical and archaeological sites reflecting ancient and modern world history, in addition to the diversity of its winter and summer activities, its distinguished cuisine and famous nightlife. Thus, the potential of this sector to contribute to the growth of the economy is vital, even though the country has been recently shaken by several security incidents and terrorist attacks.

2. Importance of the study

It is well established that the tourism sector is vital for the economy of Lebanon. However, political and security instabilities, high level of uncertainty in the country, poor infrastructure, and negative outlooks by foreign countries caused tourism activities to decline in 2013. Thus, it is important to:

(i) Study the direction of the causality between tourism and economic growth, as a means to ameliorate social conditions and enhance economic growth in Lebanon.

(ii) Find out if there is a long-run relation between tourism development and economic growth.

Thus, this study will fill the gap existing in the literature regarding the causal relationship between economic growth and tourism development in Lebanon.

3. Objectives of the study

The objective of this thesis is to study the contribution of the tourism sector to the performance of the Lebanese economy. In other words, we will study the impact of tourism on economic growth in Lebanon, and also find out if economic growth affects tourism development. Consequently we will try to answer the following research question:

- Is there a bi-directional causality between tourism development and economic growth?

In particular, we are interested in testing the following hypotheses:

- H_0: Tourism development does not cause economic growth in Lebanon.

- H_0: Economic growth does not cause tourism development in Lebanon.

Because of the unstable political situation in the country and the high level of uncertainty, it is uncertain whether a long run relation between tourism development and economic growth exists in Lebanon. Thus, the second question that we will try to answer in the thesis is the following:

- Is there a long run relationship between tourism development and economic growth?

Hence, we are interested in testing the following hypothesis:

- H_0: A long-run equilibrium between tourism development and economic growth in Lebanon exists.

In order to reach our objective and answer our research questions, we will collect secondary data retrieved from the Lebanese Central Administration of Statistics and the Lebanese Central Bank. The main variables that will be needed are the coincident indicator and tourist arrivals excluding Lebanese. Tourism development will be measured by the monthly international tourist arrivals taken in natural logarithm, and economic growth will be measured by the coincident indicator also taken in natural logarithm. The latter is a monthly indicator calculated by the Lebanese Central Bank.

In order to answer our two research questions a Vector Autoregressive (VAR) model or a Vector Error Correction (VEC) model will be estimated. This requires us to test the stationarity of the variables and the presence of a cointegration relation between them. Then, we calculate the Impulse Response Functions (IRF) in order to see the effects of a shock to tourism development on economic growth and vice versa. Moreover, Granger causality test in the short run and the long run will be applied to test the direction of the causality between tourism development and economic growth.

4. Outline for the chapters

This study is organized as follows:

Chapter 1 is an introduction that clears the importance of this thesis, sets its objectives, and clarifies the research questions and hypotheses to be tested.

Chapter 2 provides an overview about previous literature related to the impact of global tourism development on world economic growth as well as the causality existing between the two factors.

Chapter 3 focuses on the tourism sector in Lebanon on one hand, on economic growth in Lebanon on the other, and then shows the contribution of the tourism sector to the real GDP and employment sector in Lebanon.

Chapter 4 develops the chosen methodology, presents the variables and their sources as well as the model and hypotheses.

Chapter 5 shows the empirical results for the research questions and hypotheses tested and provides a discussion of these findings.

Chapter 6 presents a brief conclusion based on the results, a few recommendations and policy implications, and limitations and possible extensions to this study..

Chapter 2: REVIEW OF LITERATURE

In this chapter we present an overview of previous literature associated with tourism development and economic growth. In the first section, we start by studying the tourism sector around the world and its contribution to international GDP, as well as the positive impact of the tourism sector on the economy of various destinations. In the second section, we review the causality between tourism development and economic growth applied to several countries, as demonstrated by previous studies. Then in the third section, we end the chapter with a conclusion.

1. Tourism and economic growth around the world

1.1 Positive contribution of the global tourism sector to world economic growth

Recently tourism has become one of the major drivers of economic growth globally. In fact, according to Helpman and Krugman (1985), the quick expansion of international tourism would lead to an increase in domestic income because of the improvement of competencies due to the escalating competition between important tourist destinations. Furthermore, according to Blackman (1991), the development of the tourism industry in a specific country would lead to an increase in the number of imports, as well as the number of employment opportunities. Tourism would also encourage the development of a country's infrastructure, plus to convey innovative management and technological skills to the economy, and thus contribute to the expansion of economic growth.

Furthermore, according to the World Trade and Tourism Council (WTTC), the assessment of the global performance of Travel & Tourism (hereafter T&T) with regards to international GDP showed that the quickest growing region in 2012 was South-East Asia, where T&T's contribution to total GDP reached a growth rate of 7.3%. In contrast, even though Europe has achieved a positive growth of 0.4% in terms of T&T's contribution to total GDP in 2012, it still occupies the last position among all the regions. This can be explained by the economic instability that many European countries faced in 2012, which may have affected the tourism sector in these countries.

Still, despite the economic instability faced by many important touristic destinations such as Greece and Cyprus, T&T's direct and total contribution in global GDP, and its creation of new employment opportunities remained strong. In fact, the WTTC distinguishes between direct and total contribution to GDP, as well as direct and total contribution to employment. On the one hand, the direct contribution of T&T to GDP comprises all spending directly related to T&T activities, including those generated by residents and non-residents, and government expenditures. All services that directly deal with tourists are included in this direct contribution, such as hotels, leisure activities, airports, airlines and travel agents. On the other hand, the total contribution of T&T to total GDP comprises its broader effects, including spending on investments such as the acquisition of a new aircraft, government communal expenditures such as marketing for tourism purposes, security and restoration, and local acquisition of commodities and services related to the tourism sector such as spending in catering services and cleaning in hotels.

As per the WTTC annual report for year 2012, T&T directly contributed to 2.9% of global GDP, which represents the equivalent of more than USD 2 billion, and this proportion is expected to increase by 3.1% by the end of 2013, and by 4.4% from 2013 to 2023.

In addition, T&T totally contributed to 9.3% of global GDP in 2012, which represents the equivalent of more than USD 6.5 billion, and this proportion is expected to increase by 3.2% by the end of 2013, and by 4.4% from 2013 to 2023.

The WTTC also applies the same distinctions between the direct and total contribution of T&T to the creation of new jobs. While its direct contribution includes jobs generated by services and activities directly related to and sustained by tourists, such as jobs provided by hotels, airports, airlines, travel agents as well as leisure activities, its total contribution includes its broader effects, ranging from jobs created following investment opportunities to government communal expenditures, to local acquisition of commodities and services related to the tourism sector.

As per the WTTC annual report for year 2012, T&T directly contributed to 3.4% of global employment, which represent the equivalent of more than 101 million

jobs, and this proportion is expected to increase by 1.2% by the end of 2013 and by 2.0% in 2023, to reach more than 125 million jobs.

In addition, T&T totally contributed to 8.7% of global employment in 2012, which represents the equivalent of more than 261 million jobs, and this proportion is expected to increase by 1.7% by the end of 2013, and by 2.4% by 2023, to reach more than 337 million jobs.

Similarly, investment in T&T constituted 4.7% of global investment in 2012, which represents the equivalent of more than USD 764 billion, and this proportion is expected to increase by 4.2% by the end of 2013 and by 5.3% in 2023, to reach more than USD 1.3 billion.

Furthermore, the many benefits achieved through tourism activities are universally recognized, and many countries around the world adopt tourism as an effective economic development tool. The World Tourism Organization (UNWTO) headquartered in Spain, holds high the role of tourism not only in economic development, but also in promoting peace, acceptance, tolerance and freedom among countries and civilizations. In fact, the UNWTO not only believes tourism to be a major driver for economic growth, but also for environmental sustainability and poverty alleviation. That's why it aims to promote sustainable tourism development, a larger contribution of tourism to poverty reduction, as well as knowledge, education and building partnerships. Consequently, it supports greatly the importance of the tourism industry especially in developing countries.[1]

Tourism also has a "spill-over" effect into the economy in general, because tourism expenditures indirectly benefit the transportation, food and beverage, retail and employment sectors. This effect is particularly favorable to countries coping with many economic difficulties, such as developing countries. Typical setbacks faced by these countries include high growth of population, increased rates of unemployment, increased trade deficits, high social and economic inequalities, and high reliance on developed countries. Consequently, the development of the tourism sector for these countries would aim to generate more income, boost tax and foreign exchange earnings, create employment opportunities, and reduce trade deficit.

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[1] http://www2.unwto.org/

This positive spill-over effect can be counterbalanced with a negative spill-over effect. For instance, violence in one country can have a damaging effect on the tourism sector, which is likely to extend to neighboring countries, because tourist destinations are often coupled according to Neumayer (2004). Furthermore, other neighboring countries can benefit from a substitution effect, provided that they are not directly affected by the violence. This is shown by Mansfeld (1996) who demonstrates the benefits in the tourism sector reaped by Cyprus, Greece and Turkey due to the conflict in the same region, in Egypt, Israel, Syria, Lebanon and Jordan. In fact, he identifies an inner-ring formed by Israel, Lebanon, Egypt, Jordan and Syria, and an outer-ring, formed by the more stable Cyprus, Greece and Turkey. The study shows a shift in tourists' behavior looking for a Middle-Eastern destination, who would rather visit the more stable outer-ring rather than the insecure inner-ring.

In addition, several authors have stressed on the importance of tourism in contributing to economic growth. For instance, Wall and Mathieson (2006) confirm that an increase in exports would significantly contribute to continuous economic growth. A conversion from an agricultural to an industrial economy in developing countries is primordial to increase the number of exports, and doing so necessitates large amounts of capital and external earnings. Accordingly, governments are starting to give more significance to the tourism sector in developing countries, as a source of financial revenues essential to economic growth and development. The same authors also argue that tourism significantly contributes to the national balance of payments through revenues and foreign currency earnings directly generated from tourism revenues and also through taxes.

This has also been demonstrated by the UNWTO (2001) which agrees on the fact that new capital injections from tourists expenditures is the main driver behind the positive impacts of tourism on the economy. According to this international organization, such impacts include earnings from foreign exchange, increase in government revenues, creation of job opportunities, and encouragement of regional growth.

In the same perspective, Sebastian and Pajagopalan (2009) find that tourism raises employment opportunities in a given economy, and Inbakaran and Jackson (2006) demonstrate that the development of the tourism sector brings about new

investments to the host country, as for the case of the region of Victoria in Australia, where the development of the tourism sector had attracted new regional investments. Furthermore, while studying the tourism industry in Jamaica, Chase and McKee (2003) demonstrate that tourism revenues have contributed in attracting considerable investments aiming for the development of infrastructure necessary for the maintenance and attraction of international tourists, and also for the benefit of the local community.

Moreover, tourism contributes positively to the economy by means of creation of income and employment opportunities, especially for the local population. For instance, Pandey (2006) shows an increase in local earnings in some rural regions in India as a result of the exploitation of the tourism sector, through the supply of food, transportation and accommodation to international tourists, even though this was at the detriment of a few conventional agricultural activities.

Additionally, Cukier (2002) finds a positive correlation between tourism development and the creation of employment and income, even though in developing countries, most managerial positions are occupied by expatriates and the rest is occupied by local semi-skilled or even unskilled employees.

In contrast, few criticisms emerged regarding the importance of tourism in economic growth. For instance, Torres and Momsen (2005) claim that tourism development will drive the host country to becoming more reliant on tourists and foreign imports to the detriment of the local agricultural and industrial sectors. Consequently, the economy in the host country will be more dependent on external sources of growth.

1.2 Future outlook of world tourism's impact on economic growth

Forecasts for international GDP growth for 2014 have been downgraded by Oxford Economics, due to the recent uncertainties in the USA, and a reevaluation of the Chinese economy. Consequently, global GDP is expected to grow by 2.8% in 2014. Furthermore, the forecasts were also brought down for the T&T industry, mainly due to currency devaluations in developing economies, which are predicted to have positive effects on incoming but negative effects on outgoing tourists. Developing countries are still expected to achieve the highest growth related to T&T's

contribution to GDP, while European countries are still expected to achieve the slowest growth. On the longer term, however, China is expected to outperform the USA' T&T contribution to GDP over the next decade, stimulated by its growing expenditures in the T&T sector. Nevertheless, the USA will still outperform China with regards to the number of tourist arrivals.

2. Causality between tourism development and economic growth around the world

Several studies have attempted to demonstrate the causality that exists between tourism and economic growth. In fact, this causal relationship can be justified by either the Tourism-Led Growth Hypothesis (hereafter TLGH), which states that tourism is a main booster for economic growth, or the Growth-Led Tourism Hypothesis which states that an increase in economic growth in the host country would enhance the development of tourism services or products that would benefit the overall tourism sector, and therefore, attract more tourists to the host country.

According to Brida and Pulina (2010), who further investigate the TLGH and aim to prove its existence for a broad array of countries, the TLGH was drawn from the Export-Led Growth Hypothesis (hypothesis ELGH), which mainly states that expansion of the economy can be achieved not only by raising the quantity of capital and labor, but also by increasing exports. The TLGH analyses the short and the long run relationship between tourism and economic growth, and the Granger causality test allows testing the bi-directional relationship between the two factors.

2.1 Tourism-Led Growth Hypothesis and unidirectional causality running from tourism to economic growth

The majority of studies have proven that a unidirectional causality exists from tourism to economic growth. For instance, Balaguer and Cantavella-Jorda (2002) studied the impact of tourism on economic growth in Spain by using Johansen's co-integration methodology and Granger causality test. They included variables such as gross domestic product, exchange rate and tourism revenues on a quarterly basis from year 1975 to 1997, and concluded that a unidirectional causality exists from tourism

to economic growth in Spain, and that a long run stable relationship is present between the two variables.

In addition, Arslanturk and Atan (2012) attempt to study the relation between tourism revenues, economic growth and foreign exchange for the case of Turkey, by using Johansen's co-integration technique and Granger's causality test. The dependent variable used was the GDP as a measurement of economic growth and the independent variables used were tourism revenues and foreign exchange rate, using the value of the Turkish Lira against the US Dollar. Results have shown that while tourism positively affects the GDP and in consequence favors economic growth, foreign exchange rate has a negative impact on GDP in Turkey. The Granger causality test showed the presence of a unidirectional relationship ranging from tourism revenues to economic growth, which further supports the TLGH.

Similarly, Brida and Risso (2009) collected annual data from year 1988 to 2008, and also used the Johansen co-integration test followed by a Granger causality test, and studied variables such as real GDP, real exchange rate, and tourism expenditures. By studying GDP's response to a shock in tourism outflows, they find a short term decrease followed by a sustained increase in real GDP. The results have shown that an increase of 100% in tourism outflows increases real GDP by 80%. After performing the Granger causality test, they conclude that tourism has a unidirectional positive effect on economic growth in Chile, thus the TLGH is confirmed.

In the same way, Brida, Carrera and Risso (2008) confirmed that a unidirectional causality exists between tourism and economic growth in Mexico, by applying the same above methodology and variables. They also find that an increase of 100% in tourism outflows increases real GDP by 70%, and thus, the TLGH is held in Mexico.

In addition, Kibara, Odhiambo, and Njuguna (2012) studied a trivariate model using an ARDL-bounds testing methodology including variables such as the natural logarithm of international tourist arrivals, of real GDP per capita, and of real trade volume in Kenya. They find that the TLGH is valid and that a long-run relationship between tourism and economic growth in Kenya exists. Their findings also showed

the presence of a unidirectional causal relationship running from tourism development to economic growth, both in the short and long run.

In a wider perspective, Titan, Ghita and Todose (2010) developed a multiple regression model in order to study the impact of tourism on economic growth in Europe, using data derived from 24 European countries in reference to year 2006. Their model included the real GDP per capita as a dependent variable, international tourist arrivals, Economic Freedom Index, gross fixed capital formation, secondary and tertiary school enrollment, and household consumption expenditures as independent variables. They find a strong correlation between real GDP per capita as a measure for economic growth, and household consumption expenditures, however the relation is negative between the Index of Economic Freedom and income per capita. Also, the results of this study show a positive relation between investing in human capital and income per capita levels, as well as a positive relation between tourism receipts and GDP per capita. Thus, the authors concluded that the expenditures by international tourists have a positive effect on the economic growth of European countries.

Another study for four European countries also supported tourism development as a major factor in economic growth. In fact, Proenca and Soukiakis (2008) studied tourism as a major cause for ameliorating the living conditions of the population in the host countries. Using panel data techniques, and joining time-series and cross-sectional figures from year 1990 to 2004, related to Greece, Italy, Spain and Portugal, they find that tourism, among other determinants such as the growth of the population and the accumulation of capital, participated in favoring economic growth. They also concluded that living conditions have also considerably improved, as each increase of 1% in global tourism revenues leads to an increase of approximately 0.026 of purchasing power in per capital income in the four studied countries. Consequently, the authors supported the TLGH.

2.2 Absence of causality between tourism development and economic growth

In contrast, other studies have found no causality whatsoever between tourism and economic growth. For instance, Ekanayake and Long (2012) tested the causality between tourism and economic growth for developing countries, using annual data

from year 1995 to 2009, for a model of 140 developing countries. The variables included real GDP, real gross fixed capital formation, labor force, and real international tourist arrivals. They don't find any support to the TLGH; neither do they find causality between the studied variables. They conclude by stating that even though there is no statistical significance for the elasticity of tourism revenues with regard to real GDP, these revenues have a positive impact on the growth rate of the economy in developing countries.

Moreover, Arslanturk, Balcilar, and Ozdemir (2011) tested the causality between tourism revenues and GDP in Turkey between years 1963 and 2006. The Granger causality test based on a Vector Error Correction Model showed no causality between the tested variables, and thus no support to the TLGH nor to its opposite.

Furthermore, Aslan (2013) studied the causal relationship between tourism development and economic growth in several Mediterranean countries using annual data from 1995 to 2010. The variables used were real GDP as a measure of economic growth and tourism revenues as a measure of tourism development. The study finds a bi-directional causality for the case of Portugal, and a unidirectional causality ranging from economic growth to tourism development for the case of Tunisia, Bulgaria, Greece, Italy, Croatia, Cyprus and Spain. However, it also finds no causality whatsoever between tourism development and economic growth for the case of Egypt and Malta.

2.3 Growth-Led Tourism Hypothesis and unidirectional causality from economic growth to tourism

Other studies support a "Growth-Led Tourism Hypothesis". This hypothesis is proved when a unidirectional causality goes from economic growth to tourism development. In the same perspective, Oh (2005) investigated the causal relationship between tourism and economic growth in Korea, by using a bivariate Vector Autoregressive model (VAR), a Granger two-stage approach, and quarterly data from year 1975 to 2001. The variables adopted in this model were the real tourism revenues adjusted by the consumer price index, the latter is a proxy for tourism growth, and real GDP. Oh (2005) finds that there is no co-integration between tourism and economic growth in Korea, and the Granger causality test did not find any evidence to

the TLGH, but found that a unidirectional causality runs from economic growth to tourism expansion. Thus he found support for the Growth-Led Tourism Hypothesis. The author concluded that the quick economic growth in Korea is likely to draw more tourists and therefore help to expand the tourism sector.

As for the United States, Tang and Jang (2008) study the relationship that exists between tourism and GDP, using the Johansen co-integration methodology and the Granger causality test. On one hand, they include four major industries related to tourism, namely casinos, restaurants, hotels and airlines. On the other hand, they also considered seasonally unadjusted GDP in the US for a time span of 25 years, with quarterly figures ranging from year 1981 to 2005. The results from the Johansen co-integration test showed that there is no long-run relationship between the studied tourism industries and economic growth in the US, except for the airline industry which only presented a weak co-integration relation with GDP. The Granger causality test showed a unidirectional causality running from GDP to the growth of the studied tourism-related industries. Consequently, the authors do not support the TLGH for the US, and they recommend improving the overall economic situation as well as the offered goods and services as a way to attract more tourists. More specifically, allocating more resources to the hotel and airline industries is crucial for ameliorating the tourism sector in the United States.

Furthermore, Jimenez, Nowak and Sahli (2011) applied the Johansen co-integration technique and a multivariate Granger causality test to study the relationship between tourism and economic growth in Tunisia. They used annual data from year 1975 to 2007 and studied variables such as real GDP, real tourist arrivals and real imports of industrial machines, all transformed into natural logarithms. The co-integration test showed that there is a long-run relationship between the variables, and the Granger causality test demonstrated that there is no significant relationship between tourism and economic growth in Tunisia, but that a long-run unidirectional causality runs from economic growth to tourism revenues. Thus, the authors do not support the TLGH, but its opposite, the Growth-Led Tourism Hypothesis, as economic growth over the studied period has contributed to increasing revenues from the tourism sector.

2.4 Bi-directional causality between tourism development and economic growth

Alternatively, some studies have found a bidirectional causality running from tourism to economic growth, and from economic growth to tourism. For instance, Kim, Chen and Jang (2005) applied the co-integration approach followed by a Granger causality test in order to study the causality between tourism and economic growth in Taiwan. They used quarterly data from year 1971 to 2003 including the natural logarithm of total tourist arrivals and of real GDP. They find that a bi-directional causality exists between tourism and economic growth, and a long-run relationship between the two variables is present. Consequently, they recommend that the government allocate resources not only to the tourism sector as a means to enhance the economy, but also to other equally important industries as a measure to improve the tourism sector.

Moreover, Lee and Chang (2007) apply the heterogeneous panel co-integration technique in order to study the causal relationship between tourism and economic growth for OECD and non-OECD[2] countries. Using annual data from year 1990 to 2002, and variables such as real receipts per capita, number of tourists per capita, growth of tourism demand, world market share, percent of GDP and percent of employment, they test the causal and long-run relationship between tourism and economic growth in a panel of 23 OECD and 32 non-OECD countries and conclude that a co-integration relation exists in both OECD and non-OECD countries. They also find that the causal relationship is unidirectional, running from tourism to economic growth in the case of OECD countries, but bi-directional in the case of non-OECD countries. Thus, the authors recommended that all governments focus on the expansion of the tourism industry in their respective countries.

In addition, Kadir and Abd Karim (2012) investigate the causal relationship between tourism and economic growth in Malaysia by employing panel time-series methodology. They included data such as GDP growth and tourist arrivals from

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[2] The non-OECD countries include 5 Asian, 11 Latin American and 16 Sub-Sahara African countries.

ASEAN[3] countries, ranging from year 1998 to 2005. Using the panel co-integration test, they find that both a short-run and a long-run relationship exist between tourist arrivals and economic growth. They recommend that the government in Malaysia give support to the tourism sector as a means to enhance economic growth, and also build up tourism infrastructure in order to further improve the tourism sector. Furthermore, the Granger causality test showed the existence of a bi-directional causality between tourist arrivals and economic growth, and thus confirmed both the TLGH and its opposite.

3. Conclusion

In conclusion, we have found mixed results pertaining to the nature of the causality between tourism development and economic growth. While some found a positive correlation between tourism and economic growth, such as Titan, Ghita and Todose (2010) for the case of European countries, others found support for the TLGH and a unidirectional causality running from tourism to economic growth, such as Balaguer and Cantavella-Jorda (2002) for the case of Spain, Brida and Risso (2009) for the case of Chile, Proenca and Soukiakis (2009) for the case of Greece, Italy, Spain and Portugal, Arslanturk and Atan (2012) for the case of Turkey, Brida, Carrera and Risso (2008) for the case of Mexico, Kibara, Odhiambo and Njuguna (2012) for the case of Kenya, and Lee and Chang (2007) for the case of OECD countries. While others found no causality whatsoever between the two studied variables, such as Ekanayake and Long (2012) for the case of developing countries, Arslanturk, Balcilar, and Ozdemir for the case of Turkey, and Aslan (2013) for the case of Egypt and Malta, some authors found support to the Growth-Led Tourism Hypothesis and a unidirectional causality running from economic growth to tourism, such as Oh (2005) for the case of Korea, Tang and Jang (2008) for the case of the United States, Jimenez, Nowak and Sahli (2001) for the case of Tunisia, and Aslan (2013) for the case of Tunisia, Bulgaria, Greece, Italy, Croatia, Cyprus and Spain Furthermore, a bi-directional causality between tourism and economic growth was proved by other authors, such as Kim, Chen and Jang (2005) for the case of Taiwan, Kadir and Abd Karim (2012) for the case of Malaysia, Lee and Chang (2007) for the case of non-OECD countries, and Aslan (2013) for the case of Portugal.

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[3] ASEAN countries included Brunei, Indonesia, Philippines, Singapore, Thailand, Vietnam and other ASEAN countries.

To sum up, we have found mixed results regarding the causal relationship that exists between tourism and economic growth. Consequently, it seems difficult to have a clear opinion pertaining to the true relationship that exists between these two variables that may also vary from one country to another.

We will attempt to discover the true causal relationship between tourism and economic growth in Lebanon, by studying variables from year 1995 to 2012. Thus, the importance of our study remains in proving that tourism indeed favors economic growth, and in consequence, the importance to invest in industries that will boost the tourism sector in Lebanon.

Before tackling our methodology, we present in what follows the Travel & Tourism sector in Lebanon, the status of economic growth in Lebanon, as well as the share that Travel & Tourism occupies in Lebanon's GDP and employment growth rates.

Chapter 3: TOURISM AND ECONOMIC GROWTH IN LEBANON

Tourism has always occupied a significant part of GDP in Lebanon and the development of the tourism sector is crucial for maintaining a stable and positive economic growth. However, the tourism sector in Lebanon has recently suffered from the consequences of the regional and political turmoil. In this chapter we start by presenting the recent status of the tourism sector in Lebanon, including the activity of the Beirut International Airport (BIA) as well as international tourist arrivals, tourist expenditures and the hotel sector performance. Then in the second section, we examine economic growth in Lebanon starting with the civil war of 1975-1990 and ending with the recent status of the Lebanese economy, in order to prove that it indeed needs the boost that tourism development can ensure. In section three, we highlight the share that T&T occupies in GDP and in employment, as well as the place that Lebanon occupies in the tourism front compared to most if not all other world countries. Finally in the fourth section, we end the chapter with a conclusion.

1. Travel & Tourism sector in Lebanon

1.1 The Beirut International Airport activity[4]

The Beirut International Airport witnessed a year-on-year increase of 22% in total passengers in 2009, including 2.49 million arrivals and 2.46 million departures. This increase continued at a slower pace throughout 2010 to 2012. In fact, total number of passengers increased by 11% in 2010, to attain 5.56 million passengers. Conversely, total number of passengers slightly increased by 2% in 2011, to attain 5.65 million arrivals. Furthermore, this number recorded a more solid growth in 2012, as the number of passengers in the BIA increased by 5% to reach a total of 5.91 million passengers, including 2.89 million arrivals and 3.02 million departures.

As for the first six months of year 2013, the BIA received 2.97 million passengers, including 1.51 million arrivals and 1.45 million departures. It is worth mentioning that during this period, the number of arrivals exceeded the number of departures, and that both arrivals and departures exceeded those of last year during the same period. Moving on to the third quarter of 2013, the number of departures, which increased by 8.5%, exceeded the number of arrivals, which increased by 6%. Table 1

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[4] www.beirutairport.gov.lb

in the appendix shows that these proportions are greater than those of the third quarter for year 2012.

1.2 International tourist arrivals to Lebanon[5]

While the previous subsection deals with overall passenger at the BIA, we present in what follows an overview of tourist arrivals to Lebanon over the last few years. First, year 2009 witnessed an increase of 39% in tourist arrivals, reaching a number of 1.85 million tourists, compared to 1.33 million tourists in 2008. This increase continued throughout year 2010, but at a slower pace, when tourist arrivals grew by 17% to reach 2.17 million tourists. Conversely, this number registered a negative growth in years 2011 and 2012. In fact, tourist arrivals decreased by 24% to attain 1.66 million tourists in 2011, and further decreased by 17% to attain 1.37 million tourists in 2012. These numbers are summarized in figure 1 in the appendix. This falling trend is attributed to the following factors: first, the latest Syrian civil war which resulted in an obstruction of pathways for Arab visitors crossing over from Syria to Lebanon. Second, the recent terrorist attacks and security issues inside the country, which resulted in foreign sensitivity towards traveling to the Middle East, and particularly to Lebanon. Thus, the weakening of the tourism sector in Lebanon was not only a result of its internal political unrest and security concerns, but also a result of troubles and security issues faced by the whole region.

As for the first half of year 2013, the tourism sector was negatively affected by the local and regional security concerns and issues. Thus, the number of tourist arrivals to Lebanon decreased by 12.6% compared to the same period last year, and reached about 624,000 tourists. Moving on to the third quarter of 2013, which further blatantly exposes the negative effects of the Arab crises on the tourism sector, the number of tourists attained a total of 977,380, as shown in figure 1 in the appendix, constituting its lowest point since year 2008, and receding by 10% compared to the same quarter of the previous year. This drop is mainly caused by a major decrease in Arab tourist arrivals, which typically represent more than 40% of total arrivals to Lebanon. In fact, this number reached a total of 299,756 arrivals, constituting its lowest level in the past 10 years over the same cycle. Those Arab tourists were warned by their governments against the present security troubles, as well as the

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[5] www.mot.gov.lb

unsafe travel by land passing by the Syrian territories, amid the current civil war in Syria. As for the future expectations regarding the number of international tourist arrivals to Lebanon in 2023, the WTTC predicts this number will reach 1,815,000.

1.3 Tourist expenditures[6]

As the number of tourist inflows increased throughout 2008 to 2010, spending by tourists also recorded on average a growth rate of 27% per year, starting USD 1,326 million during 2008 to reach USD 2,129 million in year 2010. Consequently tourist expenditures which constituted 4.4% of total GDP in 2008, increased to 5.7% of GDP in 2009. Nevertheless, the internal and regional instability in 2011 drove tourist expenditures to decrease by 5.8%, reaching USD 2,004 million, and constituting 5% of GDP, a lower range than the previous year. Further in 2012, when country and regional situations deteriorated, tourists spending also further decreased by 7.2%, reaching a total of USD 1,680 million, and constituting an even lower 4.5% share of GDP.

1.4 Hotel industry performance

As the GDP for a certain economy comprises all final goods and services produced within a country in a certain given period, better hotels performance can contribute to a better GDP. We inspect hotels performance by examining hotel occupancy rates over the last few years. There was a 73% increase in hotel occupancy rates from 2008 to 2009, resulting from the stable political and security environment that encouraged larger numbers of tourist arrivals to Lebanon, which had the effect of a higher rate of hotel occupancy. Then again, those rates have declined starting year 2010 to reach 68%, and decreased even more in year 2011 to reach 57%. Due to the shaky security situation that the country faced in 2012, hotel occupancy rates further declined to 54%, constituting their lowest point since year 2007. Figure 2 in the appendix shows hotel occupancy rates evolution starting year 2008 until year 2012.

Moving on to the performance of the hotel sector over the first nine months of 2013, residence rates in four and five stars hotels have dropped by 12% compared to the same period at the previous year, to reach a proportion of 34%.[7]

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[6] http://www.economy.gov.lb/index.php/subCatInfo/2/18/5/1
 http://www.worldbank.org

2. Economic Growth in Lebanon

2.1 History of the Lebanese Economy

The Lebanese economy is characterized by its competitiveness and its free-market system. It is a service-oriented economy, with its major drivers being the banking and tourism sectors. Before the Lebanese civil war which extended from 1975 until 1990, Lebanon enjoyed wealth and prosperity, with affluent banking, tourism and agriculture sectors. It was widely considered as the banking capital of the Arab world and named the "Switzerland of the Middle East". In addition, Lebanon attracted wide numbers of tourists and as a consequence was named the "Paris of the Middle East". The 15-year civil war damaged most of Lebanon's infrastructure and major cities and had a terrible effect on the tourism sector. Following the end of the war, extensive efforts were undertaken in order to rebuild the destroyed infrastructure and to revive the Lebanese economy, as well as to reposition Lebanon as an important tourist destination and banking hub in the Middle East. Such efforts included building a strong banking system, increasing exports of manufacturing and agricultural products, aided by some international financial support. Consequently, from year 1992 to 1999, inflation rates dropped from 100% to 0.241%, as shown in table 2. The Lebanese Pound stabilized, and more capital inflows to the country produced excess foreign payments. The reconstruction of Beirut was managed by Solidere, and many international banking and insurance firms returned to the country. However, funding this reconstruction was difficult for the Lebanese government, as it had to increase its borrowings and use its foreign exchange reserves. That's why the government has always had the objective to reduce its budget deficit. Still, Lebanon enjoyed a stable economy and a growing tourism activity following the end of the civil war.

A relatively acceptable degree of stability was reached at the beginning of year 2006, with a few setbacks such as the political and security instabilities faced by the country in the previous years. Still, the capital Beirut was nearly completely reconstructed, and a rising number of tourists were flowing to Lebanese hotels and resorts. Nevertheless, the 2006 Lebanese war that lasted for nearly an entire month caused many military and civilian casualties, as well as tremendous damages to infrastructure, considerable displacement of population and entirely ceased tourists

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[7] Ernst & Young, Bank Audit Lebanon Economic Report, 3rd quarter 2013

inflows to the country. Following the end of the war that lasted from July 12th until August 14th of the year 2006, the Lebanese government organized recovery plans aiming to reconstruct houses and properties partly or even entirely destroyed by Israeli assaults on Beirut and other Southern villages in Lebanon. It also received much financial assistance from many supporting countries.

Moreover, following many breechings in Lebanon's security, the Central Bank of Lebanon imposed strict regulations on local banks in order to protect the economic system against any instability on the political or security level. As a result of these regulations, Lebanon was left unharmed during the world financial crisis which extended from 2007 to 2010, and banks are still until this day, highly liquid and secure. The Central Bank also played a major part in maintaining the stability of the Lebanese Pound and low rates of inflation.

2.2 Recent status of the Lebanese economy

As for the recent status of the economy in Lebanon, as year 2012 was characterized by an unstable political, social and economic environment, and as Lebanon had to suffer from the negative effects of the regional crises such as the War in Syria, capital inflows reached USD 15.26 billion, increasing from USD 13.90 billion at the end of 2011. Still, this amount is significantly lower than the previous years, as year 2010 attracted USD 17.04 billion of capital inflows, and year 2009 attracted a significantly larger amount of USD 20.66 billion.

Moreover, the balance of payments remained on the negative side with a deficit of USD 1.54 billion at the end of year 2012, compared to a deficit of USD 2.0 billion at the end of the previous year. In addition, Foreign Direct Investments (FDI) decreased at the end of year 2012 to USD 2.3 billion, compared to USD 3.4 billion at the end of 2011. The majority of economic sectors in Lebanon suffered from the negative consequences of the local and regional turmoil, especially the exports sector which was severely affected by the tensions around the Lebanese-Syrian borders. Consequently, exports decreased by 16.4% in 2012 to reach USD 2,952 million at the end of the year, compared to a small increase in 2011 and a considerable increase in 2010. This decrease in exports activity has also resulted in an increase in Lebanon's trade deficit to reach USD 16.80 billion, up from a deficit of USD 15.80 billion in

2011. However, the government managed to decrease Lebanon's debt-to-GDP ratio, reaching 128% at the end of 2012, compared to 129% in 2011, 134% in 2010, and a significantly higher ratio of 180% in 2006. Still, the government's public debt increased in 2012 by 7.52% year-on-year to reach USD 57.69 billion at the end of December. The government's essential financing source remained borrowings from local banks, in an effort to ease the budget deficit. On a brighter side, banks remained immune to the local and regional tensions, despite the drop in the net consolidated profits of Lebanese banks operating in Syria. In fact, during 2012, customer deposits and loans increased, liquidity levels remained high, and confidence in the Lebanese Pound remained strong.

As for the most recent status of the Lebanese economy, the latest figures go back to the end of the third quarter of 2013. This period was marked by a 2.6% increase in the Central Bank of Lebanon's coincident indicator. This percentage is similar to the previous year, but much lower than its increase in the previous 3 years of economic expansion. In addition, the balance of payments remained on the negative side with exports decreasing by 4.1% and imports decreasing by 0.8%. It is worth noting that this deficit was not entirely covered by financial inflows, even though they showed a yearly increase of 11.7%. Furthermore, the public finance deficit increased by 76% from the same period last year, to reach USD 2.622 million. This increase was mainly fueled by a decrease of 2.1% in revenues, and an increase of 12.3% in expenditures. This deficit also had as a consequence an increase in public debt, reaching USD 62.4 billion at the end of September 2013, constituting 145.3% of GDP, compared to a share of 137.5% of GDP at the end of September 2012.

On the banking front, growth remained on the positive side, accompanied by an increase in loans and customer deposits, as well as an increase of 4.9% in net profits to reach USD 1,256 million at the end of September 2013. As for GDP growth forecasts, the IMF stated that growth is still on the positive side, even though it reached a modest figure of 1.5%. The reason why the country is averting economic recession is essentially due to the increase in spending by Syrian refugees, the increase in subsidized interest on loans, and the shift from land export through the Syrian borders to the port of Beirut. This resilience is also marked by the inflation level of 4% as forecasted by the Central Bank.

Finally, even though the economy is standing relatively strong facing the local and regional instabilities, it is still in need of a boost that could be enhanced by the tourism sector. The following examines the share that tourism occupies in major indicators of economic growth, such as GDP and employment.

3. Contribution of T&T in GDP and employment in Lebanon

3.1 Share of T&T in GDP

Real GDP growth is often used to assess the real economic situation of a given country as it is adjusted for inflation. In the case of Lebanon, right before the end of the civil war, amid the shaky security and bad economic conditions that the country faced, real growth rate of GDP achieved negative growth levels to reach -42.45% in 1989. Then, following the end of the 15-year-old civil war that was detrimental to the country's economy and infrastructure, real GDP growth rate jumped to positive levels to reach 26.53% growth rate in 1990. Lebanon continued its economic recovery in 1991 as real growth rate of GDP reached an even higher proportion of 38.2% growth over the previous year. Then, from 1992 up until 2004, real GDP growth rate achieved more stable levels, reaching a low of -2.29% in 1997 and a high of 8% in 1994. However, because of the worsening political situation and the assassinations of several political figures after year 2004, real GDP growth rate started to decline to reach its lowest rate since the beginning of the 2000's in year 2006, due to the Israel War on Lebanon in July of the same year. Still, it is worth mentioning that in the midst of the political instability and worsening security problems, real GDP continued to achieve positive growth rates, reaching in the 2000's a high of 9.27% in 2008 and a low of 0.6% in 2006. The evolution of real GDP growth rate in Lebanon starting year 1990 up to year 2012 can be examined in table 3 in the appendix.

Tourism has always been one of the main pillars of the Lebanese economy and it has a noteworthy effect on GDP. It can also attract new investments that will boost and enhance economic growth. In fact, year 2010 marked an increase of 21.7% from the previous year in T&T's contribution to GDP, reaching USD 10,690 million, representing a direct contribution of USD 4,045 million, and an indirect contribution of USD 6,646 million. Overall, the T&T sector constituted 29% of total GDP in 2010.

Conversely, this increase was overturned in 2011 which registered a decrease of 0.7% in T&T's contribution to GDP, reaching a total of USD 10,614 million. Even though year 2011 registered an increase of 0.48% in indirect contribution, this proportion was counterbalanced by a decrease of -2.7% in direct contribution to GDP. Overall, the T&T sector constituted 27% of total GDP in 2011, marking a decrease of 2 percentage points from the previous year.

Moving on to year 2012, T&T's direct contribution to GDP was USD 4,122 million, which constitute around 9.3% of total GDP. The WTTC expects this proportion to increase by 1.8% in 2013, and by 5.8% per year from 2013 to 2023, to reach around USD 7,372 million in 2023. As for the total contribution of T&T to GDP in Lebanon, T&T constituted USD 11,138 million of total GDP, which constitutes around 25% of GDP, marking a further decrease from the previous year by 2 percentage points. Figure 3 in the appendix shows the total contribution of T&T to GDP compared to neighboring countries and to the world average. This proportion is expected to increase by 2.3% in 2013, and by 6.1% per year from 2013 to 2023, to reach around USD 20,508 million in 2023.

3.2 Share of T&T in employment

Unemployment has always been a major issue for the Lebanese population. During the last five years, unemployment has reached a low of 8.6% of total labor force in 2010, and a high of 10.3% of total labor force in 2012, as shown in figure 4 in the appendix.

T&T also has a significant contribution to employment in Lebanon. In fact, year 2008 witnessed a decrease of 5.4% in the number of employees working in the T&T sector, while this number increased by 9.5% in 2009 from the previous year, reaching 314,000 employees. This number also increased in 2010 by 9.3%, in order to reach 343,700 employees, representing a direct contribution of T&T to employment of 130,600 employees, and an indirect contribution of 213,100 employees. Conversely, there was a sharp decrease of 6.4% in T&T's contribution to employment in 2011, reaching a total of 321,800 employees, representing 120,100 employees directly employed in the T&T sector, and 201,700 indirectly employed in the same sector. As for year 2012, T&T directly participated in the creation of 120,000 jobs,

which constitutes around 9% of total employment. Even though this proportion is expected to decrease by 2.1% in 2013, it is expected to increase by 2.2% per year, to reach 146,000 jobs in 2023, which would constitute around 9.8% ·of total employment. As for the total contribution of T&T to employment in 2012, it supported the indirect creation of 322,500 jobs, constituting around 24% of total employment. Even though this proportion is expected to decrease by 1.8% in 2013 to reach 317,000 jobs, it is expected to increase by 2.3% per year to reach 398,000 jobs, constituting 26.6% of total employment in 2023.

3.3 Lebanon country rankings on the T&T front for year 2012

The WTTC evaluates the relative contribution of T&T to GDP, employment and investment. Actually, Lebanon stands in the 24th position in terms of direct contribution to GDP, where T&T occupies a share of 9.3%, and the 25th position in terms of total contribution to GDP, where T&T occupies a share of 25.1%. These shares are both above the World Averages which are respectively 5.2% and 14.1%.

Moreover, Lebanon stands in the 23rd position in terms of direct contribution to employment, where T&T directly contributed to 9% of employment, and in the 25th position in terms of total contribution to employment, where T&T indirectly contributed to 24% of employment. These shares are both above the World Averages which are respectively 5.4% and 13.9%.

In addition, Lebanon stands in the 49th position in terms of investment opportunities, where T&T investment contributed to 10% of total capital investment, also above the World Average which is 8.1%.

The above figures and rankings show the importance of T&T in the Lebanese economy, as the T&T sector's share in GDP and employment is a lot more significant than its share in the GDP and employment of the rest of the world countries.

4. Conclusion

Despite the financial resilience of Lebanon against the deteriorating conditions of the region, several essential imbalances are reported in the economy, namely the negative Balance of Payments and the rise in public deficit. That's why it is of fundamental importance to stabilize the country's economy to lift and avoid future imbalances. As we reported, T&T occupies a significant share in the country's GDP and contributes greatly to the creation of employment opportunities, all of which show the positive contribution of the tourism sector on the Lebanese economy. In addition, the economy was positively affected by the increase in Syrian refugees' expenditures, positively affecting economic growth. On the other hand, an increase in economic growth assisted by better local and regional political situation and security would also fuel the increase in tourist arrivals and spending in the country that would in return benefit the whole economy. Thus, the objective of this thesis is to study the direction of the causality between tourism and economic growth in Lebanon as an effective way to enhance both tourism development and the growth of the economy. Additionally, we will try to find out the degree of stability in the long-run relationship between these two variables.

APPENDIX

Table 1: Trade and Services for the first 3 quarters of 2013 compared to the first 3 quarters of 2012

TRADE AND SERVICES					Var.	
	Q3-2012	9M-2012	Q3-2013	9M-2013	Q3/Q3	9M/9M
Number of ships at the Port	574	1,586	531	1,589	-7.50%	0.20%
Number of containers at the Port (in 000s)	172	477	203	577	18.50%	20.80%
Merchandise at the Port (in 000 tons)	1,855	5,340	2,087	6,178	12.50%	15.70%
Planes at the Airport	17,507	48,101	17,667	47,436	0.90%	-1.40%
Number of Passengers at the Airport (excluding transit)	1,808,451	4,537,681	1,843,424	4,809,651	1.90%	6%
Cleared checks (in millions of USD)	18,163	52,965	18,286	53,829	0.70%	1.60%

Source: Beirut International Airport, Bank Audi Lebanon Economic report for the 3rd quarter of 2013

Table 2: Inflation rates in Lebanon, 1980-2010

Year	Inflation Rate
1980	23.90%
1981	19.30%
1982	18.60%
1983	7.20%
1984	17.60%
1985	69.40%
1986	95.40%
1987	487.20%
1988	155.00%
1989	72.20%
1990	68.90%
1991	50.12%
1992	99.85%
1993	24.74%
1994	8.24%
1995	10.28%
1996	8.88%
1997	7.75%
1998	4.55%
1999	0.24%
2000	-0.36%
2001	-0.37%
2002	1.76%
2003	1.27%
2004	1.67%
2005	-0.72%
2006	5.57%
2007	4.06%
2008	10.76%
2009	1.21%
2010	4.48%

Source: IMF and Index Mundi

Table 3: The evolution of GDP real growth rate in Lebanon, 1990-2012

Year	GDP real growth rate
1990	-42.45%
1991	26.53%
1992	38.20%
1993	4.50%
1994	7.00%
1995	8.00%
1996	6.53%
1997	5.14%
1998	3.26%
1999	4.64%
2000	-0.45%
2001	1.34%
2002	3.95%
2003	3.37%
2004	3.24%
2005	7.48%
2006	0.85%
2007	0.67%
2008	7.63%
2009	9.30%
2010	8.00%
2011	7.00%
2012	1.80%

Source: www.tradingeconomics.com and Banque du Liban

Figure 1: Evolution of the number of tourists from 2007 to the third quarter of 2013

Number of tourists
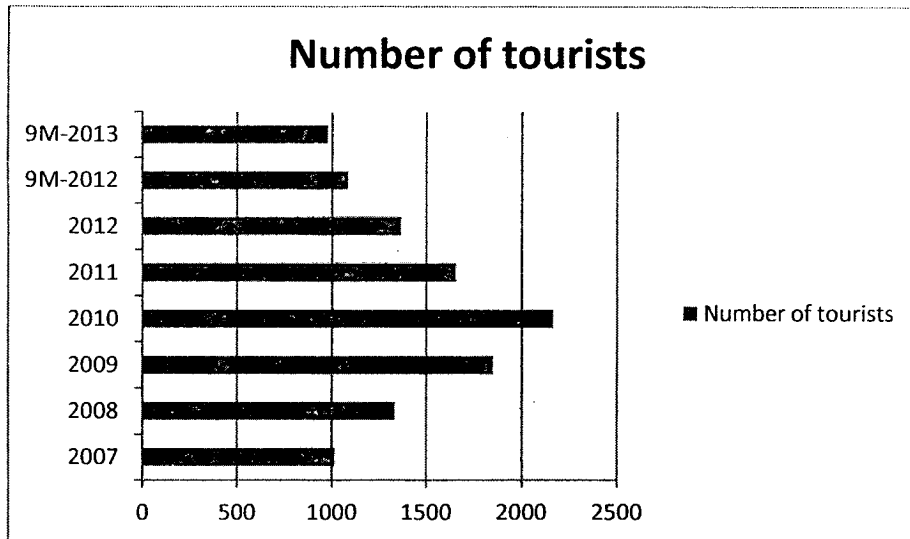
Source: Ministry of Tourism and Bank Audi Lebanon Economic Report for the 3rd quarter of 2013

Figure 2: Hotel occupancy rates evolution from year 2008 to 2012

Occupancy Rate
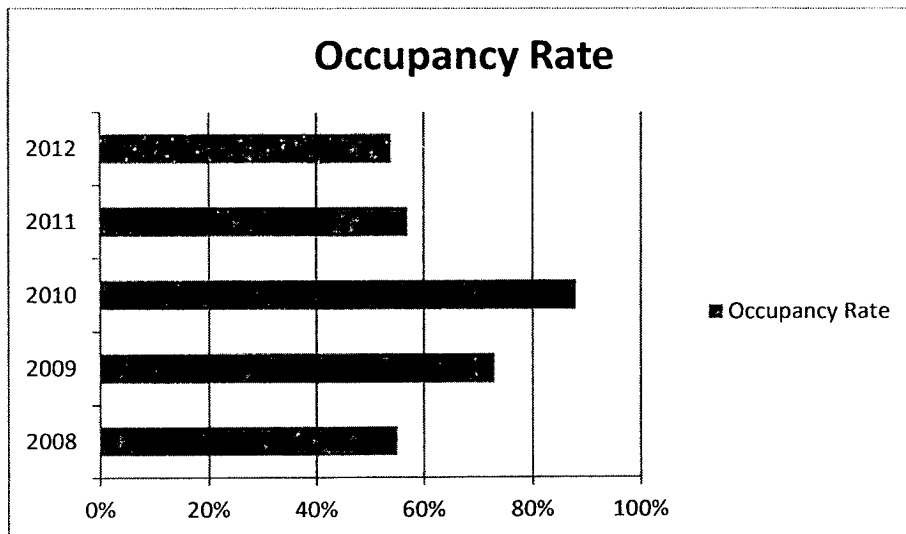
Source: Ernst & Young Middle East Hotel Benchmark Survey and BankMed 2013

Figure 3: Total contribution of T&T to GDP in 2012 compared to neighboring countries

T&T contribution to GDP
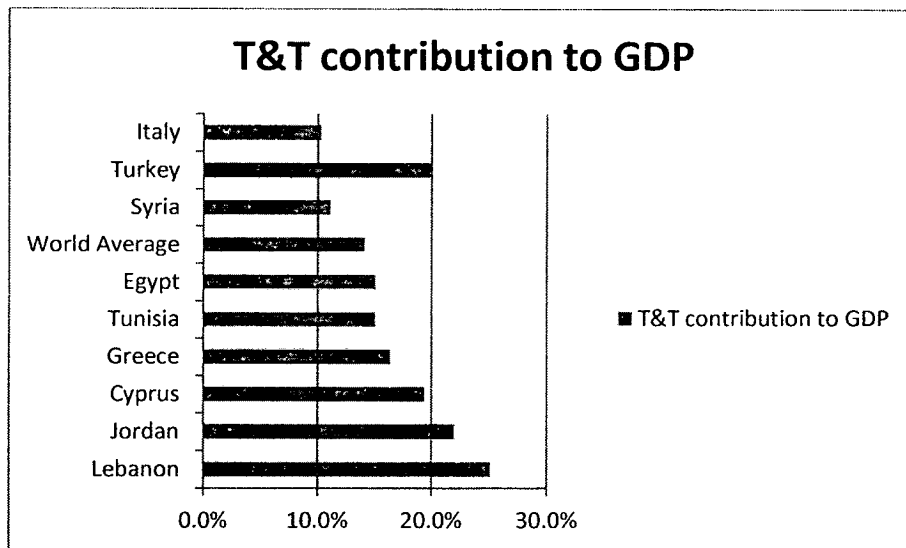
Source: WTTC, IDA

Figure 4: Unemployment rates in Lebanon, 2008-2012

Unemployment Rate
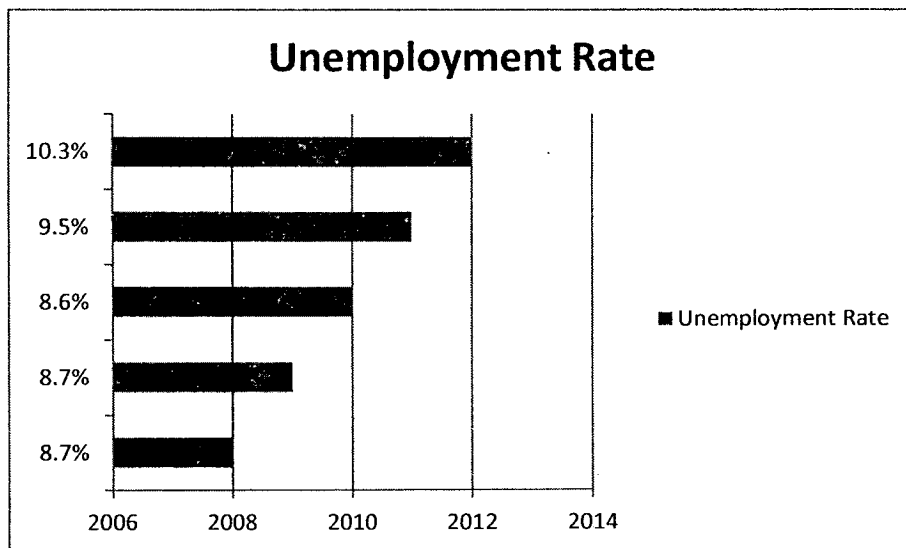
Source: United Nations Economic and Social Commission for Western Asia, Byblos Bank

Chapter 4: METHODOLOGY

1. Conceptual Framework

In the previous section we shed the light on the important part that tourism occupies in the GDP of world countries including Lebanon, and the mixed results concerning the direction of the causality between tourism and economic growth. In our analysis, we concentrate on the contribution of the Lebanese tourism sector to the performance of the Lebanese economy. Consequently, we try to answer two questions: (i) is there a bi-directional causality between tourism development and economic growth in Lebanon?, (ii) does a long-run relationship between tourism development and economic growth exist?. Our study extends the work of several authors such as Balaguer and Cantavella-Jorda (2002) and Arslanturk and Alan (2012). In fact, instead of considering yearly figures of GDP and tourism revenues, we took the monthly coincident indicator and monthly number of arrivals.

2. Sample Size and Definition of the Variables

2.1 Sample size

We consider monthly data covering the period between January 1995 and May 2013. The limited availability of data concerning tourism development and economic growth constrains our sample choice, as well as the choice and number of variables.

2.2 Definition of the variables

Originally, we planned to consider many variables in our study such as the coincident indicator, the consumer prices index, the real exchange rate, tourist arrivals, and tourism revenues. However, due to lack of data and to the difficulty to obtain monthly figures from local as well as international sources, we finally only considered the coincident indicator and tourist arrivals. The former is a monthly indicator calculated by the Lebanese Central Bank (www.bdl.gov.lb), and the latter is obtained from the Lebanese Central Administration of Statistics (www.cas.gov.lb). We exclude from the total number of arrival the Lebanese arrivals in order to capture a more accurate view of international tourism. Thus, economic growth will be measured by the coincident indicator taken in natural logarithm, and tourism

development will be measured by the natural logarithm of the number of arrivals to Lebanon excluding Lebanese arrivals.

2.3 The model

In order to answer our research questions, we will estimate a Vector Autoregressive (VAR) model or a Vector Error Correction (VEC) model. The decision depends on whether the variables in question are stationary or cointegrated. In order to do so, we test the stationarity of the variables using the Augmented Dickey-Fuller (ADF) test. If the two variables present a unit root then we test the presence of a cointegration relation between them using the Johansen test. Moreover, for stationary variables, we use the Granger causality test in the short run and the long run to test the direction of the causality between tourism development and economic growth. In addition to Granger causality test, we draw the Impulse Response Functions to see the effect of a shock to tourism development on economic growth and vice versa. Our variables may present structural breaks and seasonality thus this will be accounted for in the model.

2.3.1   Unit Root Test

Variables increasing over time may exhibit a deterministic trend or a stochastic trend. In case of a stochastic trend, the variables are said to be non-stationary. Non-stationary data, as a rule, have a joint-probability distribution that alters with time, and thus are unpredictable and cannot be modeled or forecasted. The results obtained by using non-stationary time series may be spurious, meaning that they may indicate a relationship between two variables that in fact is not significant. In order to obtain consistent and reliable results, the non-stationary data needs to be transformed into stationary data.

On the other hand, a strongly stationary variable is defined when its joint distribution is not affected by time. The implications of such a distribution include that all its cross-sectional moments such as the mean and the variance are time-invariant, and that correlations do not alter over time.

For instance, a non-stationary time series (y_t) is represented by the following Random Walk model:

$$y_t = y_{t-1} + \varepsilon_t \qquad (1)$$

Where ε_t represents a stationary disturbance white noise. The series y_t has a constant mean but a variance that is increasing with time. In addition to this, the effects of any shock are permanent and explosive, thus will not disappear in time. When the shocks do not disappear over time, the series is called to be non stationary. Hence, the value of each period is constituted from the value of the previous period in addition to the change subsequent to the shock.

Some variables are difference stationary and become stationary when taken in first difference. The Random Walk for example is difference stationary, and becomes stationary when the first difference of equation (1) is taken, resulting in the following equation:

$$\Delta y_t = y_t - y_{t-1} = y_{t-1} + \varepsilon_t - y_{t-1} = \varepsilon_t \qquad (2)$$

According to Mahadeva and Robinson (2004), variables that need to be differentiated n times to become stationary are designated as integrated of order n. Thus the variable y_t is designated as integrated of order 1, since it needs to be differentiated one time to become stationary.

Hence, to test the stationarity of the variables, we will use the Dickey-Fuller (DF) and Augmented Dickey-Fuller (ADF) unit root tests.

In the DF test, the model under the null hypothesis can be written as:

$$\Delta y_t = \rho y_{t-1} + \varepsilon_t \qquad (3)$$

Where H_0: $\rho = 1$ implies that the variable is non-stationary and contains a stochastic trend.

The alternative hypothesis suggests three models; the third model includes a constant and a trend, the second model considers only a constant, and the first model does not include neither a constant nor a trend. The three models defined under H_1 are as follows:

$$y_t = \rho y_{t-1} + \varepsilon_t \tag{4}$$

$$y_t = \alpha + \rho y_{t-1} + \varepsilon_t \tag{5}$$

$$y_t = \alpha + \partial t + \rho y_{t-1} + \varepsilon_t \tag{6}$$

Where α is the constant, and t is the linear trend.

The alternative hypothesis H_1: $\rho < 1$ implies that the variable is stationary.

We can estimate a modified version of equations (4), (5) and (6), denoted by (4*), (5*) and (6*), obtained by subtracting y_{t-1} from both sides, as follows:

$$y_t - y_{t-1} = \rho y_{t-1} - y_{t-1} + \varepsilon_t$$

$$\Delta y_t = (\rho - 1)y_{t-1} + \varepsilon_t$$

$$\Delta y_t = \beta y_{t-1} + \varepsilon_t \tag{4*}$$

Where $\beta = (\rho - 1)$

$$y_t - y_{t-1} = \alpha + \rho y_{t-1} - y_{t-1} + \varepsilon_t$$

$$\Delta y_t = \alpha + (\rho - 1)y_{t-1} + \varepsilon_t$$

$$\Delta y_t = \alpha + \beta y_{t-1} + \varepsilon_t \tag{5*}$$

Where $\beta = (\rho - 1)$

$$y_t - y_{t-1} = \alpha + \partial t + (\rho - 1)y_{t-1} + \varepsilon_t$$

$$\Delta y_t = \alpha + \partial t + \beta y_{t-1} + \varepsilon_t \tag{6*}$$

Where $\beta = (\rho - 1)$

Thus testing $\rho = 1$ (non-stationarity) will be equivalent to testing $\beta = (\rho - 1) = 0$ in either of the 3 above equations.

To sum up, we can perform the DF test in 2 ways:

a) We test H₀: $\rho = 1$

   H₁: $|\rho| < 1$ in equations (4), (5) and (6).

b) We test H₀: $\beta = 0$

   H₁: $|\beta| < 0$ in equations (4*), (5*) and (6*).

If we reject H₀, the series is considered stationary. We reject H₀ if the test statistic in absolute value is greater than the Dickey-Fuller critical value, thus:

- If $\left| t = \dfrac{\hat{\beta}}{\hat{\sigma}_{\hat{\beta}}} \right| < |C|$, then we do not reject H₀.

- If $\left| t = \dfrac{\hat{\beta}}{\hat{\sigma}_{\hat{\beta}}} \right| > |C|$, we reject H₀.

Where C is the DF critical value at a certain significance level.

If we do not reject H₀ then the variable is not stationary. In order to make it stationary, we can differentiate it (apply the ADF on the first difference). In case the first difference is also not stationary we apply the ADF on the second difference and so forth.

However, the critical values tabulated by Dickey and Fuller fall under the assumption that residuals are not auto-correlated. In case they are, they propose to include a certain number of lags of the endogenous variable that will eliminate this auto-correlation from the residuals. Thus (4*), (5*) and (6*) become:

$$\Delta y_t = \beta y_{t-1} + \sum_{i=1}^{p} \theta i \, \Delta y_{t-i} + \varepsilon_t \qquad (7)$$

$$\Delta y_t = \alpha + \beta y_{t-1} + \sum_{i=1}^{p} \theta i \, \Delta y_{t-i} + \varepsilon_t \qquad (8)$$

$$\Delta y_t = \alpha + \partial t + \beta y_{t-1} + \sum_{i=1}^{p} \theta i \, \Delta y_{t-i} + \varepsilon_t \qquad (9)$$

Where p is the minimum number of lags that eliminates the autocorrelation from the residuals. To test the autocorrelation in the residuals we apply the Ljung-Box Test.

On the other hand, some variables are rather trend stationary than difference stationary. Thus, these variables become stationary once detrended. A detrended variable is simply a variable from which we subtract the deterministic trend.

2.3.2 Ljung-Box test

The Ljung-Box test is used to test whether a certain group of auto-correlations are different from zero in a time series. It consists in testing the autocorrelation in the error term ε_t, defined by the following auxiliary equation:

$$\varepsilon_t = c + \rho_1 \varepsilon_{t-1} + \rho_2 \varepsilon_{t-2} + \cdots + \rho_k \varepsilon_{t-k} + v_t \qquad (10)$$

Where v_t is the error term of the auxiliary regression.

The hypotheses for this test are defined as follows:

The null hypothesis means that data are independently distributed. Thus, there is no autocorrelation.

H_0: $\rho_1 = \rho_2 = \cdots \rho_k = 0$

The alternative hypothesis means that data are not independently distributed, and at least one of the autocorrelations is different from zero. Thus, there is autocorrelation.

H_1: $\exists \, \rho_i \, / \, i \in \{1, \dots, 12\} \neq 0$

The Ljung-Box test statistic denoted by Q is given by the following:

$$Q = T(T+2) \sum_{k=1}^{h} \frac{\rho_k^2}{T-k}$$

Where T is the sample size, ρ_k^2 is the autocorrelation coefficient at lag k, and h is the number of lags being tested, in this case, h=12. We chose twelve lags because the data is monthly.

For a certain significance level, we reject H$_0$ if:

$$Q > \chi^2_{1-\alpha,h}$$

Where $\chi^2_{1-\alpha,h}$ is the α-quantile of the chi-squared distribution with h degrees of freedom.

If we reject H$_0$ and errors are autocorrelated, we add p lags of y_t in first difference and estimate equations (7), (8) or (9) in order to eliminate autocorrelation from the residuals. Thus, we obtain the ADF version of the test previously described.

Consequently, if the variables are stationary, we estimate a VAR model. If, on the other hand, the variables are non-stationary but cointegrated, we estimate a VEC model.

2.3.3   Vector Auto Regressive (VAR) model

We consider tourist arrivals excluding Lebanese to capture the true impact of international tourist arrivals on economic growth in Lebanon. Therefore we denote the coincident indicator by y_1 and the number of international tourist arrivals by y_2.

The Vector Auto Regressive (VAR) model is represented as follows:

$$\begin{cases} y_{1t} = c_1 + \rho_1^1 y_{1t-1} + \dots + \rho_k^1 y_{1t-k} + \beta_1^1 y_{2t-1} + \dots + \beta_k^1 y_{2t-k} + \varepsilon_{1t} \quad (11) \\ y_{2t} = c_2 + \rho_1^2 y_{1t-1} + \dots + \rho_k^2 y_{1t-k} + \beta_1^2 y_{2t-1} + \dots + \beta_k^2 y_{2t-k} + \varepsilon_{2t} \end{cases}$$

$$(12)$$

Where k is the minimum number of lags that eliminates auto-correlation from the VAR. To test for autocorrelation in the VAR's residuals we will use the LM autocorrelation test or the Portmanteau test. The Lagrange Multiplier test, or LM test, tests for serial correlations not only of the first order but also of higher orders. It is a large sample test that needs a minimum of 30 degrees of freedom to be meaningful. On the other hand, the Box-Pierce Portmanteau test and Ljung-Box (or Q) test, are

tests for autocorrelation that can be used on univariate time series, and is usually considered as a general test for "white noise".

The previous two equations can also be written by stacking up the terms into matrices and vectors:

$$\begin{pmatrix} y_{1t} \\ y_{2t} \end{pmatrix} = \begin{pmatrix} c_1 \\ c_2 \end{pmatrix} + \begin{pmatrix} \rho_1^1 & \beta_1^1 \\ \rho_1^2 & \beta_1^2 \end{pmatrix} \begin{pmatrix} y_{1t-1} \\ y_{2t-1} \end{pmatrix} + \dots + \begin{pmatrix} \rho_k^1 & \beta_k^1 \\ \rho_k^2 & \beta_k^2 \end{pmatrix} \begin{pmatrix} y_{1t-k} \\ y_{2t-k} \end{pmatrix} + \begin{pmatrix} \varepsilon_{1t} \\ \varepsilon_{2t} \end{pmatrix} \tag{13}$$

Thus the standard form of the VAR can be written as:

$$Y_t = C + A_1 Y_{t-1} + \dots + A_k Y_{t-k} + \varepsilon_t \tag{14}$$

This is a VAR(k) or a VAR at order (k).

2.3.4 Granger causality test

Finally, we use the Granger causality test to identify the presence of causality between tourism development and economic growth. In other words, we test if the coincident indicator is helpful in forecasting the number of tourist arrivals excluding Lebanese, and vice-versa. The variables should be stationary in order to perform the Granger causality test, and the number of lags involved is the same as the one adopted to apply the VAR test previously described.

We predict a bi-directional causality between tourism and economic growth, as on one hand, tourism can cause the economy to grow considering it being a major pillar of the Lebanese economy, and on the other hand, a sound economy can also encourage tourist arrivals.

Consequently, to complete the Granger causality test, we consider the following two null hypotheses:

1) H_0: $\beta_1^1 = \beta_2^1 = \cdots = \beta_k^1 = 0$ for $k = 1 \rightarrow p$

If we do not reject H_0, we conclude that the number of international tourist arrivals denoted by y_2 does not Granger cause the coincident indicator denoted by y_1.

2) H_0: $\rho_1^2 = \rho_2^2 = \cdots = \rho_k^2 = 0$ for $k = 1 \rightarrow p$

If we do not reject H_0, we conclude that the coincident indicator denoted by y_1 does not Granger cause the number of international tourist arrivals denoted by y_2.

Chapter 5: MAIN RESULTS

In the following chapter we highlight our findings after applying the methodology described in chapter four. Data is monthly and covers the period from January 1995 till May 2013. Our analysis was conducted using the econometric software E-Views 7.0.

1. Detrending the logarithm of tourist arrivals excluding Lebanese

Before performing the stationarity test, we note that the logarithm of tourist arrivals excluding Lebanese (hereafter y_2) seems to be stationary around a broken trend. Thus, this variable seems to be trend stationary. This is further confirmed by Bassil (2010) who tests the stationarity of tourist arrivals with two unknown structural breaks, concluding that the variable in question is stationary around a broken trend in 1997:11 and 2007:01. The possible reasons behind the first structural break may be the unstable political situation coupled with substantial clashes at the border with Israel in February, August and September 1997. Additionally, the second structural break date follows the withdrawal of the Syrian army in April 2005 and the one-month war in July 2006. y_2 series is plotted in Figure 5.

Figure 5: Logarithm of tourist arrivals excluding Lebanese (y_2)
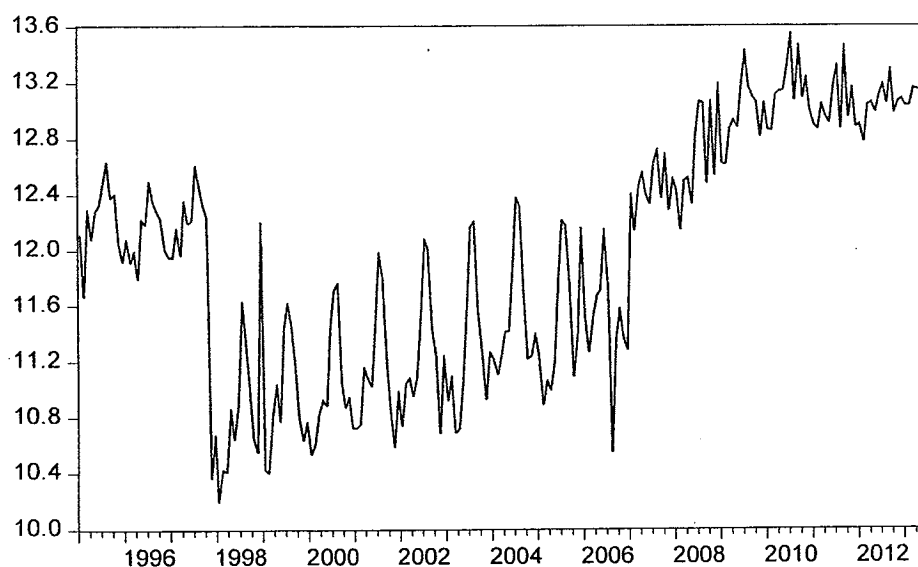
In order to detrend y_2, we regress it on a constant, a trend, du_1 and du_2, as follows:

$$y_2 = \alpha_1 c + \alpha_2 trend + \alpha_3 du_1 + \alpha_4 du_2 + \varepsilon_t \qquad (1)$$

Where:

c is a constant

du_1 is a dummy variable reflecting the change in the mean of y_2 in 1997:11, and takes the value of 0 before 1997:11, and 1 after.

du_2 is a dummy variable reflecting the change in the mean of y_2 in 2007:01, and takes the value of 0 before 2007:01, and 1 after.

The results of the regression are summarized in table 4.

Table 4: Detrended y_2 regression output

Dependent Variable: y_2				
Sample: 1995M01 2013M05				
Included observations: 221				
Variable	**Coefficient**	**Standard Error**	**t-Statistic**	**Prob.**
C	12.06996	0.065952	183.011	0
TREND	0.00783	0.000932	8.39758	0
DU1	-1.526572	0.099566	-15.332	0
DU2	-0.58303	0.173273	-3.3648	0.0009
R-squared	**0.825213**	**Adjusted R-squared**		**0.822796**

The detrended y_2 will be simply the residuals of equation (1). Thus, the detrended y_2 is obtained by subtracting from it the deterministic trend as follows:

$$y_2 - \alpha_1 c - \alpha_2 trend - \alpha_3 du_1 - \alpha_4 du_2 = \varepsilon_t \qquad (2)$$

Where ε_t represents the detrended y_2, plotted in figure 6.

Figure 6: The detrended y_2
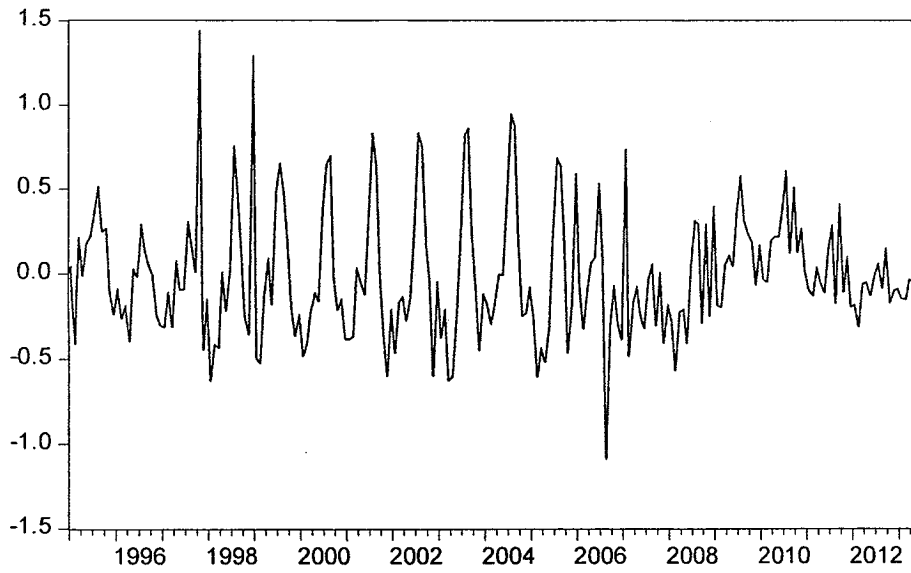
2. Removing the seasonality from the detrended y_2

Bassil (2010) further identifies significant spikes at lags 12, 24 and 36 in the Auto Correlation Function (ACF) of the detrended y_2. This is also shown in figure 7.

Figure 7: Seasonality in the detrended y_2
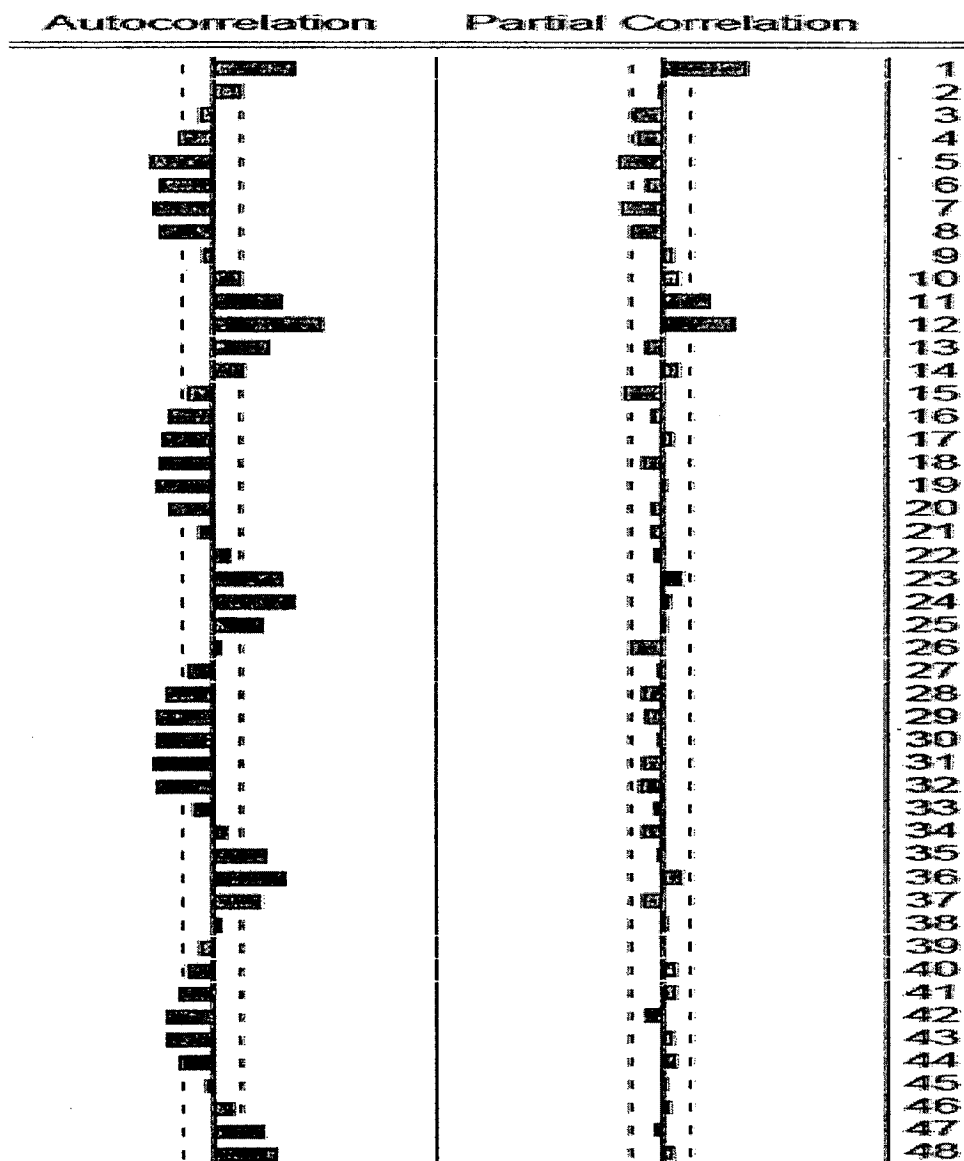
Thus, they reveal a strong seasonal pattern. The order of periodicity is 12. This seasonality is expected in the number of tourist arrivals, as Lebanon is characterized by periods of high season and low season. Consequently, we should render the detrended y_2 seasonally adjusted by differentiating the data. This was achieved by calculating a new variable that will be seasonally adjusted, as follows:

$$Seasonal\ y_{2,t} = Detrended\ y_{2,t} - Detrended\ y_{2,(t-12)} \qquad (3)$$

Where "12" is the order of the seasonality.

The seasonally adjusted and detrended y_2 is plotted in figure 8.

Figure 8: The seasonally adjusted and detrended y$_2$
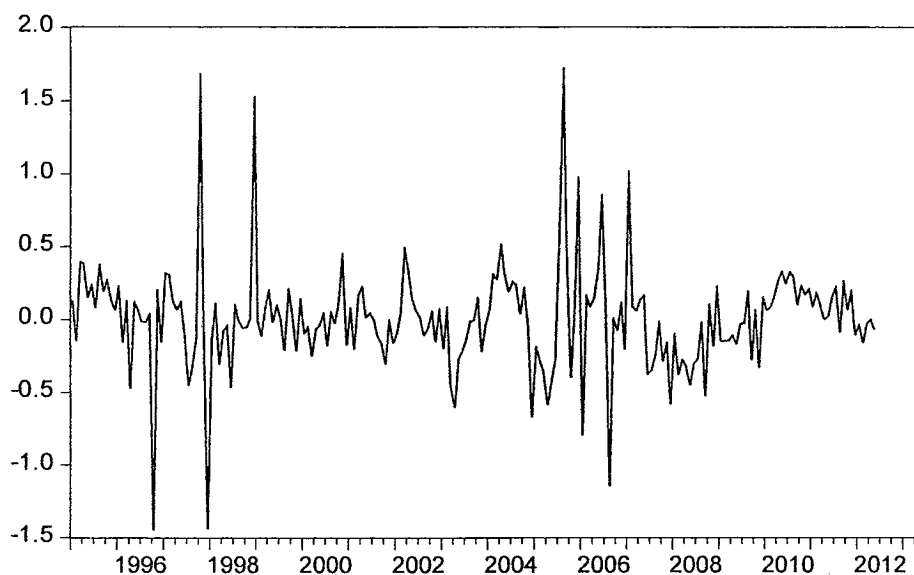
3. Detrending the logarithm of the coincident indicator

We detect an outlier in the logarithm of the coincident indicator (hereafter y_1) in 2006:08 as shown in Figure 9. This date corresponds to the second Israeli war against Lebanon that started in July 2008 and lasted one month. This outlier seems to cause a change in the mean and the slope of y_1.

Figure 9: Logarithm of coincident indicator (y_1)
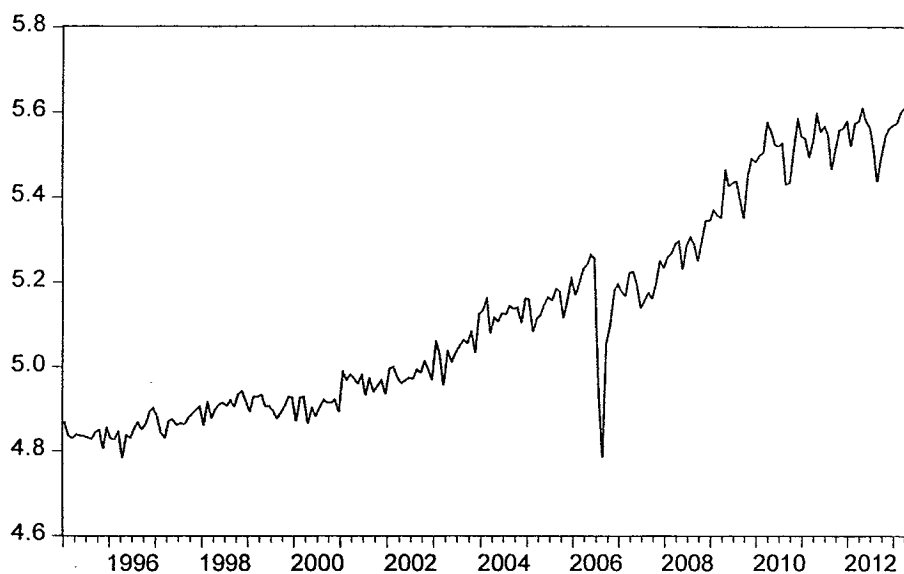
In order to detrend y_1, we regress it on a constant, a trend, du_3 and du_4 as follows:

$$y_1 = \alpha_1 c + \alpha_2 trend + \alpha_3 du_3 + \alpha_4 du_4 + \varepsilon_t \tag{4}$$

Where:

c is a constant

du_3 is a dummy variable reflecting the change in the mean of y_1 in 2006:08, and takes the value of 1 in 2006:08, and 0 otherwise.

du_4 is a dummy variable reflecting a change in the slope of y_1 in 2006:08, and takes the value of 0 before 2006:08, and 1,2...81 otherwise.

The results of the regression are summarized in table 5.

Table 5: detrended y_l regression output

Dependent Variable: y_1				
Sample: 1995M01 2013M05				
Included observations: 221				
Variable	Coefficient	Standard Error	t-Statistic	Prob.
C	4.783147	0.008063	593.2325	0
TREND	0.002745	9.06E-05	30.29744	0
DU3	-0.294938	0.036049	8.181506	0
DU4	0.003368	0.000238	14.1515	0
R-squared	0.961315	Adjusted R-squared		0.96078

Thus, the detrended y_l is obtained by subtracting from it the deterministic trend as follows:

$$y_1 - \alpha_1 c - \alpha_2 trend - \alpha_3 du_3 - \alpha_4 du_4 = \varepsilon_t \qquad (5)$$

Where ε_t represents the detrended y_1 plotted in figure 10.

Figure 10: The detrended y_1
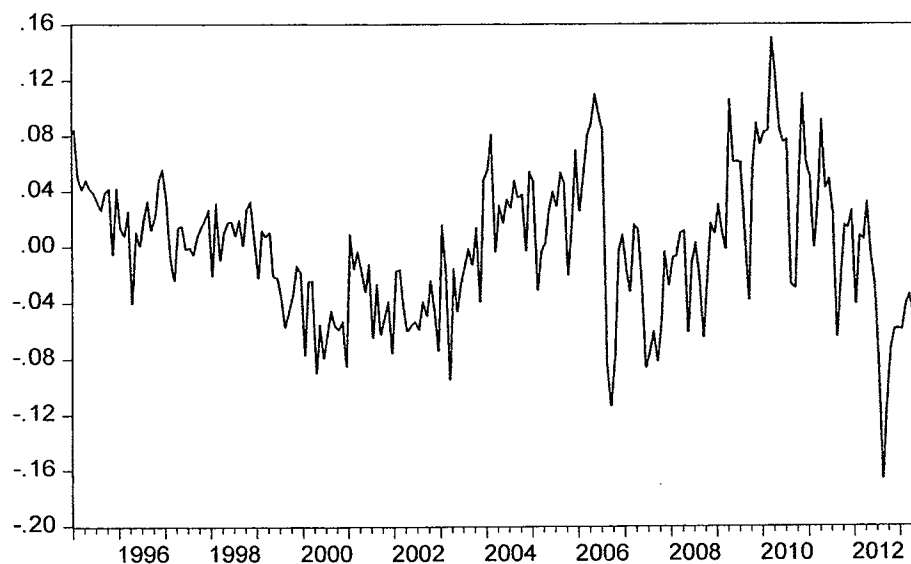
4. Testing the stationarity of the seasonally adjusted and detrended y_2

According to figure (8), the seasonally adjusted and detrended y_2 appears to be stationary. The model chosen for the alternative hypothesis of stationarity is the one under equation (4) or (4*), that is with neither a constant nor a trend. The 9 lags included in the ADF equation is the minimum number of lags that eliminates the autocorrelation from the residuals. The output of the ADF test is summarized in table 6.

Table 6: Output of the ADF test on the y_2

Null Hypothesis: y_2 has a unit root		t-Statistic	Prob.
Lag Length: 9			
Augmented Dickey-Fuller test statistic		-4.140261	0.00
Test critical values:	1% level	-2.576634	
	5% level	-1.942431	
	10% level	-1.615638	

We compare the absolute value of the t-statistic to the DF critical values also taken in absolute value.

$|t - statistic| > |C|$

$|-4.14| > |-2.57|$ at 1% significance level

$|-4.14| > |-1.94|$ at 5% significance level

$|-4.14| > |-1.61|$ at 10% significance level

Thus, we reject H_0 and we conclude that the seasonally adjusted and detrended y_2 is stationary.

The results of the Ljung-Box test used to test the autocorrelation in the residuals of the ADF test with 9 lags are presented in table 7.

Table 7: Ljung-Box results for the residuals of the ADF equation with 9 lags

Lags	AC	PAC	Q-Statistic	Prob
Sample: 1995M01 2013M05
Included observations: 199
1	0	0	0.00003	0.996
2	0.014	0.014	0.0411	0.98
3	0.024	0.024	0.1577	0.984
4	-0.037	-0.038	0.4456	0.979
5	-0.016	-0.017	0.498	0.992
6	0.042	0.043	0.8708	0.99
7	-0.055	-0.053	1.5077	0.982
8	0.034	0.032	1.7501	0.988
9	0.037	0.036	2.0424	0.991
10	-0.05	-0.047	2.5767	0.99
11	0.025	0.02	2.7081	0.994
12	-0.305	-0.31	22.656	0.031

Note: AC represents Auto-Correlation, and PAC represents Partial Auto-Correlation.

The p-value at lag 12 is 0.031, which is greater than 1% significance level. Thus, we do not reject the null hypothesis and we conclude that residuals are not autocorrelated at 1% significance level.

5. Testing the stationarity of the detrended y_t

According to figure (10), the detrended y_t appears to be stationary. The ADF model chosen for the alternative hypothesis of stationarity is the one defined by equation (4) or (4*), that is with neither a constant nor a trend. The output of the ADF test is summarized in table 8.

Table 8: Output of the ADF test on y_t

Null Hypothesis: y_t has a unit root			
Lag Length: 6			
		t-Statistic	**Prob.**
Augmented Dickey-Fuller test statistic		-3.012412	0.0027
	1% level	-2.575968	
Test critical values:	5% level	-1.942338	
	10% level	-1.615698	

We compare the t-statistic to the ADF critical values, both in absolute terms.

$|t - statistic| > |C|$

$|-3.012| > |-2.57|$ at 1% significance level

$|-3.012| > |-1.94|$ at 5% significance level

$|-3.012| > |-1.61|$ at 10% significance level

Thus, we reject H_0 at 1%, 5%, and 10% significance level. Hence, we conclude that the detrended y_t is stationary. The results of the Ljung-Box test for the ADF test with 6 lags are presented in table 9.

Table 9: Ljung-Box results for the residuals of the ADF equation with 6 lags

Sample: 1995M01 2013M05
Included observations: 214

Lags	AC	PAC	Q-Stat	Prob
1	-0.004	-0.004	0.0028	0.957
2	0	0	0.0029	0.999
3	-0.017	-0.017	0.0698	0.995
4	-0.01	-0.01	0.0933	0.999
5	-0.031	-0.031	0.3062	0.998
6	-0.019	-0.02	0.3894	0.999
7	-0.093	-0.094	2.3353	0.939
8	0.098	0.097	4.4869	0.811
9	-0.047	-0.05	4.9914	0.835
10	0.04	0.037	5.3472	0.867
11	0.168	0.171	11.738	0.384
12	0.246	0.252	25.559	0.012

Note: AC represents Auto Correlation,and PAC
represents Partial Auto-Correlation.

The p-value at lag 12 is 0.012, which is greater than 1% significance level. Thus, we do not reject the null hypothesis and we conclude that residuals are not autocorrelated at 99% confidence interval.

6. Vector Auto Regression Model

Since the two variables are stationary, thus we conclude that there is no cointegration relation between them. Hence, there is no long-run relationship between y_1 and y_2. For instance we estimate a VAR model at order 1 as described in chapter four. The number of lags chosen should eliminate the autocorrelation from the residuals of the VAR, in our case at order 11. We use the LM test to verify that the residuals are not autocorrelated. The results of the LM test are presented in table 10.

Table 10: LM test results

| VAR Residual Serial Correlation LM Tests		
Null Hypothesis: no serial correlation at lag order h		
Sample: 1995M01 2013M05		
Included observations: 208		
Lags	**LM-Statistic**	**Probability**
1	3.436211	0.4876
2	2.530367	0.6392
3	2.191990	0.7005
4	3.070805	0.5460
5	8.012212	0.0911
6	3.340951	0.5025
7	1.435521	0.8380
8	11.63211	0.0203
9	0.562042	0.9672
10	1.936782	0.7474
11	10.08503	0.0390

Since the p-value of the LM test at order 11 is 0.039 thus greater than 1% significance level, then we do not reject H_0 and errors are not autocorrelated at 99% confidence interval. Hence, one lag in the VAR is enough to eliminate the autocorrelation from the residuals. The results of the VAR(1) model are presented in table 11.

Table 11: VAR model output

Vector Autoregression Estimates Sample (adjusted): 1995M02 2012M05 Included observations: 208 after adjustments Standard errors in ( ) & t-statistics in [ ]	y_1	y_2
$y_1(-1)$	0.687034 (0.05261) [13.0590]	1.170407 (0.53989) [2.16784]
$y_2(-1)$	-0.006068 (0.00688) [-0.88191]	0.119505 (0.07062) [1.69234]
C	0.000872 (0.00242) [0.36105]	0.003005 (0.02479) [0.12123]
R-squared	0.463926	0.047289
Adj. R-squared	0.458696	0.037995

Now, we draw the Generalized Impulse Response Functions (IRF). This selection will allow us to describe how our variables react over time to external shocks. We choose the Generalized IRF because it computes the mean impulse response function to an exogenous shock by integrating out all other shocks. Plus, unlike the Cholesky impulse definition, the Generalized IRF is unaffected by the ordering of the variables. In our case, it will allow us to map the reaction of the coincident indicator to a one standard deviation shock in tourist arrivals, and also the reaction of tourist arrivals to a one standard deviation shock in the coincident indicator. The Generalized Impulse Response Functions are plotted in Figure 11.

Figure 11: Impulse Response Functions

Response of y1 to y1

Response of y1 to y2

Response of y2 to y1

Response of y2 to y2
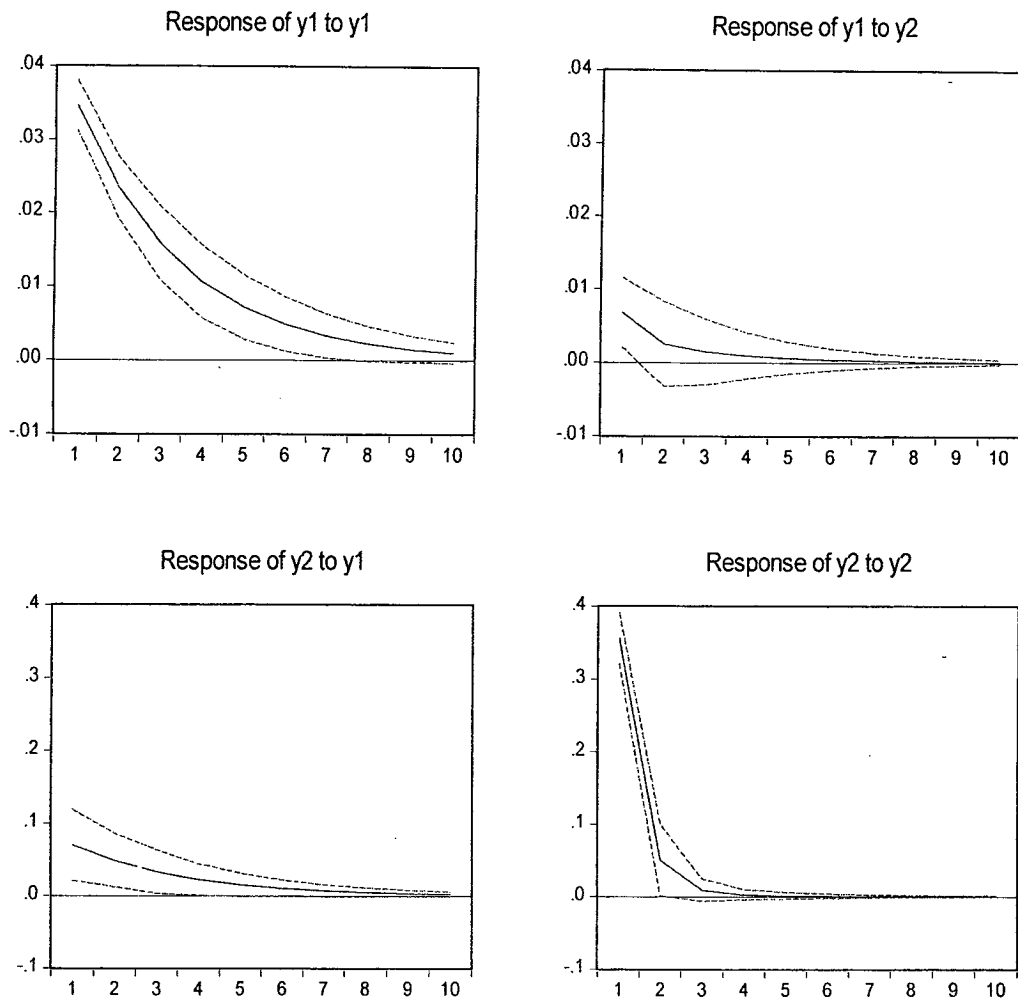
The Impulse Response Function output shows the reaction of our variables to an exogenous one-time shock. For instance, a one-standard deviation change in tourist arrivals causes the coincident indicator to increase by a small level only to converge back to 0 after about 7 years. Also, a one-standard deviation change in the coincident indicator causes a small increase in tourist arrivals, which also return to their normal level in time after about 8 years.

7. Granger causality

The Granger causality test is summarized in table 12.

Table 12: Granger causality test results

VAR Granger Causality/Block Exogeneity Wald Tests
Sample: 1995M01 2013M05
Included observations: 208

Dependent variable: y_1

Excluded	Chi-square	D.F	Prob.
y_2	0.777758	1	0.3778

Dependent variable: y_2

Excluded	Chi-square	D.F.	Prob.
y_1	4.699537	1	0.0302

Note: D.F represents Degree of Freedom

The results in table (12) show that tourism does not Granger cause economic growth at 1%, 5% and 10% significance level. In fact, we find that the p-value of the test is 37.78% thus greater than 1%, 5% and 10% significance level. Therefore, we do not reject H_0 that the lags of international tourist arrivals are jointly not significant in the first equation of the VAR where the logarithm of the coincident indicator is the dependent variable. Hence, we conclude that tourism does not Granger cause the coincident indicator. However, economic growth Granger causes tourism at 5% and 10% significance level. We find that the p-value is equal to 3.02% which is less than 5% and 10%. Thus, we reject the null hypothesis that the lags of the logarithm of the coincident indicator are jointly not significant in the second equation of the VAR where the logarithm of the number of international tourist arrivals is the dependent variable.

Hence, we find evidence of unidirectional causality between economic growth and tourism.

8. Discussion of findings

The results of this study do not meet up to our expectations, as we had predicted a bi-directional causality between tourism development and economic growth in Lebanon. Instead, we obtained a unidirectional causality running from economic growth to tourism development. This means that economic growth in Lebanon helps in forecasting tourism development. In other words, information about economic growth helps in predicting the future of tourism development in Lebanon. This result is in line with the works of Oh (2005), Jimenez, Nowak and Sahli (2001), Aslan (2013), and Tang and Jang (2008), who also find support to the Growth Led Tourism hypothesis. This result can be explained by the fact that economic expansion is manifested through the development of infrastructure and the creation of tourist resorts that may encourage foreigners to choose the country as a touristic destination. Moreover, economic growth projects a positive image of the country that might incite tourists to choose it as a touristic destination. Furthermore in the case of Lebanon, a sound economy may create a sentiment of safety and security that could encourage the inflow of tourists, especially as many governments advised against heading towards Lebanon during major security incidents such as the July 2006 war and the recent terrorist attacks.

On the other hand, tourism development does not Granger cause economic growth. In other words, information about tourism development is not needed in order to forecast economic growth in Lebanon. This result contradicts with the works of Balaguer and Cantavella-Jorda (2002), Brida and Risso (2009), Proenca and Soukiakis (2009), Atan (2012), Brida, Carrera and Risso (2008) and Kibara, Odhiambo and Njuguna (2012) who find support to the Tourism Led Growth hypothesis. Our results may be explained by the instability that the country has been facing in addition to the existence of other sectors or indicators that might as well help in forecasting economic growth, such as industrial production, retail sales, unemployment rate, and business confidence and so on.

Nevertheless, even though tourism does not help in forecasting economic growth, our findings show that it has a positive effect on economic growth, marked by the output of the impulse response function. These results show that a positive shock in tourist arrivals triggers a positive response in economic growth. This is because

tourism activities generate receipts causing a positive impact on the country's Gross Domestic Product. Similarly, a positive shock to economic growth triggers a positive response in the number of tourist arrivals.

Finally, the absence of a long-run relationship between tourism development and economic growth may be because of the instability and uncertainty that Lebanon has always faced whether on the economic front, the political front and the security front.

Chapter 6: CONCLUSIONS AND RECOMMENDATIONS

1. Conclusions

In Lebanon, it is widely believed that tourism positively contributes to the expansion of the economy. However, despite many previous studies confirming the Tourism Led Growth Hypothesis, our findings beg to differ. In fact, our study examined the direction of the causality between tourism development and economic growth in Lebanon. We only considered international tourist arrivals by excluding Lebanese nationals for a more accurate measure of tourism. We also aimed to identify whether a long-run relationship between economic growth and tourism development exists. Our variables were limited to tourist arrivals excluding Lebanese as a measure of tourism development, and the coincident indicator as a measure of economic growth. The unavailability of data concerning other economic indicators and tourism data constrained our choice of variables.

The methodology used for this study included a Vector Auto-Regressive Model and Granger Causality test to conclude that a unidirectional causality ranging from economic growth to tourism development exists in Lebanon. Moreover, confirming the stationarity of our variables revealed no cointegration relation between them, thus no long-run relationship.

Our findings suggest that tourism development does not help in forecasting economic growth in Lebanon, while economic growth can predict the number of tourist arrivals, thus a unidirectional causality running from economic growth to tourism development exists. Our results conform with previous studies supporting the Growth Led Tourism Hypothesis such as Oh (2005) for the case of Korea, Jimenez, Nowak and Sahli (2001) for the case of Tunisia, Aslan (2013) for the case of Tunisia, Bulgaria, Greece, Italy, Croatia, Cyprus and Spain, and Tang and Jang (2008) for the case of the United States.

These results do not meet up to our expectations predicting a bidirectional causality between the two variables, due to the significance of the tourism sector considered as one of the main pillars of the Lebanese economy. Nevertheless, the impulse response function revealed that a positive shock in either variable triggers a positive response in the other, meaning that tourism has a positive effect on economic

growth, and the latter also has a positive effect on tourist arrivals. The absence of a long-run relationship between the two variables was predicted due to the many uncertainties faced by the country of many fronts.

2. Recommendations and policy implications

The findings of this research led to the following recommendations and policy implications. First, more efforts should be undertaken in order to harness the enormous potential the tourism sector holds to favor economic growth. For that, policies should be formulated from a tourism perspective (modernization of tourist sites, preservation of old monuments...). Also, as we have found that each variable has a positive effect on the other, more tasks should be carried out in order to favor economic expansion. For that, objectives and programs of action for economic development should be specifically outlined in the national development plans and strategies.

3. Limitations and possible extensions

This thesis found a unidirectional causality ranging from economic growth to tourism development. However, we found several difficulties in gathering the needed data to perform our study. The drawbacks were the lack of information and the limited assistance of major governmental administrations such as the Ministry of Tourism, the Ministry of Economy and the Central Bank. Thus we managed to limit our monthly data to the coincident indicator and the non-Lebanese tourist arrivals. This limitation ruled out our initial choice of variables including the consumer prices index, the real exchange rate, and tourism revenues. The latter would have provided a better perspective on the Lebanese tourism sector and may have yielded different results.

Finally, further research could include more variables such as the index of economic freedom and the index of political instability in order to measure the effects of these two variables on the tourism sector and on economic growth. Future research can also extend our study in order to compare between Lebanon and other neighboring countries, other Arab countries, or even other Mediterranean countries.

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