DISSERTATION

ESTIMATING THE RELATIONSHIP BETWEEN GDP GROWTH AND GOVERNMENT SPENDING IN FOUR GCC COUNTRIES: A COMPARISON OF GDP AND NON-OIL GDP GROWTH.

Submitted by

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ABSTRACT OF DISSERTATION

ESTIMATING THE RELATIONSHIP BETWEEN GDP GROWTH AND GOVERNMENT SPENDING IN FOUR GCC COUNTRIES: A COMPARISON OF GDP AND NON-OIL GDP GROWTH.

In this study we are investigating the long-run causal relationship between real total government expenditure and real gross domestic product in terms of total GDP and non-oil GDP separately. Wagner's Law represents an hypothesis that causality runs from GDP to government spending. In this study six versions of Wagner's law are tested for four of the Gulf Cooperation Council (GCC) countries: Saudi Arabia, Bahrain, Kuwait, and Oman.

Existing literature on this question is mixed. One of the contributions of this study is its application of the latest econometric techniques, specifically the use of the Error Correction Model (ECM), in attempting to establish long run causality. Another contribution is the decomposition of GDP that provides an opportunity to compare growth of the oil and non-oil sectors of the economy in countries that are heavily dependent on oil but are also making efforts to diversify their economic activities. The role of government spending in contributing to long run economic

growth continues to be an important topic and the subject of much debate. This study attempts to contribute in a positive way to the debate.

The results obtained from this study find that the Wagnerian proposition holds for the preponderance of versions of Wagner's Law for two of the countries in the study; Saudi Arabia and Bahrain. In this case one of the policy implications is that the governments in these countries do not have to be concerned with maintaining a particular level of government spending to promote economic growth. This result holds for both the oil and non-oil sectors of these economies. This provides these governments with an opportunity to focus on reducing their budget deficits.

The results also find that the Keynesian proposition holds for the preponderance of versions of Wagner's Law for the other two countries in the study; Kuwait and Oman. In this case the policy implications are quite different from above as governments must recognize the importance of government spending for long run economic growth in both the oil and non-oil sectors of the economy, and ultimately for economic development also.

Other implications of these results are discussed in the conclusion to the dissertation.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

FIGURE **PAGE**

CHAPTER ONE

INTRODUCTION

1.1. Overview

Government expenditures which are incurred by all governments are the money that a government spends in order to maintain its own functioning as well as promoting the wellbeing of the society and the economy as a whole. However, the expanding of government activities over time makes it more and more difficult to distinguish which portion of government expenditures goes to the maintaining of the government itself and which portion goes to the benefit of the society and the economy more generally. In addition, government expenditure to improve economic and social wellbeing takes two different forms. One way of spending is through "free" public goods and services that the government provides to its people, for instance, spending on public education, transfers, subsidies, and sometimes even grants to its people or to foreign countries. The other form is spending on infrastructure activities that are more of an investment and have a rate of return such as goods and services that are a part of the country's current output, private goods and services. When the government buys the services of the factors of production and uses them to produce goods and services in the public sector of

the economy either as "free" or as "an investment", these factors of production become unavailable for the private sector.

In reality, most governments do undertake activities based on their social rate of return and their lack of provision by the private sector because these kind of good and services are unprofitable to them either as public goods or because of externalities.

Increasing the size of the government and more specifically the size of government expenditure, through history has been shown to follow an upward trend. And yet the study of government expenditure remains relatively unexplored in the economic literature. As Lowell Harris (1958) says "the economists have generally concentrated their attention on the theory of taxation. The theory of public expenditure has been more or less confined to generalizations in terms of the effects of public expenditure on employment and prices etc" (p. 261). More recently this deficiency has been diminishing as evidenced by various studies in the field of public finance that will be discussed later in this study.

In the last few decades considerable attention has been focused on the growth of the size of the government sector, both in absolute terms and as proportion of real GDP. In practice, economists have long been concerned with the relationship between real government expenditure and real gross domestic product (GDP). There are some theoretical but many more empirical studies on this issues, for numerous countries using either time-series data or cross-sectional data or both. One of the approaches that deals with and has been used to study the relationship

between real government expenditure and real GDP (or real GDP per capita) is what is known as "Wagner's Law" or "Wagner's hypothesis".

Wagner (1883) offered a model of the determination of public expenditure in which public expenditure growth was a natural consequence of the growth in national income. In other wards it was endogenously determined. The most accepted interpretation of this Law, states that an increase in economic activities causes an increase in government activities, which in turn, increases public expenditure. In addition, Wagner and others later have found that for almost all modern states real government expenditure increases at a faster rate than that of national output.

1.2. Sample of the Study

The present study will cover four of the Gulf Cooperation Council (GCC) countries which include: Kingdom of Saudi Arabia, United Arab Emirates, State of Kuwait, Sultanate of Oman, Kingdom of Bahrain, and State of Qatar. Unfortunately we must exclude two of these countries: United Arab Emirates and State of Qatar due to the unavailability of most of the data that are needed for this study. The study will cover the time periods for which the data is available for each country. For Saudi Arabia, Kuwait, and Oman it will be from 1971 to 2001, and for Bahrain it will be from 1975 to 2002.

In the case of Kuwait there is some missing data for total real government expenditure for the years 1990 to 1993 as a result of the Iraqi invasion and the

consequence of the Gulf War. For those years, we use a statistical method to fill in the missing data which is called "Interpolation." The growth rate between the years 1989 and 1994 is obtained for each year and then added to previous year in an incremental increase for the years that are missing. Also, in case of the missing data for non-oil GDP in Oman for the years 1989 to 1991, we use the same statistical method to fill in the missing data for those years.

Since the 1970s and early 1980s GCC countries witnessed a remarkable economic and social transformation due to the increase in oil prices together with oil production, which in turn, increased real gross domestic product (GDP). The economic strength of GCC as measured by their total real GDP constitutes 1.02 percent of the world economy. Their economies are as a whole still dependent on oil exports. Average per capita income in the GCC countries was estimated at about $12,000 in 2002, per capita income although it varies among the GCC countries, ranging from less than $8,000 in Oman to $28,000 in Qatar. The nominal GDP of the GCC countries combined would reach close to $340 billion (more than half the GDP of all Middle Eastern countries).

According to the World Bank, in 2003, all GCC countries enjoyed 'real' GDP growth, in spite of the slight variation in growth rates from one country to another, and in the year 2004 those countries were expected to enjoy further growth. In real terms, the Bank estimates the following growth rates, Saudi Arabia's GDP will expand by 2.1 percent, Kuwait by 2.2 percent, Bahrain, Oman, and United Arab Emirates by 4 percent, and finally Qatar by 8.2 percent.

In 2004, the oil price was over $50 per barrel causing high oil revenues for GCC countries. Governments in turn poured more money into their development projects in the year 2005. This increase in total real government expenditure is in line with the increases in GDP of each country.

It is helpful to consider the example of Saudi Arabia. Saudi Arabia announced in its 2004 budget that it was going to invest about Saudian Rials (SR) 63.65 billion ($16.97 billion) into education; construction of 3,030 new more schools and three more new universities. SR42 billion ($11.2 billion) was also being put into what were called 'new projects', including construction of 150 new hospitals, refurbishment and expansion of existing ones and improvement of water, sewage and transportation infrastructure.

With very low inflation for the GCC countris, overall real economic growth has averaged 4 percent a year during the past three decades, while the importance of non-oil economic activities has grown steadily, reflecting GCC countries' efforts at economic diversification. The authorities in these countries recycled the gains from the increased in their oil revenues through massive public investment programs in infrastructure, utilities, and basic industries, leading their countries to an initial rapid growth in non-oil activities. The most important non-oil activities are: government services, constructions, utilities, natural gas, and petroleum-processing industries etc. In order to increase the non-oil activities in the countries, governments encourage the development of these activities through fiscal incentives including, subsidies for the provision of electricity and water, soft loans,

and sometimes low taxation for some of the countries[1]. Furthermore, by mid-1990 governments have attempted to increase more of their spending toward non-oil activities by expanding their role in private sector in the economy and by maintaining reasonable fiscal policies.

As a consequence of the efforts of these governments to encourage and supporting non-oil activities, most of GCC countries have made important progress in this matter especially in telecommunications and utilities, and in easing the rules on foreign investments. In addition, these countries have experienced some growth in their non-oil exports including petrochemicals, fertilizers, aluminum, and natural gas etc. However, under the present conditions, diversification of the economic base in GCC countries will have to go a long way before the dependence on oil can be reduced.

1.3. Statement of the Problem

In studying the growth of the size of the government, and more specifically government expenditure, history has shown that real government expenditure has increased continuously over time in almost every country. But the role of government expenditure in accelerating economic growth has been debated among economists as we will see in the literature review chapter.

The role and size of government is thought to play a very important role in promoting economic growth especially in developing countries, including the Gulf Cooperation Council (GCC) Countries. In those countries until mid-1980, public

[1] Saudi Arabia, for example, does not have a taxation system yet.

sectors controlled major economic activities. Since then, governments have tried to reduce their economies dependence on public expenditure and have begun to open the door for more privatization of economic activities and put more efforts in maintaining a steady growth rate of each country's GDP especially the non-oil GDP activities' part.

The size of the government depends on the functions the government is controlling directly in their economy for both productive and non-productive activities. The crucial questions in this study are: Is there a long-run (equilibrium) relationship between economic growth and real government expenditure [in this study the independent variables (GDP or per capita GDP) and the different dependent variables (Real Total Government Expenditure "TGX", Real Total Government Expenditure on Consumption "TGXC", per capita Real Total Government Expenditure "TGX/N", and the share of Real Total Government Expenditure in Real Gross Domestic Product "TGX/GDP")]?. This question will be answered for the independent variables (GDP or per capita GDP) in terms of real total GDP and real Non-Oil GDP in relation to the different measures of the dependent variables mentioned above.

The hypothesis to be tested in this study is: there is a long-run causal relationship running from economic growth to real government spending (Wagner's Law).

1.4. Study Motivations

This study aims to find some answers to the crucial question stated above by examining the causal relationship between total real government expenditure in general and real GDP (or real per capita GDP) for four GCC economies (Saudi Arabia, Bahrain, Kuwait, and Oman), using aggregate real data for the periods for which data are available for each of these four GCC countries. In those countries it is generally believed that the role of the government is a major factor in encouraging economic development. Another aim is to shed some light on the importance of fiscal policy (government expenditure) in determining non-oil real growth in the four GCC countries. An important policy issue in these countries is how to achieve adequate non-oil growth to diversify production and to create more jobs for the increasing number of people entering the labor force in four GCC countries. It is important to determine whether or not government spending has any effect on this process.

Since most economic time-series variables are characterized to be as non-stationary variables, we will utilize recent econometric techniques to overcome any problem that arises from non-stationary time-series data. In this study we will investigate whether all or some of the various versions of Wagner's Law are supported when examining the data on economic growth and government expenditure in four of the GCC countries. In chapter three we will discuss in more detail the procedures for testing the different time-series data for all variables by

applying Unit Root tests, Co-integration, and finally testing for Granger Causality using Error Correction Model (when appropriate).

1.5. Significance of the Study

As we mentioned earlier, our analysis in this study will distinguish between GDP and non-oil GDP growth for each of the four GCC countries in our sample to see the importance of oil revenue and its effect on the process of each country's efforts towards economic growth and development. Since all of the four GCC countries economies' are dominated, more or less, by the oil sectors and large central governments, oil prices play an important role in determining the magnitude of the governments spending. Policies makers in these countries have usually been reluctant to cut government spending because of their concerns about the potential adverse effect on non-oil growth, and greater awareness of the need to insulate fiscal policy particularly for non-oil activity from volatility in oil prices. However, when confronted with the need to cut spending, in the case when there is a decline in oil price and then a decline in the country's oil revenue, they have often chosen to reduce first capital then current expenditure (government current consumption).

In this study while we will focus on estimating six versions of Wagner's Law, to test for causality, and we will have one of two possible findings:

(i) Wagner's Law holds, which means that there is unidirectional causality from GDP to TGX; that is GDP causes TGX, but not vice versa.

In this case, the total real government expenditure (TGX) has no effect on economic growth and development including growth of non-oil real GDP. The policy implications of this finding would that the government does not have to concern itself with maintaining any particular level of government spending to promote economic growth. This would allow the government to reduce its budget deficit. It would also suggest that the government does not have to continue encourage the shifts in its expenditures towards non-oil activities. More important in this case will tend to be expanding the role of private sector in the economy.

(ii) The other hold, which means that there is either unidirectional causality from TGX to GDP; that is, TGX causes GDP, but not vice versa (a Keynesian proposition), or there is bi-directional causality of each other between GDP and TGX: that is, GDP and TGX "Granger cause" each other (there are feedback effects).

In both of these cases, the total real government expenditure (TGX) has an effect on economic growth and development including non-oil real GDP. Therefore, policy makers in those countries have to recognize the importance of their spending on economic growth and turn the direction of their spending towards sectors that are more effective for the country's economic growth and development. The fact that government spending affects economic growth also implies that the policy makers can use oil revenue in order to promote non-oil activities to accelerate the growth of non-oil real GDP and have some independence from relying on oil revenue for their future prosperities.

In all above findings the aim of this study is to focus on the importance of the real growth in non-oil activities in order to free each country from the dependence on oil revenues and from relying on it on their growth and development.

1.6. Data

The data used in this study to specify six versions of Wagner's Law for each of the four GCC countries consist of the following variables:

1- Real Gross Domestic product (GDP).

2- Real Non-Oil Gross Domestic Product (Non-Oil GDP).

3- Total Real government expenditure (TGX).

4- Total Real government expenditure on Final consumption (TGXC).

5- Population (N).

The variables (GDP), (Non-Oil GDP), (TGX), and (TGXC), are all in real terms. The GDP deflator has been used to obtain real values of the variables; Saudi Arabia (1999 = 100), Bahrain, Kuwait, and Oman (1995 = 100). In addition, the data are also examined in per capita terms, and total real government expenditure is used in the form of ratios to GDP, as required by some versions of Wagner's Law.

The study will cover different time periods for each country, for Saudi Arabia, Kuwait, and Oman it will be from 1971 to 2001, and for Bahrain it will be from 1975 to 2002. The data sources are from the Saudi Arabia Monetary Agency (SAMA) (2002), and for Bahrain, Kuwait, and Oman from International Monetary

Fund (IMF); International Financial Statistical Yearbook, (IFS), (2001, 2002, and 2003).

In addition, we will examine the same variables for six versions of Wagner's Law for each of the four GCC countries this time using real non-oil Gross Domestic Product (Non-Oil GDP) instead of Real GDP to find out how real government expenditures affect oil activities compared with non-oil activities.

Finally, in this study we will focus on testing six versions of Wagner's Law empirically for the relationship between the two independent variables and the other four dependent variables that we mentioned earlier in this chapter.

1.7. Design of the Study

Our study is as follows, Chapter One introduces the study, the sample of countries examined in the study, the objectives of the study, and the time period we investigate, according to six versions of Wagner's Law for both, real GDP and real non-oil GDP. Chapter Two will review the literature review relevant to this topic, theoretically as well as empirically. Chapter Three will discuss the methodology that this study uses. A Unit Root Test, a co-integration, and Granger Causality Test and Error Correction Model are conducted in this section to test for the validity of Wagner's hypothesis for four of the GCC countries. Chapter Four will discuss in more detail the economic profiles for the GCC itself and the efforts for integration among the GCC members as well as the economic profiles for each individual country in the context of each country's efforts towards prompting economic

growth. Chapter Five covers the empirical analysis of the six versions of Wagner's Law for the each country in the sample in terms of real GDP as well as in terms of real Non-Oil GDP. Finally, in chapter six, we will conclude our study by summarizing our empirical findings, comparing the results for real GDP and real Non-Oil GDP, and then we will discuss some of the implications that might apply to all or some of the countries in our sample in order to identify the proper economic policy that would be appropriate for each individual country in order for them to manage their economic growth and government expenditure. Finally, we will make some suggestion for further research.

CHAPTER TWO

LITERATURE REVIEW

2.1. Introduction

The role and the size of government expenditure in promoting economic growth have long been the concern of economists and policy makers in both industrialized and developing countries. On one hand, government expenditure is seen as an exogenous factor, which can be used as a policy instrument to influence growth (Keynes). On the other hand, government expenditure is seen as endogenous factor or as an outcome, not a cause of growth (Wagner).

In this chapter we will discuss the economic theories of public (government) expenditure and economic growth as well as the different empirical studies looking at the relationship between public expenditure and economic growth both for individual countries and for more than one country.

2.2. Approaches to Public Expenditure and Economic Growth

When government budgets are in balance, it makes no difference whether the size of public sector is measured using either the government revenue or government expenditure as a ratio to GDP. However, in recent years the trend toward large budget deficits has dictated that expenditure ratios be used exclusively

for this purpose and hypotheses tested in the literature have either anticipated this trend or tend to reflect this development.

In this regard, there are tow major different approaches in economics concerning the relationship between government expenditure and economic growth. On one side, the conventional macroeconomic theory summed generally that increased government expenditures tend to cause a high aggregate demand and in turn, rapid economic growth, here the causality runs from TGX to GDP which means that government expenditure is seen as an exogenous factor, which can be used as a policy instrument to influence growth. On the opposite side, however, the government expenditure that assumed that the growth in government expenditure is due to an increase in the economic activities which in turn cause the government activities to increase and then an increase in government expenditure, here is the causality run from GDP or per capita GDP to TGX, which means that government expenditure is seen as endogenous factor or as an outcome, not a cause of growth.

2.2.1. Public (Government) Expenditure Theories Approach

One can distinguish among three main different theories of government spending (expenditure) based on how each theory dealt with both government expenditures and government revenue:

(i) Wagner's Law.

(ii) The Displacement-Concentration (Effect) Hypotheses.

(iii) The Theory of Bureaucracy.

2.2.1.1. Wagner's Law

For a long time there was no specific model to determine the role of public expenditure in promoting economic growth. Undoubtedly, some classical economists, e.g. Adam Smith, paid attention to tendencies in the long-term trend in public expenditures, but there was no attempt to translate such observations into a general theory (Tarschys, 1975). However, over one hundred years ago, a simple model of the determination of public expenditures was offered by Adolph Wagner [1883], a leading German economist of the time. On the basis of his empirical findings, he "formulated a 'law' of expanding state expenditures; which pointed to the growing importance of government activity and expenditure as an inevitable feature of the progressive state" (Bird, 1971: Page 1). He was the first scholar to recognize the existence of a positive correlation between the level of economic development and the size of the public sector. He hypothesized a functional relationship between the growth of an economy and the growth of the government activities such that the governmental sector grows faster than that of the economy. As pointed out by Henrekson (1993), Wagner saw three main reasons or explanations for the increase in the government's role. First, industrialization and modernization would lead to a substitution of public for private activities. Expenditures on law and order as well as on contractual enforcement would have to be increased. Second, an increase in real income would lead to an expansion of the income elastic "cultural and welfare" expenditures. Wagner cited education and culture to be two areas in which the government could be a better provider than the

private sector. Thus, the public sector would grow after basic needs of the people are satisfied and consumption pattern of people expands towards activities such as education and culture. Third, natural monopolies such as the railroads had to be taken over by the government because private companies would be unable to run these undertakings efficiently because it would be impossible to raise such huge finance that are needed for the development of these natural monopolies.

Later, his views were formulated as a law and are often referred to as "Wagner's Law". The main contribution in this field of this law was that Wagner tried to establish generalizations about public expenditures, not from postulates about the logic of choice (deductively), but rather by direct inference from historical evidence (inductively). Wagner's Law stated simply, proposes that there is a long-run tendency for public expenditure to grow relative to some national income aggregate such as GDP. A number of time series empirical studies have in the past found support for Wagner's Law. These developments in econometric techniques, particularly the use of co-integration tests call into question the reliability of these results and suggest further investigation is warranted [see for example. Peacock and Wiseman (1967), Musgrave (1969), Bird (1971), and Beck (1982)].

From the above discussion, Wagner's Law can be interpreted as treading public expenditure as an outcome, or an endogenous factor, not cause of a growth in national income. Wagner's law requires the causality to run from gross domestic product (GDP) or GDP per capita to government expenditure in contrast to the

Keynesian approach in which causality is seen to run from government expenditure to GDP (Keynes 1936).

Finally, there are at least six versions of Wagner's law which have been empirically investigated, and we are going to discuss each one of them in more detail in the methodology section and when we analyses the empirical results of the data of the four GCC countries in this study.

2.2.1.2. The Displacement-Concentration (Effect) Hypotheses

The displacement-concentration (effect) hypothesis was propounded by Peacock and Wiseman (1967). In the literature, it has been closely linked to Wagner's law although there are some differences between the two.

Peacock and Wiseman suggested the opportunity of considering the dependence of governments upon revenues raised by taxation, and therefore the relevance of the constraints imposed on public expenditure by the electors' willingness to pay taxes, and encouraged further research on government growth, more focused on empirical data. In particular, from their analysis of the time-pattern of the British general government expenditure, Peacock and Wiseman elaborated their "displacement theory hypothesis". It is important to notice that they do not deny the importance of many of the characteristics of government expenditure to which Wagner's law draws attention, but they are more interested in yearly changes, rather than in the secular behavior of the public sector size and the permanent influences on government expenditures.

Peacock and Wiseman argue that under normal conditions of peace and economic stability, changes in public expenditure are rather limited. These changes are bounded by "tolerable" limits of taxation. However, during crises and calamities, such as wars, people do not mind higher taxes and their threshold level of taxation rises permanently. Thus, government expenditure over time appears to outline a series of plateaus separated by peaks. On other words, the time-pattern of the general government expenditure is that public sector dimensions will tend to be constant over time, rather than increasing, unless some major crisis periods occur, which require an increase in government intervention. The corresponding expansion of the public sector will not be just temporary, since the new levels of government expenditure and taxation will be accepted by the electors, and therefore public sector size will remain stable at a higher level until the next shock.

Empirical studies by Borcherding (1965) and others do not find much support for the hypothesis. However, Peacock and Wiseman adopt Wagner's historical approach and formulate a version of Wagner's law which we will be one of the six versions that we are going to use for our study.

2.2.1.3. The Theory of Bureaucracy

The theory of bureaucracy hardly offers a comprehensive explanation of the growth of government expenditure and even if this claim about this theory is made, it would be difficult to proof it empirically. However, the theory of bureaucracy proposed by Niskanen (1971) emphasizes the role of self-interest of the

bureaucrats. The bureaucrats are interested in maximizing their own utility. Their utility function consists of salary, perquisites, prestige, power etc. But these items are a direct function of the budget of the bureaus or departments. Thus, the bureaucrats are mainly interested in maximizing the bureau's budget.

However, this theory probably overemphasizes the role of the bureaucrats. In the ultimate analysis, the bureaucrats have to depend upon the politicians for their budgets. In that sense, it is the politicians who have the real power with regard to the budgets. However, the scope of the theory of bureaucracy, contrary to its advocates, is rather limited and its real objective is sought in accounting for the residual which such conventional demand increasing factors as the size of income, population growth, urbanization and education fail to explain (Borcherding 1977).

2.2.2. Keynesian Theory Approach

In contrast to Wagner's approach, there is another approach which is associated with Keynes mentioned earlier. Keynesian theory was based on the role that the government plays in the case when aggregate demand in the economy is declining or remains stagnant. Keynes (1933) noticed that many types of government expenditure could contribute to economic growth positively, by directly increases aggregate demand. Therefore, the government can step in and stimulate economic activity by increasing aggregate demand, increasing income and in turn reducing unemployment.

Keynes's theory was simple, intuitive and practical -- firms will hire more labor only if they believe they can sell the extra output -- consequently, if demand as a whole declines, they will cut back production and lay workers off. However, by laying workers off, the income of potential customer decreases and thus aggregate demand will be even lower. Then, as firms do not see demand rise again, they have no incentive to rehire. The economy, in short, is caught in a vicious circle of high unemployment and low demand. This is where an exogenous agency, such as a government, can step in and, by increasing demand, lead the economy into a virtuous cycle of high demand and high employment. Keynes (1936) stated the principle of effective demand: as government expenditures increase the notional income increases too. Therefore, the causality, in the Keynesian approach, runs from government expenditure to national income and public expenditure is seen as an exogenous factor or instrument to be used to stimulate economic growth.

Keynesianism is generally a theory of economic stabilization, not a theory of government growth. It does not suggest that government in fighting economic fluctuations would necessarily increase or decrease its relative size. While budget imbalances, dictated by fiscal activism, are acceptable on a yearly basis, a Keynesian premise is that over a number of years the budget would be balanced. The size of government expenditure is viewed as an exogenous factor.

The Keynesian proposition on government expenditure is supported by the experiences of developing countries which strongly base their economic growth on the growth of public sector as an exogenous effect which can be used as a policy

instrument to influence growth. This is does not means that this approach is correct for all time and all governments should adopt it, but this approach that has been shown to be effective in some of the developing countries.

2.2.3. Summary of the theoretical approaches

In sum, through careful consideration of the previous theories that are comparable to Wagner's Law, Wagner's Law appears to be the most methodologically sound and general theory of a positive causal relationship going from economic growth to government expenditure. More specifically, from the last three theories we can conclude: first, arbitrary definitions of upheavals reduce the displacement-concentration hypothesis into a variation of Wagner's law; second, the rather un-testable theory of bureaucracy complements at best other explanations of government growth. Since the Keynesian Theory is more appropriately a theory of economic stabilization, not a theory of government growth, we favor a focus on Wagner's Hypothesis. Therefore, this study will focus on testing six versions of Wagner's Law for the four GCC countries in our sample.

2.3. Empirical Studies on Government Expenditure and Economic Growth

In recent decades, economic researchers have shown interest in verifying and understating the linkage between total government expenditure as fiscal policy and economic growth. A fundamental and conventional wisdom of neoclassical economics in modeling economic growth was developed by Robert Solow (1956).

On one hand, it suggests that the fiscal variables such as the level of taxation and the level of government expenditure can affect the level of income in the short run, but have no effect on the rate of economic growth in the long-run. On the other hand, it also suggests that while some economies may be wealthier than others, in the long-run, however, they should all grow at the same rate.

This neoclassical growth model of Solow has been challenged in recent years on both the expenditure side as well as the revenue side. Here we would like to summarize some results of these critiques from both sides. On the expenditure side, there are many instruments of fiscal policy known to have or to exhibit long-run growth effects. Robert Lucas (1988) argued that the investment in human capital through education increases the stock of human capital, and that human capital is an important element in determining the economic growth rate of a country. Thus, if returns to education exhibit non-decreasing return to scale in producible factors of production then this increase in education expenditure can be seen as a major source of long-run economic growth. In addition, there are also other examples of the influence of government expenditure on economic growth in the long-run such as: the effect of government expenditure on infrastructure when exhibits the character of a public good (Robert Barro, 1990); effects of investment subsidies (Romer, 1986): and effects of health expenditures (Bloom et al., 2001), all of which can give rise to non-decreasing returns to scale with respect to producible factors of production.

On the revenue side, taxation on private agencies has been argued to distort private agents' decision making in regard to factor accumulation and supply and also their decisions to save and invest. This kind of distortion could easily change the process of capital accumulation, and thus alter the economy's growth rate (Milesi-Feretti and Roubini, 1998). In addition, endogenous growth models contain some externalities, either in the innovation process or on the accumulation of both physical and human capital, thus tax distortions could mimic the effect of an externality in private decision rules in turn inducing the efficient allocation of resources (Turnovsky, 1996, and Fisher and Turnovsky, 1998).

In regard to Solow's suggestion that all countries in the long-run should grow at the same rate, most of the recent studies in this matter suggested that there are substantial differences in the economic growth rates of countries and over various lengths of time periods (Quad 1996; Gwartney and Lawson 1997). Moreover, there are now good theoretical reasons that the different countries could have and maintain different economic growth rates (Lucas 1988; Romer 1990).

The effects of government expenditure on economic growth in the long-run have been empirically studied since the early 1980s. These empirical studies have yielded conflicting results. Some of them found a negative relationship between the two which supports the hypothesis that rising government expenditure is associated with a decline in the economic growth, while others found a positive relationship between the two which supports of the hypothesis that government expenditure is associated positively with economic growth, and still other studies do not find any

evidence of a significant relationship between government expenditure and long-run economic growth. On the other hand, government expenditures are often found to have positive impact on economic growth in developing countries but no impact on economic growth in developed countries. Furthermore, some studies of the relationship between government spending and economic performance found a negative yet insignificant impact of non-productive spending is found for industrialized countries but a positive and significant impact of non-productive spending for developing countries. Finally, there are also some studies found that there is feedback between GDP and total government expenditure. A more detailed review of this literature follows.

An example of a recent study that found a negative relationship between government expenditure and economic growth is Gwartney et al. (1998), they investigate data for the period 1960 to 1996 for the members of Organization for Economic Cooperation and Development (OECD) and data for the period 1980 to 1995 for a larger set of 60 countries around the world.[2] Both are cross-sectional studies using long time spans, based on a basic regression model. The findings of these studies showed a strong and persistent negative relationship between government expenditure and growth of GDP, for both the developed economies of the OECD and for larger set of 60 nations around the world. Therefore, they conclude that when government expenditure is too high the economic growth will be retarded. Such findings are reasonable because more rapid growth is possible,

[2] The study did not include any nation of the former Soviet Union, China or former communist nations from Eastern Europe.

but the higher potential growth can only be achieved if countries are willing to reduce the relative size of government. Another study by Landau (1983), examines the relationship between the share of government consumption expenditure in GDP and the rate of growth of real per capita GDP. He uses data from ninety-six countries, both Less-Developed Countries (LDCs) and developed countries, for the period 1961 to 1976, also based on a basic regression model. The findings of the study suggested a negative relationship between the share of government consumption expenditure in GDP and the rate of growth of per capita GDP. In this study, the conclusion was that the growth of government hurt economic growth. We should be caution in drawing strong conclusions from this study, for two reasons: one, the government share variable is only government consumption expenditure, not either total government expenditure or total government economic impact; two, government expenditure might help increase economic welfare even if it decreases the growth of per capita GDP.

Landau also conducted another study in 1986, estimating the impacts of the five types of government expenditures (consumption, education, defense, transfers, and capital expenditure) on economic growth (the increase in per capita domestic product), using cross-sectional data sets from sixty-five LDCs for the period 1960 to 1980, based on a basic regression model. He found that all regressions showed a strong negative relation between the level of per capita product and the economic growth rate in the long-run that supports the hypothesis that rising government expenditure is associated with a decline in the economic growth. Moreover, Folster

and Henrekson (2001), conducted a study of a sample of rich countries, for both OECD and Non OECD, for the period 1970 to 1995, cross-section studies using long time spans, based on a basic regression model. They found a negative relationship between government expenditure and economic growth. They find from the estimated coefficients that a 10 percentage increase in government expenditure is associated with a decrease of 0.7-0.8 percentage points in the economic growth rate. Such a study raises a number of problems with cross-section studies using long time spans. For example, it may fail to capture growth effect of fiscal policy due to endogenous policy determination during the observation periods, countries that have high taxes and experience lower growth during the observation periods are more likely to change its policy and reduce its taxes, while countries are more likely to continue its high taxes that experience positive growth effect. Other problem is that they may be inefficient since they discard all information on within-country variation. In some countries, the government size might have continued to increase, while in some other countries it might has a little change or even a decline. Therefore, the expenditure as a share of GDP could vary among countries during the observation periods. A study by Grossman (1988) uses a simultaneous equations model which permits for a non-linear relationship between the growth in government size and total economic growth, and produces estimates for both linear and non-linear models. This study is about the U.S. government and its effects on the country's economic growth using data for the period 1929 to 1982, Grossman hypothesized that government expenditure would

have positive impact on overall economic growth but that the government's decision making processes would raise government expenditure leading to an inefficient quantity of public goods produced, and claims support for his hypothesis given his finding of a negative relationship between U.S. government expenditure and economic growth of the country.

However, looking at some studies that find a positive relationship between some of the components of government expenditure and economic growth, or more specifically, between economic growth and different education indicators: for example Easterly and Rebelo (1993), investigate data from one-hundred countries, developed countries as well as most of the third world countries, for the period 1970 to 1988. They found a positive correlation between the share of expenditures on education in total government expenditure and economic growth. This is provides evidence that type of government expenditure is important for growth.

Others studies did not find any statistically significant relationship or no significant relationship between the government expenditure and the long-run economic growth. For example, Kormendi and Meguire (1985) investigate data for forty-seven countries for the period 1950 to 1977 (post-war), using cross-section studies over long time spans and based on a basic regression model. They measured the impact of the average growth rate of the government's share of consumption spending (including defense and education expenditure) in GDP, on economic growth. They found no evidence that government size has adversely affected the average growth rate of real GDP for each country's sample period. Cross-section

studies using long time spans raise a number of problems though. In addition to the problems we mentioned earlier, the authors of this article addressed very important drawbacks. More comprehensive measures of government spending are needed. Also, they conclude that there are a number of available data series that they have not been exploited, among them, government debt taxation, interest rate and trade balances. Agell et al. (1997: Page 33), concluded that "the theoretical and empirical evidence ... is found to admit no conclusion on whether the relation is positive, negative or non-existent". Moreover, Slemrod (1995: Page 401) places more emphasis on the econometric problems in recent studies, and he concludes that "there is no persuasive evidence that the extent of government has either a positive or a negative impact on either the level or the growth rate of per capita income, largely because the fundamental problems of identification have not yet been adequately addressed". The problems of identification refer to the difficulty of identifying which of the causal mechanisms the data reveal. For example, the size of government depends not only on tastes for government activities, but also on the expected benefit of government spending and the cost of mobilizing resources for that expenditure. Finally, Atkinson (1995: Page 196) concluded that "study of the aggregate relationship between economic performance and the size of the Welfare State is unlikely to yield conclusive evidence". This conclusion has been drawn because studying disaggregates relationship between economic performance and the size of the Welfare State is more likely to yield an accurate conclusion.

On the other hand, there are some studies that found a positive effect of government expenditures on economic growth in developing countries and at the same time have no impact on economic growth in developed countries. Satter (1993), for example, investigates data for twenty-four OECD countries (developed industrial market economies) and a group of thirty-one low-income developing economies for the period 1950 to 1985 and he finds that there is a positive relationship between government expenditures and economic growth in the low-income developing countries while there is a negative impact between government expenditures and economic growth in OECD countries. He concluded that the role of government in these OECD economies is largely indirect, leaving the private sector with enough freedom to operate the different kinds of productive activities, while the government in the low-income developing economies have exercised relatively greater control and direction over their economies in almost all of productive activities. The conclusion that the author derives from this study is very reasonable and realistic in our world today. This study produced additional evidence in support of the citing historical evidence, a number of leading economists have argued that the government size has no impact, one way or another, on economic performance of industrial market economies. For the low-income economies the evidence, though, mixed, points more towards a positive overall impact of government on growth performance.

Moreover, there are some other studies about the relationship between government spending and economic performance in terms of non-productive

government spending. Lin (1994) investigates data from sixty-two countries, twenty advanced developed countries (ADCs) and forty-two less developed countries (LDCs), for the period 1960 to 1985. He took into account the recent empirical studies about the impact of government expenditure and economic growth, new theoretical synthesis and other models which are in turn subjected to empirical validation. The empirical validation is conducted for both ADCs and LDCs based using OLS and Parks' estimation methods on a single equation model and 2SLS (two-stage-least-squares) method on a simultaneous equations model. He also took into consideration that there are significant structural differences between ADCs and LDCs with respect to the impacts of non-productive government expenditures (which excludes defense and education expenditures). He concluded that in terms of non-productive government expenditure that there is a negative yet insignificant impact on ADCs' economic growth on both in the short run and intermediate run (25 years in this study), and at the same time it has a positive impact in the short run and negative impact in the intermediate run (both insignificant) on LDCs' economic growth.

Finally, there are some other studies about the relationship between government spending and GDP that have found feedback between the two variables. Huang and Tang (1992), for example, examine the causality among real GNP, real government expenditure and real government revenue by extending Granger's idea to three-dimensional vector autoregressive (VAR) system, by using data for Taiwan for the period 1951 to 1987. They conclude that there is a feedback

between GNP and government expenditure, and also a feedback between government revenue and GNP. They find only one-way causality running from government revenue to government expenditure. However, the two bidirectional causalities seem to fit the expectation of fiscal activism. Moreover, the one-way causality that flows from government revenue to government expenditure may refer to a general causal pattern among the three variables as "constrained fiscal activism".

Overall, the studies conducted to investigate the linkage between the government expenditure and economic growth or between one or more of the components of government expenditure and economic growth using different kinds of models have yields different results depending on the study as well as the data used in the study. In addition, as we saw previously, some studies that used the same model but used different data such as developed versus developing countries, yield different results. For these reasons it is very difficult to point out or specify which study is more reliable.

2.4. Studies of Government Expenditure and Economic Growth in GCC Countries

There have been some efforts to study the effects of government expenditure on long-run economic growth in the GCC countries in the last two decades. In general, most of these studies concluded that there is evidence of a

strong positive relationship between government expenditure and economic growth.

Fasano and Wang (2001), using co-integration and an error correction model investigate and examine the relationship between government expenditure - broken down in current and capital spending- and the economic growth of real non-oil GDP in some of the GCC countries for the period 1980 to 1999, (Kuwait was excluded from their examination due to the missing information regarding the years 1990 and 1991 as a result of the Iraqi invasion). The results obtained from the study showed no significant relation between disaggregated government expenditure and growth in non-oil economic growth. In other words, their conclusion did not support the claim that government expenditure tends to affect non-oil GDP growth in these countries or vice versa. One of the problems with this study is that the data used are not publicly available and hence it is difficult to judge the reliabilities of the results.

In Saudi Arabia, Al-Yousif (2000) used a framework similar to Ram's (1986) which built on a two-sector production function (government sector and non-government sector). The Ordinary Least Squares (OLS) is been used to investigate the effect of government expenditure on economic growth using the two different models with annual data for Saudi Arabia for the period 1963 to 1992. He concludes that each model has a different result. However, one of the models shows a positive relationship between government expenditure (size) and economic growth which means that the government size has a positive effect on economic

growth. The result of this study indicates that the nature of the impact of government size on economic growth is significantly depends on the way of measuring the government size. Therefore, government sector in Saudi Arabia, with its large oil revenue, largely dominated the economy, it sounds reasonable and acceptable to say that Ram's model with its supportive evidence for the role of government in Saudi economy is a good model to be utilized. Another study of Saudi Arabia by Khalifa (1997) using Barro's (1990) endogenous growth model to untangle the nature of the relationship between government expenditure and economic growth examines the intertemporal interactions between the share of government spending in GDP and the growth rate of per capita real GDP. The study uses vector autoregressive analysis (VAR) and using annual data for the period 1960 to 1996. His conclusion was that there was a positive yet insignificant relationship between government expenditure and growth of per capita GDP.

In the case of the Sultanate of Oman, Treichal (1999), based on fiscal impulse analysis for the period 1981 to 1997, looked at the linkage between the growth rate of the total real government expenditure, disaggregated into current and capital expenditure, and non-oil real GDP. His conclusion was that the results supported the existence of a long-run positive relationship between government expenditure, both current and capital, and the growth rate of non-oil real GDP. This conclusion may reflect the more ambitious effort to increase the non-oil revenue in Oman, and might be evidence for the increasing independence of private sector economic activity.

In the case of the State of United Arab Emirates, Ghali and Al-Shamsi (1997), using co-integration and an error correction model for the period 1973 to 1995 tested for a causal relationship between both current and capital government expenditures on the growth rate of the real GDP. Their analysis provides evidence that government investment in capital supports the existence of long-run positive effect on economic growth, at the same time, the effect of government consumption is found to be insignificant.

In the case of the State of Kuwait, Mohammad and Yousef (1990), using a simultaneous equation system examine the effect of government expenditure on the non-oil economy for the period 1970 to 1985. Their conclusions show that government expenditure has a significant and positive impact on the non-oil economy in Kuwait. Similar results were obtained in another study of Kuwait by Chalk (1997). He used co-integration and an error correction model by analyzing the empirical effect of government expenditure on the level and sectoral breakdown of the private economy in Kuwait for the period 1977 to 1994. The result of this empirical examination, which emphasizes the demand-side rather the supply-side, was that the government expenditures have a positive and significant effect on private output.

2.5. Empirical Studies Devoted to Testing Wagner's Law

In recent years, a number of researchers have focused on testing Wagner's Hypothesis for specific countries as well as for groups of countries using both time-

series and cross-sectional data sets. Wagner's Law postulates that when economic activity grows there is a tendency for government activities to increase not only in line with the growth in the economic activity but more than proportionately.

Testing Wagner's Law empirically for a group of countries has yielded results that are considerably different depending on the composition of the groups. Abizadeh and Gray (1985) test the hypothesis for fifty-three countries grouped into poor, developing, and developed groups on the basis of the Physical Quality of Life Index (PQLI) for the period 1963 to 1979. The hypothesized relationship between economic development and the growth of government expenditures is supported for the developing countries group, but not for the poor, or for the developed countries groups. It was observed that for the developed countries group there is a decline in the government expenditure ratio with increased economic development. Ram (1986) tested the hypothesis for sixty-three, developed and developing countries for the period 1950 to 1980, and in another study 1987 that covered the same time period but this time for a group 115 countries, found limited support for Wagner's hypothesis. The results, in both studies, indicated that while there is support for the proposition in some time-series data, such support is lacking in most cross-sectional estimates. Therefore, much of the support for Wagner's hypothesis reported in some other cross-section studies was probably due to either use of limited samples or inadequate data when comparing across the other studies. In addition, they did not take into account the enormous cross-national diversity in

economic and political structures. Therefore, much caution is needed in either proposing or expecting a common pattern in all countries.

Afxentiou and Serletis (1996) tested Wagner's hypothesis for six countries (France, Italy, Germany, Belgium, Netherlands, and Luxembourg) for the period 1961 to 1991 and found no evidence supporting Wagner's hypothesis that there was a long-run relationship between both, total government expenditure and GDP, and also between the three categories of government expenditures (consumption, transfer, and subsidies). In this study, Germany as the strongest economic power was used as a model country toward which the rest of other countries in the study, European Union (EU) countries, were expected to converge. Accordingly, and as the authors concluded, all results indicates that is room for government expenditure to be harmonize within the EU.

Ansari et al. (1997) also examined the hypothesis for three African countries, Ghana from 1963 to 1988, Kenya from 1964 to 1989, and South Africa from 1957 to 1990, and also found no evidence supporting the existence of long-run relationship between government expenditure and national income, Wagner's hypothesis. Finally, Chang (2002) examines five of different versions of Wagner's Law by employing annual time-series data on six countries, three countries are part of the emerging industrialized countries (South Korea, Taiwan, and Thailand) and three industrialized countries (USA, Japan, and United Kingdom), for the period 1951 to 1996. The results of this study support the existence of a long-run

relationship between income and government expenditure for all countries studied with the exception of Thailand.

Wagner's Law was intended to apply to countries that are in the process of development. But one of the problems with this study is the finding of a relationship between government expenditure and national income in the industrialized countries which contradict the context within which Wagner's Law was intended to apply. It well recognized that as the economy develops there are substantial demands for social goods and services provided by the government which might have an impact on the long-run economic stability because financing these expenditures has always been the major source of problems for the economies of the developing countries. On the other hand, testing Wagner's Law empirically for specific countries, with few exceptions, has yielded results that are supporting Wagner's proposition.

Ghamdi (1983) investigated the evidence of Wagner's hypothesis in the case of Saudi Arabia using time-series data for the period 1960-61 to 1980-81. The conclusion of the study was that Wagner's Law was validated for the case of the Saudi Arabia economy where the income elasticity for government expenditure is greater than unity. In addition, he finds that government expenditure size grew almost 150 fold and government expenditure/GDP ratio increased to 70 percent during the period under investigation, that study confirms the idea that the "Law" was intended to apply to countries that are in the process of economic development but not necessarily to countries in other stages.

Singh and Sahni (1984) test Wagnerian versus Keynesian hypotheses by examining the relationship between national income and total public expenditure based on data for India for the period 1950 to 1981. The empirical results of their study suggest that that there is feedback between public expenditure and national income. The causality is running from national income to government expenditure (Wagnerian), and at the same time it is running from government expenditure to national income (Keynesian). This study also suggests that the two variables be treated as joint dependent variables in both the public finance and macroeconometric studies.

Murthy (1993) investigates what determines the presence of a long-run link between the share of government expenditure in real GDP and real GDP per capita in case of Mexican economy for the period 1950 to 1980. The findings show that the share of government expenditure in real GDP and real GDP per capita are co-integrated and thus there is a positive long-run relationship between the variables under investigation. However, this study looked only on one part of Wagner's Hypotheses, which is the long-run relationship between the two variables, but did not employ Granger-Causality procedure to determine the direction of this relationship. Granger-Causality test is an important procedure to determine whether Wagner's Law is valid or not.

Yousefi and Abizadeh (1992) performed an empirical analysis of government expenditures at the state level in the United States. They used data at the state level to avoid any cultural or institutional differences among the states that

may cause differences in the growth or government expenditure. They used data from thirty states and from all nine different regions in the country. The study used time-series data for the period 1950 to 1985. They estimated the short-run and long-run income elasticity of demand for government expenditure in each state of the sample. Their conclusion based on the empirical findings was that the results of time-series analysis consistently produce an income elasticity of demand for government expenditure greater than unity for at least twenty-one of possible thirty cases, which led them to conclude that Wagner's law is confirmed. The result of this study is confirming what Wagner observed about income elasticity for government expenditure which it increases not only on line with income but more than proportionately.

Singh (1996) investigated the evidence of Wagner's hypothesis in the case of India using time-series data for the period 1960-61 to 1992-93. The conclusion of the study was that Wagner's Law was validated for the Indian economy.

Singh (1998) investigated the evidence of Wagner's hypothesis in the case of Malaysia using time-series data for the period 1950 to 1992. Two types of analysis are performed. The first one examined the long-run relationship between GDP and government expenditure. The second one applied a Granger causality test between the growth rates of the two sets of the variables. The conclusion for this study as follows, in the first analysis there was a positive long-run relationship between GDP and government expenditure. In the second analysis, there was no evidence that the growth of GDP causes growth of government expenditure and

vice versa. It is worth mentioning it here that causality tests indicate the absence of short-run relationship whereas the presence of co-integration indicates long-run relationship.

Chletsos and Kollias (1997) investigated empirically Wagner's hypothesis in the case of Greece using disaggregated public expenditure time-series data for the period 1958 to 1993. Their conclusion based on the empirical findings of their study suggests Wagner's proposition is valid only in the case of military expenditure. In other words, only the growth of military expenditure may be explained in terms of Wagner's Law. Such findings in this study may lead one to suggest that the growth of government expenditures is not directly dependent on economic growth as Wagner's Law states. In fact and as we mentioned earlier, there might be other non-economic factors, such as political processes, in explaining the growth of government expenditure than economic factors in this country.

Al-Obaid (2004) investigates the long-run relationship between total government expenditure and real gross domestic product and its direction using time-series data for the period 1970 to 2001 in case of Saudi Arabia. The findings show that the share of government expenditure in real GDP and real GDP per capita are co-integrated and thus there is a positive long-run relationship between the variables under investigation which confirms the validity of Wagner's Law in case of Saudi Arabia economy during period under investigation. This study is very good example of applying the recent econometric methods, the co-integration

technique and Granger-Causality procedure, to detect the long-run relationship between the variables under investigation and to determine the causality that runs from GDP to TGX as Wagner hypothesized, which we will apply it in our study.

Finally, the significance of this study is that is focuses on the long-run relationship between economic growth and government expenditure, specifically testing Wagner's Law in, four GCC countries and comparing the results for GDP and non-oil GDP. No one has looked at a comparison of the effects of growth in the economy as a whole and in the non-oil sector on government spending and vice versa. Is there are difference between the two? If so, what is the difference? What is the significance of what is found? The non-oil sector is important in the GCC countries because its growth measures the extent to which their economies can diversify themselves away from reliance upon oil

CHAPTER THREE

METHODOLOGY

3.1. Overview

The methodology employed in this study is Wagnerian theory or "Wagner's Law". The law hypothesized that the causality run from gross domestic product (GDP) or per capita GDP, to the share of total government expenditure (TGX) in GDP, causality runs from GDP or per capita GDP to TGX. Or the ratio of total public expenditures to GDP (TGX/GDP) would rise as GDP rose. On other words, an increase in economic activities causes increase in government activities, which in turn increases the public expenditure. In addition, Wagner observed, among others, for almost all modern states government expenditure increases at a faster rate than that of national output. In other words, he recognized that there is a positive relationship between the economic growth and the growth of government activities and then the government expenditure.

3.2. Wagner's Law and its Latest Versions

In this study we investigated and examined the latest versions of Wagner's Law to search for the statistical existence of log-run causality from gross domestic product (GDP) to the share of total government expenditure (TGX) in GDP. To do

so, we used the data for the four of GCC countries, Kingdom of Saudi Arabia, Kingdom of Bahrain, State of Kuwait, and Sultanate of Oman, over the periods that the data available for each country.

The main contribution of Wagner's Law in this field was that he tried to establish generalizations about public expenditures, not from postulates about the logic of choice, but rather by direct inference from historical evidence. Wagner's Law has become very popular in academic circles after the publication of English translations of Wagner's works in 1958. It has been analyzed and tested by many researchers, for example, Peacock-Wiseman (1967), Gupta (1967), Goffman (1968), Pryor (1969), Musgrave (1969), Bird (1971), Krzyzaniak (1972, 1974), Mann (1980), Sahni and Singh (1984), Abizadeh and Gray (1985), Ram (1986, 1987), Henrekson (1992), Courakis et al. (1993), Murthy (1993), Oxley (1994) Ansari et al. (1997) and Chletsos and Kollias (1997). Some of these researchers have applied traditional regression analysis, while some others have used causality testing, and more recently co-integration analysis has appeared in the literature. Empirical tests of Wagner's Law have yielded results that differ considerably from country to country and period to period.

There are at least six versions of this law, which have been empirically investigated. As Henrekson (1992) points out, a test of Wagner's Law should focus on the time series behavior of public expenditure in a country(s) for as long a time period as possible, rather than on a cross-section at studies of countries at different income levels. Therefore, in this study we examined whether there is a long-run

relationship between government expenditure and GDP or per capita GDP, along the lines suggested by Wagner's Law, for the case of the four GCC countries. Recent advances in time series analysis have permitted the investigation of the long-run relationship between government expenditure and GDP in terms of co-integration analysis, and causality testing.

As mentioned above, there are at least six version of Wagner's Law. However, there is no objective criterion to decide which of the six versions is the most appropriate and convincing test(s) of the Law. So, we needed to consider and test all six versions of Wagner's Law in the periods that are available for each of the four GCC countries. All the equations of all different versions are specified in logarithmic form and the symbol L before a variable denotes its natural logarithm.

Finally, we use Ordinary Least-Squared (OLS) equations to obtain the estimations of different coefficients, which include: unit root tests, co-integration tests, and error correction model (ECM) tests for causality when co-integration exists between the two variables, and standard Granger causality tests for causality when co-integration does not exists between the two variables.

3.2.1. The Six Versions of Wagner's Law:

The different versions of Wagner's Law are summarized by Mann (1980), Afxentiou and Serlets (1992), and Demirbas (1999) in form of "log-log models". These interpretations of Wagner's Law appear as a six different versions. In our study we separated each version in regard to GDP to GDP and Non-Oil GDP.

3.2.1.1, The Six Versions of Wagner's Law with Real GDP

The six versions of Wagner's Law along with the name of the corresponding chief advocate as the following Table:

Table 3.1

Six Versions of Wagner's Law

With Real GDP

	Functional form	**Version**
1	$LTGX = \alpha + \beta\ LGDP$	Peacock-Wiseman [1967]
2	$LTGXC = \alpha + \beta\ LGDP$	Pryor [1968]
3	$LTGX = \alpha + \beta\ L(GDP/N)$	Goffman [1968]
4	$L(TGX/GDP) = \alpha + \beta\ L(GDP/N)$	Musgrave [1969]
5	$L(TGX/N) = \alpha + \beta\ L(GDP/N)$	Gupta [1967], and Michas [1975]
6	$L(TGX/GDP) = \alpha + \beta\ LGDP$	Mann's [1980], which is a "Modified" version of Peacock-Wiseman.

The symbol L before a variable denotes its natural logarithm, "GDP" stands for Real Gross Domestic Product, "TGX" stands for Real Total Government Expenditure, "TGXC" stands for Real Total Government Expenditure on Consumption, "GDP/N" stands for per capita GDP, and "TGX/N" stands for per capita TGX, "TGX/GDP" stands for the Share of Real Total Government Expenditure in Real Gross Domestic Product, and "N" stands for Population.

For the above six versions, which based on Wagner's reasoning, causality in our tests is hypothesized to run from GDP or per capita GDP to the dependent variables, which takes four forms TGX, TGXC, TGX/GDP, and per capita TGX.

3.2.1.2, The Six Versions of Wagner's Law with Real Non-Oil GDP

The six versions of Wagner's Law along with the name of the corresponding chief advocate as the following Table:

Table 3.2

Six Versions of Wagner's Law

With Real Non-Oil GDP

	Functional form	Version
1	LTGX = α + β L Non-Oil GDP	Peacock-Wiseman [1967]
2	LTGXC = α + β L Non-Oil GDP	Pryor [1968]
3	LTGX = α + β L(Non-Oil GDP/N)	Goffman [1968]
4	L(TGX/ Non-Oil GDP) = α + β L(Non-Oil GDP/N)	Musgrave [1969]
5	L(TGX/N) = α + β L(Non-Oil GDP/N)	Gupta [1967], and Michas [1975]
6	L(TGX/ Non-Oil GDP) = α + β L Non-Oil GDP	Mann's [1980], which is a "Modified" version of Peacock-Wiseman.

The symbol L before a variable denotes its natural logarithm, "Non-Oil GDP" stands for Real Non-Oil Gross Domestic Product, "TGX" stands for Real Total Government Expenditure, "TGXC" stands for Real Total Government Expenditure on Consumption, "Non-Oil GDP/N" stands for per capita Non-Oil GDP, and "TGX/N" stands for per capita TGX, "TGX/ Non-Oil GDP" stands for the Share of Real Total Government Expenditure in Real Non-Oil Gross Domestic Product, and "N" stands for Population.

For the above six versions, which based on Wagner's reasoning, causality in our tests is hypothesized to run from Non-Oil GDP or Non-Oil per capita GDP to the dependent variables, which takes four forms TGX, TGXC, TGX/ Non-Oil GDP, and per capita TGX.

3.3. Unit Root Test

Since the data under investigation are time series, we should start first to examine the properties of the data we are dealing with. The first step is to run a unit root test in which we can identify whether the series are stationary or not in order to avoid the problem of spurious regressions[3]. Earlier studies of the growth of government expenditure had been not looked at the time series properties of the variables examined. There was an implicit assumption that the data were stationary. However, recent developments in time series analysis show that most macroeconomic time series have a unit root (a stochastic trend) and this property is described as difference stationarity, so that the first difference of a time series is stationary (Nelson and Plosser, 1982). So, in testing Wagner's Law, the non-stationary property of the series must be considered first. There are many alternative tests available to examine whether the series are stationary or non-stationary. If the variables under investigation are stationary, which means that the variables do not have unit roots, then the series said to be I(0) (i.e., the pair of the variables are integrated of order zero). If the variables under investigation are non-stationary in its level form but stationary in its first-difference form, which means that the variables do have unit roots, then they are said to be I(1). In recent years many macroeconomic time series are non-stationary which means that they contain unit roots that cause many econometric problems. In general, the series of Yt is stationary after differencing (d) times, then Yt is integrated of order d, or I(d) where

[3] Spurious regression can be defined as the "artificial and misleading results that least squares regression can produce when one trend, non-stationary, economic time series is regressed on another one" (Griffiths, Hill, and Judge, 1993)

d represents the number of unit roots the series (Yt) contains. The most used method to test for unit root is the Augmented Dickey Fuller (ADF) test (Dickey and Fuller, 1981). In general, the test is performed by estimating the following:

$$\Delta Y_t = \eta + \theta_1 \Delta Y_{t-1} + \theta_2 \Delta Y_{t-2} + \ldots\ldots + \theta_k \Delta Y_{t-k} + \epsilon_t \qquad (3.1)$$

Where ΔY is the first differences of the series and k is the number of lags and $t = 1, 2. 3. \ldots, k$, *and* θ is the time trends. To establish a practical rule for estimating the value of $[k]$, and to have some degree of freedom k should be relatively small, at the same time large enough to make autocorrelation in ϵ_t do not exist. For example, if the number of lags are two (i.e. $k = 2$), the autocorrelation statistics of Durbin-Watson is low, which means that we have first order autocorrelation, in this case by increasing the number of lags, k, we would be able to drive such autocorrelation to disappear (Charemza and Deadman, 1992, p. 135).

It is worth mentioning here that the number of lags, k, can be zero. To explain this notion, consider this regression equation, one-one model, which is similar to our model.

$$Y_t = \alpha + \beta X_t + \varepsilon_t \qquad (3.2)$$

Granger and Newbold (1974) provided a detailed examination of the consequences of violating the stationarity assumption by generating two sequences, $\{Y_t\}$ and $\{X_t\}$, as independent random walks using the following formulas:

$$Y_t = Y_{t-1} + \varepsilon_{yt} \qquad (3.3)$$

$$X_t = X_{t-1} + \varepsilon_{Xt} \qquad (3.4)$$

Where ε_{yt} and ε_{Xt} = white-noise processes independent of each other.

The simple procedure in Dickey-Fuller tests determines whether $\beta = 1$ in the model $Y_t = \beta Y_{t-1} + \varepsilon_t$. We begin by subtracting Y_{t-1} from each side of the equation in order to write equivalent form: $\Delta Y_t = \gamma Y_{t-1} + \varepsilon_t$, where $\gamma = \beta - 1$. Testing the hypothesis $\beta = 1$ is equivalent to testing the hypothesis $\gamma = 0$ (Enders, 1995, p. 221).

The null and alternative hypotheses for our test are:

H_0: $\gamma = 0$.
H_1: Not H_0.

This test is performed on each series in order to determine their stationary properties.

The test is carried out in levels and in 1st difference.

For our analyses the first step in the ADF test is to evaluate each series in levels. The null hypothesis of the ADF test is:

H_0: Unit root exists in Y (i.e., Y is non-stationary)

H_1: Not H_0, or Unit root does not exist in Y (i.e., Y is stationary)

If we fail to reject the null hypotheses, then we have a unit root process. In order to overcome such a problem, the series can be differenced until we reject the null hypothesis of having a unit root. With respect to the series under investigation, if the outcome indicates that the series are stationary after the first difference, in other words, the series are integrated of order one or I(1), then we proceed to perform a co-integration test.

3.4. Co-integration Test

If there exists a stationary linear combination of non-stationary random variables, the variables combined are said to be co-integrated. Granger (1981) was the first to propose a connection between non-stationary series and long-run equilibrium. The purpose of conducting co-integration is to explore whether the data exhibit a long-run relationship. Engle and Granger (1987) developed and introduced the theory of co-integration. This theory refers to the situation where multiple series integrated of order d, or I(d) where (d) represents the number of unit roots contained in the series, which can be combined to produce series integrated of order (k), where k can be range from 0 to d-1. In the case where d=1 the two series are said to be co-integrated if they are non- stationary in levels, stationary in the first differences and there exists a linear combination of the levels which is stationary. Intuitively, if Xt ~ I(d) and Yt ~ I(d), a regression is run, such as:

$$Yt = \beta * Xt\text{-}1 + \epsilon_t \qquad (3.5)$$

If the residuals (ϵ_t) from the regression are I(0), then Xt and Yt are said to be co-integrated. Thus, the series need to be integrated of the same order for co-integration to be possible. Note, if the residuals ϵ_t are stationary, differences among the variables tend to disappear, and therefore the variables are thought to exist in the long-run equilibrium balance. The constant and trend values can be includes in equation (3.5) as needed.

Economically, it has been known that it could be some pairs of variables tend to move closely and systematically over time even if these pairs are non-

stationary. For example, gross domestic product (GDP) and total government expenditure (TGX), in our study, therefore, co-integration provides the statistical evidence of the existence of a long-run relationship between economic variables (Thomas, 1993). In addition, co-integration allows us to see and capture the relationship between non-stationary series within the stationary model. In other words, co-integration is a method of avoiding both spurious and inconsistent regression problems that could happen with non-stationary data series regression.

In sum, the basic idea behind co-integration is that if, in the long-run, two or more series move closely together, even though the series themselves are trended, the difference between them is constant. It is possible to regard these series as defining a long-run equilibrium relationship, as the difference between them is stationary (Hall and Henry, 1989). A lack of co-integration suggests that such variables have no long-run relationship: in principal they can wander arbitrarily far away from each other (Dickey et al., 1991).

In fact, many early researchers who looked at Wagner's Law ignored the stationarity requirement of the variables. However, the standard regression techniques are invalid when applied to non-stationary variables. In other words, "...static regressions among integrated series are meaningful if and only if they involve co-integrated variables" (Banajee, et al., 1993: 204). This practice led to a substantial literature dealing with the spurious regression problem.

Co-integration tests in this study are conducted using the method developed by Johansen (1988), and Johansen and Juselius (1990). This procedure is the most

reliable test for co-integration.

For variables under investigate in our study, co-integration tests are performed for each version of the Wagner's Law for each of the four GCC countries to search for the existence of a long-run equilibrium relationship between the two variables TGX and GDP as well as for TGX and Non-Oil GDP.

3.5. Error Correction Models (ECM)

Once we conclude that co-integration exists between two variables, there must be Granger causality in at least one direction, but co-integration does not indicate the direction of causality between the variables. To determine causality, Engle and Granger (1987) provide a more comprehensive procedure test having variables that are found to be co-integrated. This procedure is known as the "error correction model" (ECM), and we perform a Granger causality test in the framework of error correction model. ECM is in general a dynamic model in which the movement of the variables in any periods is related to the previous period's gap from long-run equilibrium. Therefore, we perform an ECM in order to examine how a variable would react to short-run and long-run changes which are captured by the error correction term (ECT) that is embodied in the following error correction model:

$$\Delta y_t = \beta_1 + \sum_{i=1}^{m} \alpha_i \Delta x_{t-i} + \sum_{i=1}^{m} \beta_i \Delta y_{t-i} + \lambda_1 ECT_{t-1} + \mu_t \qquad (3.6)$$

$$\Delta x_t = \beta_2 + \sum_{i=1}^{m} \gamma_i \Delta x_{t-i} + \sum_{i=1}^{m} \delta_i \Delta y_{t-i} + \lambda_2 ECT_{t-1} + \nu_t \qquad (3.7)$$

where m is the lag length and the term ECT_{t-1} is the error correction term lagged one period and it is equivalent to ϵ_t in equation (3.5), and therefore represents the disequilibrium residual of a co-integration equation. Thus, the coefficients of the ECTs capture the "speed of adjustment" which they explain the deviation of a variable from the long-run equilibrium. In addition, in the above equation (3.6) y should respond negatively and in equation (3.7) x should respond positively to positive values of ECT_{t-1}, and λs should be negative for y and positive for x (Anwar et al., 1996, and Enders, 1995, p. 376).

3.6. Standard Granger Causality Test

In the absence of co-integrating relationships among variables, standard Granger causality tests are performed in order to indicate the direction of the causality between the variables. Granger causality tests are widely used in applied economics as a way of establishing if a variable has been a leading indicator of another over the past. However, like most statistical tests, Granger causality tests require that the relationship between the variables remains stable over the sample period being tested.

The concept of causality from the economic point of view, the systematic testing and the determination of causal directions only became possible after the operational framework was developed by Granger (1969) and Sims (1972). Their approach is crucially based on the axiom that the past and present may cause the future but the future cannot cause the past (Granger, 1980). In econometrics the

most widely used operational definition of causality is the Granger definition of causality, which is defined as follows:

The variable x is a Granger cause of y (denoted as $x \rightarrow y$), if present y can be predicted with better accuracy by using past values of x rather than by not doing so, other information being identical (Charemza and Deadman, 1992:190).

For variables under investigate in our study, we tested individually for the causality between the dependent variables, which takes four forms TGX, TGXC, TGX/GDP, and per capita TGX, and gross domestic product (GDP or per capita GDP) where N is population. But before doing that we have to check for the time series properties and especially co-integrating properties of the time series involved. As Bahmani-Oskooee and Alse (1993: 536) pointed out, "Standard Granger or Sims tests are only valid if the original time series from which growth rates are generated are not co-integrated".

If the null hypothesis of non co-integration between TGX at rime t (total government expenditure) and GDP at time t (gross domestic product) cannot be rejected, then the standard Granger causality test can be employed to examine the causal relationship between the series (using the variables in first differences) (Mahdavi et al., 1994). Following this statement we can test the hypothesis that GNP growth, labeled (ΔLGDP), causes public expenditure growth, labeled (ΔLTGX), and vice versa, by constructing the following causal models:

$$\Delta LTGX_t = \alpha + \sum_{i=1}^{n} \beta LTGX_{t-i} + \sum_{i=1}^{n} \delta_i \Delta LGDP_{t-i} + \mu_{1t} \tag{3.8}$$

$$\Delta LGDP_t = a + \sum_{j=1}^{\rho} b_j \Delta LTGX_{j-i} + \sum_{j=1}^{\tau} c_j \Delta LGDP_{t-j} + \mu_{2t} \tag{3.9}$$

where μ_{1t} and μ_{2t} are two uncorrelated white-noise series and m, n and ρ, τ is the maximum number of lags. It is well known that the causality literature assumes stationarity of the time series being examined. Because of that we applied Granger causality using the variables if the first differences of the logarithms of the variables are stationary (i.e. 1(0)). One can use the standard F-test or the probability value in order to determine the causal relationship between the variables.

In testing causality we will have four possible findings:

(iii) Neither variable "Granger causes" the other. In other words, independence is suggested that when the sets of GDP and TGX coefficients are not statistically significant in both regressions (no causality).

(iv) Unidirectional causality from GDP to TGX: That is, GDP causes TGX, but not vice versa (in this case Wagner's Law applies) (unidirectional causality).

(v) Unidirectional causality from TGX to GDP: That is, TGX causes GDP, but not vice versa (Keynesian modeling is valid in that case) (unidirectional causality).

(vi) Bi-directional causality of each other between GDP and TGX: that is, GDP and TGX "Granger cause" each other (feedback effect or directional causality).

If (iv) is found to be true, there is a feedback effect (or bilateral causality)

between two variables (Miller and Russek (1990); Gujarati (1995)). In that case neither the Keynesian or Wagnerian approach is valid. According to the above equations (3.8 and 3.9), the null hypothesis that GDP does not Granger Cause TGX is rejected if the coefficients of δ_i'S in equation (3.8) are jointly significant (i.e. $\delta_i \neq 0$), based on the standard F-test. The null hypothesis that TGX does not Granger cause GDP is rejected if the bj s are jointly significant (i.e. $bj \neq 0$) in equation (3.9). And if both some $\delta_i \neq 0$, and some $bj \neq 0$ then, there is feedback between TGX and GDP.

CHAPTER FOUR

THE ECONOMIC ENVIRONMENT IN THE GCC COUNTRIES

4.1. Introduction

The Arabian Peninsula is located in the southwestern region of the Asian continent. Covering about 3 million square kilometers, the southeastern area of the peninsula is the Rub'al-Khali, or what has been called "the Empty Quarter", which is the world's largest expanse of continuous sand. Politically, the Arabian Peninsula consists of Saudi Arabia, Kuwait, Bahrain, Qatar, the United Arab Emirates, the Sultanate of Oman, and the Republic of Yemen. Economically, over the last three decades, the Arab Gulf states (excluding the Republic of Yemen) have undergone what is arguably the most profound and rapid remarkable economic and social transformation in history. This remarkable change occurred when the global dependence on imported oil that arose in the post war period led to unprecedented transfer of wealth to oil-exporting states. Since the Arabic Gulf states were major beneficiaries of this remarkable transfer of wealth, enormous development efforts have transformed the complexion of the Arabian Peninsula. An effort to unite the entire region happened in a meeting in 1977 when economic ministers of the six Arab Gulf States considered a proposal to establish a "common market" in the

Gulf; ministers of planning decided in 1979 to treat The Arabian Peninsula as a single economic entity.

The organization of this chapter is as follows: first section describes the GCC itself. The second section outlines the accomplishments of the GCC towards economic integration among the members. The third section provides an economic overview for each individual country of GCC countries in our study (Saudi Arabia, Bahrain, Kuwait, and Oman).

4.2. Gulf Cooperation Council (GCC)

4.2.1. Introduction: the Concept, foundations, and Objectives

An excellent example of unity among countries, and what come to be called "Economic Integration", took place in 1950 among some European countries, and became known as the European Economic Community (EEC). EEC helps their members achieve many goals: it attempts to raise standards of living as well as improve the economic status of its members. Moreover, it helps its members to eliminate any trade restrictions, enhance labor and capital motility and strength defense.

The example of EEC encouraged Arabic Gulf States to create similar union. In May 25, 1981, the leaders of the of the six Arabic Gulf States: Kingdom of Saudi Arabia, United Arab Emirates, Sultanate of Oman, State of Kuwait, and Kingdom of Bahrain (formerly known as State of Bahrain), reached an agreement, creating a charter, for establishing the Gulf Cooperation Council (GCC). According

to Article Four of the GCC Charter, the charter should encourage the deepening and strengthening of relations, links and areas of cooperation among citizens, and since the citizens of the GCC member share the same religion and culture, strengthen the relations among their citizens. In addition, the GCC charter states that "the basic objectives are to effect coordination, integration and inter-connection between Member States in all fields, strengthening ties between their peoples, formulating similar regulations in various fields such as economy, finance, trade, customs, tourism, legislation, administration, as well as fostering scientific and technical progress in industry, mining, agriculture, water and animal resources, establishing scientific research centers, setting up joint ventures, and encouraging cooperation of the private sector."(GCC, Foundations and Objectives, 2004).

However the interest in economic integration on the part of Gulf Cooperation Council (GCC) countries has changed considerably over time. Initially, the agreement was concerned primarily with strengthening the defense of the Arab Gulf region. Specifically, the main motivation behind the creation of the GCC was the threat posed to regional security by the Iran-Iraq war. Progress towards integration among the GCC states has been very slow and until fairly recently, little hope was held for forward movement in this area. Recently, however, the situation with Iraq has heightened the importance of the Union (Allen, 2003). There seems to be a growing sense among the member states that the long run economic viability and thus the security of these countries will be largely determined by their progress in reducing their heavy reliance on oil revenues. In

turn, this will depend on how effectively the member countries are able to remove the many remaining hurdles in the way of setting up a customs union capable of facilitating efficient industrialization and meaningful economic diversification. An examination of the GCC's track record and of recent trends suggests that the time may at last be ripe for economic integration among the Gulf States (Looney, 2003).

4.2.2. The Organizational Structure of the GCC

The concentration of cooperation in relevant areas has been achieved through the formation of various specialized committees whose goals have been to implement the guidelines of the three main constituent bodies of GCC.

The first constituent body is the GCC Supreme Council, which is the highest authority of the GCC. This entity was formed of the kings and presidents of each country. The Council convenes one regular session every year as long as it is, and there may be extraordinary sessions at the request of any other member seconded by another. During the 19th summit that was held in Abu Dhabi, UAE, in 1998, the Supreme Council decided to hold a consultative meeting in between two summits every year. These meetings are considered valid if two-thirds of the members attend. Resolutions on substantive matters are issued by unanimous approval of the members present (each member has one vote), while a majority is enough to approve those of procedural nature (GCC, the Organizational Structure, 2004).

The second constituent body is the Ministerial Council, which is comprised of the ministers of Foreign Affairs or other ministers acting on their behalf. The

presidency of this council presides over by the State that held the last ordinary summit of the Supreme Council, or when necessary, with the member state that is next to preside the Supreme Council. The Ministerial Council is authorized to propose policies, lay out recommendations, and encourage and coordinate the already existing activities in all fields. Resolutions adopted by other ministerial committees are referred to this body, which can in turn refer relevant matters, along with appropriate recommendations, to the Supreme Council for approval. The Ministerial Council is also charged with arranging the Supreme Council meetings and preparing their agenda. The Ministerial Council convenes every three months, and there may be other extraordinary sessions at the request of any other member seconded by another. These meetings are considered valid if two-thirds of the members attend (GCC, the Organizational Structure, 2004).

The third constituent body is the Secretarial-General. Among other functions, it is charged with preparing studies related to cooperation, co-ordination, and integrated plans and programs for joint work. It is also entrusted with the preparation of periodic reports on the work of the GCC, and to follow up an implementation of the resolutions, prepare reports, and studies when requested by the Supreme Council or the Ministerial Council. The Secretariat also makes preparations for meetings and prepares the agendas and draft resolutions for the Ministerial Council. The structure of this Council is responsible to different departments: Political Affairs, Economic Affairs, Military Affairs, Human and Environment Affairs, Legal Affairs, Office of the Secretary-General, Finance and

Administrative Affairs, Patent Bureau, Administrative Development Unit, Internal Auditing Unit, and Information Centre (GCC, the Organizational Structure, 2004).

4.3. Economic Integration among GCC Countries

While the interest in economic integration was a secondary consideration in the formation of the GCC, growing sense of the importance of economic integration among the member states has developed from cooperation and coordination. Tracking the GCC's record since its establishment, the Council has been actively promoting economic integration in the last two decades through different agreements.

4.3.1. The Unified Economic Agreement (UEA)

A first step towards economic integration among GCC countries was the Unified Economic Agreement (UEA) passed in June 1981, which set out specific economic objectives for the new organization, as summarized by Looney (2003) as follows:

- Implementing a free trade area with no barriers on regional products and common tariffs on foreign imports
- Consolidating bargaining power in negotiations with external trading partners
- Establishing a common market that grants citizens the right to travel, work, own, and inherit in all member states
- Harmonizing development plans to promote integration
- Adopting a common oil policy

- Coordinating industrial policy, particularly with respect to petroleum based products
- Promoting joint projects to coordinate chains of production
- Adopting a common legal framework for regional trade and investment
- Linking transportation networks

Economic and trade-related objectives were further specified in the Unified Economic Agreement (UEA). The agreement set the stage for full economic integration. It set out broad lines for the realization of coordination, integration and cooperation in various aspects of economic affairs. However, in December 2001 the summit, that was held in Muscat, Oman, admitted that they have not been able to achieve the objectives that they sought when they set up the GCC 20 years ago. After 20 years of operations, the share of intra-regional trade in the GCC has only increased from about 5% in 1982 to a little over 7% by 2000. Typically, regional trading groups show intra-regional trade above 30% of total trade; in case of the European Union, it now exceeds 55% (Looney, 2003). Therefore, in this summit the final session began with the leaders signing an agreement for creating economic union among the member countries. The agreement was reached in order to activate economic integration between the GCC states and to enhance the progress being made towards establishing a common market, custom union and monetary union. The agreement, which is called the Economic Agreement (EA), represents a significant step forward and supersedes the UEA ratified by the GCC in 1981.

4.3.2. The Gulf Customs Union

According to the new economic agreement, the Gulf Customs Union (GCU) was established among the GCC countries that would come into effect in January 2003, rather than 2005 as previously agreed. It states that the standard customs tariff should be 5% on all commodities imported from outside the customs union replacing the current tariff structure for each country, which varies from 5% to 15%. The establishment of the Gulf Customs Union (GCU) was to coincide with the implementation of the World Trade Organization (WTO) in 2003. Five out of the six members of the GCC states have already joined the WTO and the sixth, Saudi Arabia, is on its way to joining.[4] The Customs Union will make the GCC states a single homogeneous entity with which other economic groupings can deal. It is intended to help to activate intra-GCC trade, facilitate the transfer of goods and services between GCC states, and attract foreign investors into the region by offering better economic returns on their investments and open new markets for GCC non-oil exports.

4.3.3. The GCC Monetary Union

Also, according to the new economic agreement, the Gulf Monetary Union (GMU) was established for the GCC countries and the launch of a joint single currency. This union is to occur in thee steps. First, instructing the Commission of the Governors of Monetary Institutions and Central Banks to apply the previous decision relating to the adoption of the US dollar as a common basis for GCC

[4] Saudi Arabia is still negotiating with WTO to be a member since 1993.

currencies by the end of 2002, by 2003 all the GCC members, including the State of Kuwait, have currencies currently pegged to the US dollar. Second, directing the Financial and Economic Cooperation Committee to agree on the measures of economic performance that are needed for the monetary union succeed by the end of year 2005. Third, launching the joint currency in January 2010. The prevailing dollar peg and the absence of any significant current and capital account restrictions have ensured spontaneously coordinated monetary policies, or, at least, have set common narrow limits for the scope of monetary interventions, as well as for the interest and reserve policies. The linking of the GCC currencies to the US dollar would pave the way for a joint single currency that would promote intra-GCC trade and promotes the GCC economies. In addition, it would increase the chance of having a good trade relation with other international economic blocs.

However, some crucial policies and measures to ensure the success of the GCC monetary union remain to be implemented prior to 2010. The Financial and Economic Cooperation Committee needs to compare conditions for creating a successful GCC monetary union to other monetary unions already in existence (for example, the euro zone). Also, they should emphasize the need to develop an institutional framework and some basic quantitative benchmarks like the European Union's Maastricht Agreement in 1991 for all EU to join for single currency for all of the GCC members.

4.4. Economic Overview

The purpose of this section is to discuss the structure and the performance of each country's economy for the four GCC countries in our study (Saudi Arabia, Bahrain, Kuwait, and Oman).

4.4.1. Saudi Arabia

Saudi Arabia is by far the largest of the GCC countries, four-fifth of The Arabian Peninsula. Saudi Arabia's economy is dominated by the oil sector. According to The Economist Intelligence Unit (EIU), *Saudi Arabia Profile*, 2004, the country's exports in the 1970s and 1980s consisted almost entirely of oil. In the early 1990s it has been accounted for around 35% of nominal GDP, about 75% of government revenue and 85% of export receipts. Saudi Arabia is a member of the Organization of Petroleum Exporting Countries (OPEC), as well as a member of the Organization of Arab Petroleum Exporting Countries (OAPEC). Exports of good and services are usually the largest component of GDP, about 40.8% (at constant prices in 2002). According to official figures, government consumption, which was about 25.7% of the country's GDP in 2002, accounts for a much larger percentage of GDP than in the OECD countries.

Oil has been the major source of funds to use for development in Saudi Arabia. In 1970s, oil prices increased sharply, which encouraged the Saudi government to use the huge oil revenues for a massive improvement in the country through its the five-year development plans. For example, it used oil revenues to finance its ambitious programs of development: infrastructure, agriculture and

other industries, including iron and steel, construction materials, food processing engineering etc. At the same time, these development plans paid much attention to modernizing the systems for education and healthcare. Since the first five-year development plan the country put considerable emphasis on improving education. Spending on developing human resources at all levels of education is the most money of development expenditure, which has increased in real term with every plan. In the first three years of the seventh five-year development plan (2000-2004) the total annual expenditure on education and training was 27% of budget allocation and rose about 28.4% in 2004. Saudi Arabia has also invested heavily in healthcare. Since the beginning of the seventh five-year development plan the government has sought to coordinate health provision among the various public, private and military institutions responsible for hospitals and clinics in the country, supervised by a ministerial committee. In 2003, social development, which includes: healthcare, social welfare, and labor affairs, accounted for about 11% of the government's budget.

.Saudi Arabia despite its wealth suffered a yearly budget deficit from 1983 to 2002 (with the exception of 2000 due to high oil prices that resulted in an actual budget surplus of 3.3% of GDP). In 1986 the deficit reached 19.4% of GDP primarily the result of high military spending, subsidies of utilities and lower oil prices and lower oil production. The Gulf conflict in 1990-91 increased the deficit by about $30 billion in emergency-related expenditures. Another drop in oil prices in 1999 drove the deficit to about 10.6% of GDP and in the actual 1999 fiscal

deficit was about 6% of GDP. By the end of 2003 the government declared a budget surplus of about 5.8% of GDP following a 2% reduction in government expenditures.

The performance of Saudi Arabian economy in the last three decades has experienced swings in overall GDP growth resulting from fluctuations in oil prices and levels of production (due to OPEC quota changes, government policy, and regional conflicts), and these in turn have affected government revenues.

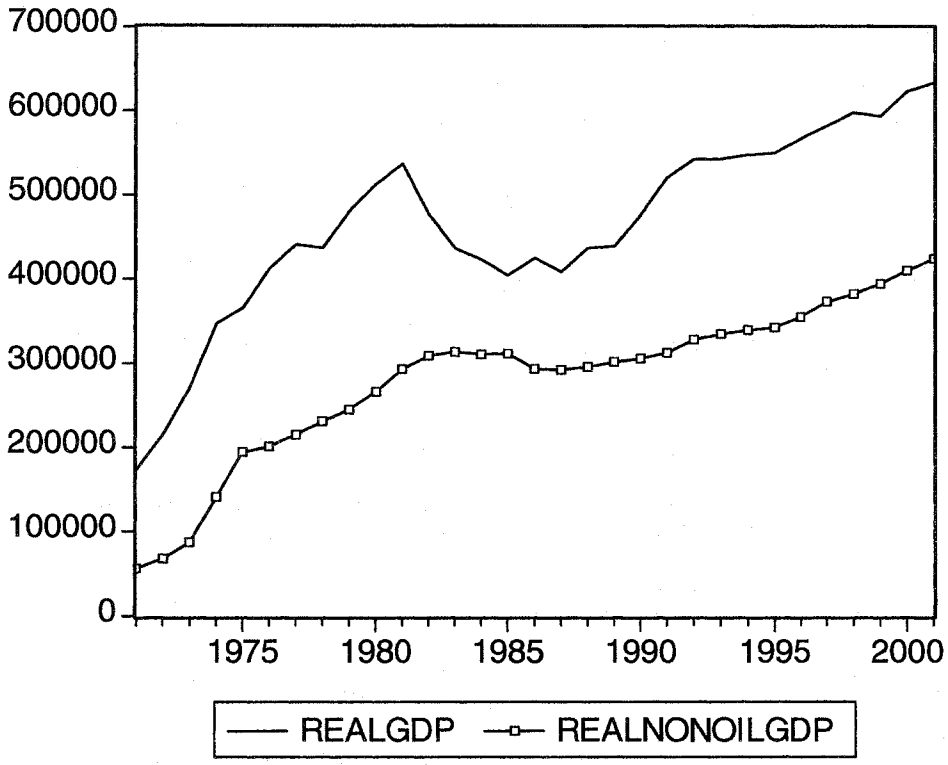
The participation of the non-oil sector in the Saudi economy has increased in the last three decades at the same time private sector dependence on government expenditure has been falling. Growth in the non-oil sector has been led primarily by petrochemical industries output, which are still controlled by the government even though that there is growing involvement by the private sector. Since early 1980s, the private sector has been encouraged by the government to play its role to boost the country's plans to diversify its economy from oil. In addition, the continued of fiscal imbalance in the country has also made it necessary to reduce the involvement of the government in the economy in order to reduce its expenditures.

When looking at the growth rate for the country's GDP as well as growth rate of non-oil GDP (both private and government sectors) in the last three decades, we see relatively slow growth. For example, from 1981 to 1998 the average annual real GDP growth was about 1.3%. And in 1999, it was about 2%. The strongest growth rate since 1991 was in 2000 which was 4.9%. In 2001, for example, the growth rate of non-oil private sector was about 3.7%, at the same time the growth

rate of non-oil government sector was about 4.4%. Figure 4.1 shows real GDP and real Non-Oil GDP in Saudi Arabia during the time-period covered in this study.

Figure 4.1

Real GDP and Real Non-Oil GDP in Saudi Arabia



Source: IMF, International Monetary Fund, 2003

The inflation rate in Saudi Arabia has been low by both regionally and internationally standards since the 1980s. The government of Saudi Arabia successfully brought the cost of living under control through both stricter controls over the money supply as well as through some policies that subsidized the prices of many goods and services. During the Gulf conflict of 1990-91 prices increased sharply due to sudden increases in demand for essential goods and services. In

1992, the government adopted policies that reduced fees for utilities and fuel, which in turn slowed the growth of the money supply and prices fell. During 1998-2001, the country witnessed mild deflation due to falling prices of many imports.

After the sharp drop in oil prices in 1998-99 and the associated financial pressure, the GCC authorities decided to reinforce their structural reform programs in an attempt to focus on the importance of the real growth in non-oil activities in order to free their economies from the dependence on oil revenues for their growth and development. The government of Saudi Arabia started to do so by encouraging non-oil activities in the country, which would diversify its production and would create more jobs for the increasing number of people entering the labor force.

The following Table summarizes some of the recent key structural reforms in Saudi Arabia by Fasano and Iqbal (2003):

Table 4.1

Recent key structural reforms of Saudi Arabia

Financial Sector	Through open-ended mutual funds, the country allowed foreigners to trade on the stock market and approved a new capital markets law to deepen and strengthen both financial markets as well as the stock market. Enforced recommendations and full compliance with Financial Action Task Force (FATF) guidelines relating to the prevention of money laundering.
Foreign Direct Investment	Enacted a new Investment Law and established the associated investment authority (SAGIA) to facilitate foreign direct investment processing, including the establishment of a one-stop shop. Allowed for 100% foreign ownership of business in most sectors, including gas, power generation, water desalination, and petrochemicals. Cut the highest corporate income tax on foreign investment from 45% to 30%. Permitted non-Saudis to own real estate for their business or residence, except in the two holy cities.
State Enterprise Reform and Privatization	Announced in June 2002 a new privatization strategy under which the management would be independent followed by deregulation and ultimately private ownership. Twenty sectors are presently identified for privatization, including telecommunications, electricity, industrial parks, postal services, water, railroads, education, and air transportation. Saudi Arabia has recently privatized 30% of the Saudi Telecommunications Company. Eight regional electricity companies have been merged into the Saudi Electricity Company, and a regulatory authority was established to set tariff rates and regulate market access to new entrants.
Labor Market Reform	Created the Human Resources Development Fund (HRDF)-with financial participation of the private sector-to provide training of Saudi labor force in skills required by the private sector, and development of a database for matching and placement of Saudi workers in the private sector.

4.4.2. Bahrain

Bahrain is a tiny Arabian Gulf country that is comprised of an archipelago of thirty-three islands situated midway in the Arabian Gulf close to the shore of the Arabian Peninsula. Its size and location among the Arabian Gulf countries with an open economy requires Bahrain to play an important and a delicate balancing act in foreign affairs among its neighbors. Bahrain was the first Gulf country to discover oil in 1932. The highest total production of oil in Bahrain was in 1970 about 70,000 barrels per day. This daily total production has fallen significantly over the years, from about 50,000 to about 35,000 barrels per day in 2001. The country's reserves proved to be small and are expected to last another 10 to 15 years. Since 1980, 60% of the refiner industry has been owned by the Bahrain National Oil Company and 40% by the U.S. company Caltex. Saudi Arabia provides most of the crude for refinery operations via pipeline. Through an agreement with Saudi Arabia, Bahrain also receives a large portion of the net output and revenues from Saudi Arabia's Abu Saafa offshore oilfield. The Bahrain National Gas Company operates a gas liquidation plant that utilizes gas piped directly from Bahrain's oilfields. Gas reserves should last about 50 years at present rates of consumption. Facing these problems of declining of oil and gas reserves, Bahrain has turned to petroleum processing and refining and has transformed itself into an international banking center (Arab Data Net, 2005).

According to The Economist Intelligence Unit (EIU), *Bahrain Profile*, (2004), with the limitation of oil and gas reserves, the government sector in Bahrain

is not as large as in the other GCC countries, but still the main source of economic growth. Import dependence has been gradually reduced due to the decreases in government revenue in contrast to its Gulf neighbors. In addition, Bahrain has received significant budgetary support and project grants from Saudi Arabia, Kuwait, and the United Arab Emirates to help boost the country's economy. The fluctuations of oil prices have affected the level of this support in varying degrees.

The performance of Bahrain's economy in recent decades, represented by the GDP growth rate, has tended to mirror development in the international energy markets. The country witnessed growth after the rapid increase in oil prices in the 1970s, but this growth slowed down during the weak of oil prices in 1980s, and the conflict of 1990-91 led to rapid expansion again, with the pattern continuing up to 2002. In the last few years, the economy grew in real terms by 4.3% in 1999, 5.3% in 2002, 4.6% in 2001, and 5.1% in 2002. The country's economy is so weak and so close to the economies of its neighbors at which quickly affect it if there is any conflict of their economies.

Oil and gas continue to be the major sources of government revenue which in turn has been used for development in Bahrain. Bahrain is the first country that discovered oil among the Gulf countries in 1932. This brought more oil revenue earlier than its Gulf neighbors and led to the early development of the oil industry. Since the sharp oil price increases in the 1970s, the country started developing its service industries such as information technology, healthcare and education. Spending on developing human resources at all levels of education has been the

most important part of development expenditure. Therefore, the education system in Bahrain is well established with a high standard. Education in this country is free for all people regardless of nationalities, and the adult literacy in 2002 stood at 87%. The strong literacy rate has helped Bahrain to be ahead of United Arab Emirates and Kuwait on the Human Development Index produced by United Nation Development Program (UNDP). In addition, Bahrain developed a high quality social services system. Life expectancy is about 74 years, and that is the highest number in the region. The UN ranked it the first among Arab nations and 37th worldwide in the UN 2003 Human Development Index. The government has also used its oil revenue to build advanced infrastructure in transportation and telecommunications. Transportations and communications sectors grew by almost 9% in 2002, and are likely to expand as the government proceeds with liberalization of the state-owned telecommunications industry.

The financial sector has highly priority in Bahrain's development in terms of seeking the greatest infusion of private sector investment. The financial sector has been the most widely heralded aspect of the Bahrain's development diversification effort. In recent years financial sector is currently the second largest contributor to GDP. Bahrain is a regional financial and business center; international financial institutions operate in Bahrain, both offshore and onshore, without impediments. More than 100 offshore banking units and representative offices are located in Bahrain, as well as 65 American firms. Bahrain has also made a concerted effort to become the leading Islamic finance center in the world, standardizing regulations of

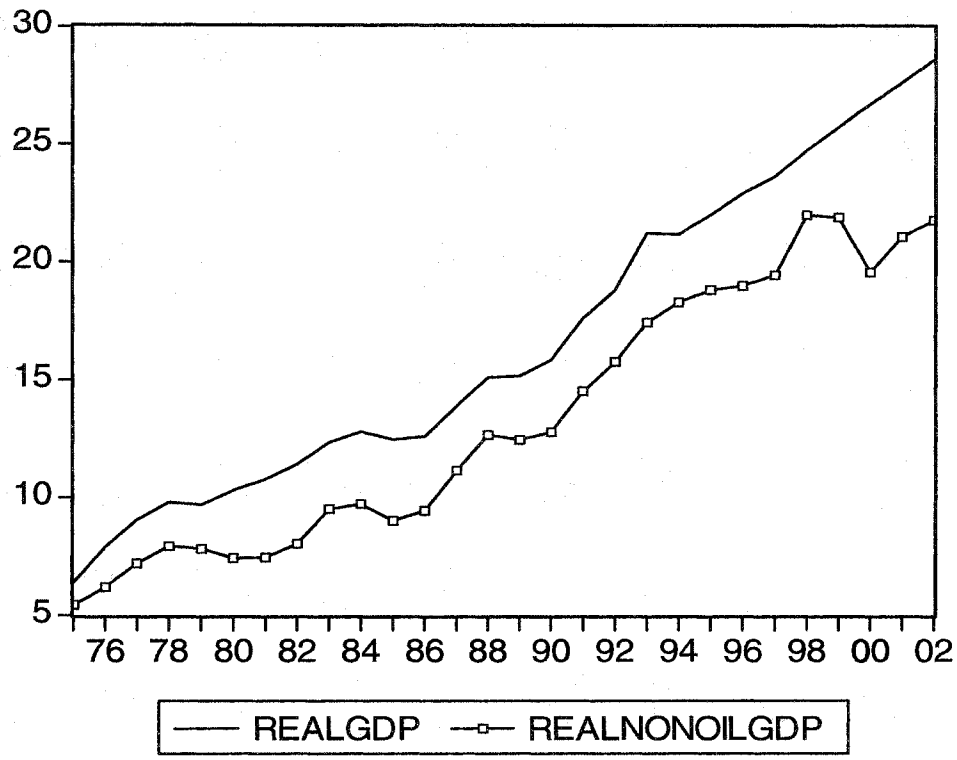
the Islamic banking industry. It currently has 26 Islamic banks – the largest concentration of Islamic financial institutions.

A major boost to Bahrain's economic growth is expected from the signing of the Free Trade Agreement (FTA) with the United States. Bahrain is the second Arab country after Jordan to sign such an FTA.

Tourism facilities have also played a very important part in Bahrain's development diversification efforts. The opening of the causeway to Saudi Arabia made it so easy for both nations' citizens and other Gulf countries' citizens to travel back and forth, leading to boom in visitors to Bahrain from all Gulf countries. However, growth in tourism has been influenced by the changing in oil prices as well as regional political tension, for example, Iraqi invasion of Kuwait in 1990. Therefore, the share of services industry has fallen since the beginning of the 1990s. Consequently, the contribution of oil and gas retook its traditional position as the largest contributor to GDP. In 2002, the oil and gas sector accounted for about 16.6% of the total compared with financial services sector's of 15.7%. In the same year, the manufacturing account for about 12% of GDP. Even though, the services industry, as a part of real Non-Oil GDP in general, has grown rabidly and significantly, it is accounted for about two-third of the real GDP in 2002, compared to 39% in 1980. Figure 4.2 shows real GDP and real Non-Oil GDP in Bahrain during the time-period covered in this study.

Figure 4.2

Real GDP and Real Non-Oil GDP in Bahrain



Source: IMF, International Monetary Fund, 2003

The Bahrain Monetary Agency (BMA), through its monetary policies kept the inflation rate low (by both regional and international standards) throughout the 1980s and 1990s. During these two decades, the consumer price index reached only 3% for any one year. BMA used some policies that contributed to price stability such as government subsidies and price setting for a number of core goods and services. The stability of the exchange rate also helped to minimize imported inflation. In addition, BMA was committed to maintaining its currency, the Dinar, pegged against the US dollar at BD 0.376 = $1. Since all of GCC countries peg

their currencies against the US dollar, any instability in any of the member of GCC, particularly Saudi Arabia, could affect other countries prices. However, in the last few years, strong oil prices have strengthened the external position of most of the Gulf economies, making such instability in any of the GCC countries unlikely for some time.

After the sharp drop in oil prices in 1998-99 and the associated financial pressure, the GCC authorities decided to reinforce their structural reform programs in an attempt to focus on the importance of the real growth in non-oil activities in order to free their economies from the dependence on oil revenues for their growth and development. The government of Bahrain started to do so by encouraging non-oil activities in the country.

The following Table summarizes some of the recent key structural reforms in Bahrain by Fasano and Iqbal (2003):

Table 4.2

Recent key structural reforms of Bahrain

Financial Sector	Issued the first Islamic government bills to complement the working of the Islamic financial institutions; took steps toward improving prudential regulations for Islamic banking; ratified anti-money laundering legislation in 2001; and enforced Bahrain Stock Exchange rules and regulations.
Foreign Direct Investment	Eased rules on non-GCC firms to own buildings and lease land; established a one-stop shop to facilitate licensing procedures; and permitted foreign ownership to increase from 49 to 100 percent of businesses in all but a few strategic sectors (e.g., oil and aluminum).
State Enterprise Reform and Privatization	Privatized the Public Slaughter House and the capital's waste collection and incineration. Other privatizations are under way, including the public transport company (bus) and tourism facilities. The telecommunications and postal services sectors are being liberalized.
Labor Market Reform	Recently developed a new National Employment Strategy that includes providing fiscal subsidies for training nationals in the private sector and financial aid for the unemployed. Introduced measures to improve general education standards, and vocational and technical training programs, and increased employment quota of Bahrainis in small and medium-sized companies while abolishing the "free visa" system to expatriate labor force.

4.4.3. Kuwait

Kuwait is a small rich country located in the Arabic Gulf. According to The Economist Intelligence Unit (EIU), *Kuwait Profile,* 2003, Kuwait's economy is dominated by the oil sector, which is the world's fifth largest national oil resource base (about 98 billion barrels of proven reserves, or about 10% of proven global reserves). Kuwait is a member of the Organization of Petroleum Exporting Countries (OPEC), as well as a member of the Organization of Arab Petroleum Exporting Countries (OAPEC). Kuwait's exports account are 90-95% oil, based oil revenues account for over 80% of the government's revenue and more than 40% of nominal GDP. The petroleum downstream industries such as oil refining and petrochemicals dominate the manufacturing sector of Kuwait. In 2000, manufacturing excluding oil refining contributed only 4% to real GDP.

The economy of Kuwait is small and relatively open. The typical measure of openness in an economy, the trade/GDP ratio, is usually around 90%, compared with 100% for United Arab Emirates and Bahrain. In recent years, gross fixed capital formation contributed to about 10% of GDP. In 1998, public and private consumption comprised 88.4% of nominal GDP and, in 2000, was significantly lower at about 65.6%, and in 2001, was about 65.2%.

Since the early 1950s, the government of Kuwait attempted to utilize oil revenues for establishing and promoting development in the country. In the 1970s, oil prices increased sharply, which encouraged the Kuwait government to use the huge oil revenues for massive improvements in the country through its five-year

development plans. For example, it used oil revenue to finance its ambitious programs of development: building the state's infrastructure, public schools and housing, provision of free health care, among other things. Educations share became one of the highest government budget categories. Spending on developing human resources at all levels of education has increased in real terms with every plan. In the beginning of the last five-year development plan (2001-2005) the total annual expenditure on education accounted for about 9.4% of the government's budget. The government of Kuwait has sought to coordinate health provision among other various public provisions. It spent about 6.3% of the government budget on health services. Finally, the early development of Kuwait's oil reserves allowed the country to develop its basic infrastructure by the early 1980s, and to establish a strong "cradle-to-grave" welfare state.

The Gulf conflict in 1990-91 caused massive destruction to the Kuwaiti economy including damage to the infrastructure, oil-field destruction, and suspension of many economic activities in the country. This destruction put a considerable burden on government financing of the war as well as financing reconstruction after the war. The government was forced to liquidate a substantial portion of its huge overseas assets and to borrow from international markets to cover these costs. Since the Kuwait economy depends so heavily on oil revenues, which stopped during the war and took about four years to resume at pre-war levels, the government has had to face some major structural challenges. However, in fiscal year 1998-99 those challenges had dropped significantly.

Government of Kuwait continues its commitment towards structural reform programs drawn up after the 1991 war, which had been designed to reduce its role in the economy and enhance the role of the private sector. For example, the government has privatized some of its assets and has taken steps to encourage private-sector investment, including non-Kuwaiti investment, in new industries. However, still much of the country's limited private-sector activity is driven by public-sector spending.

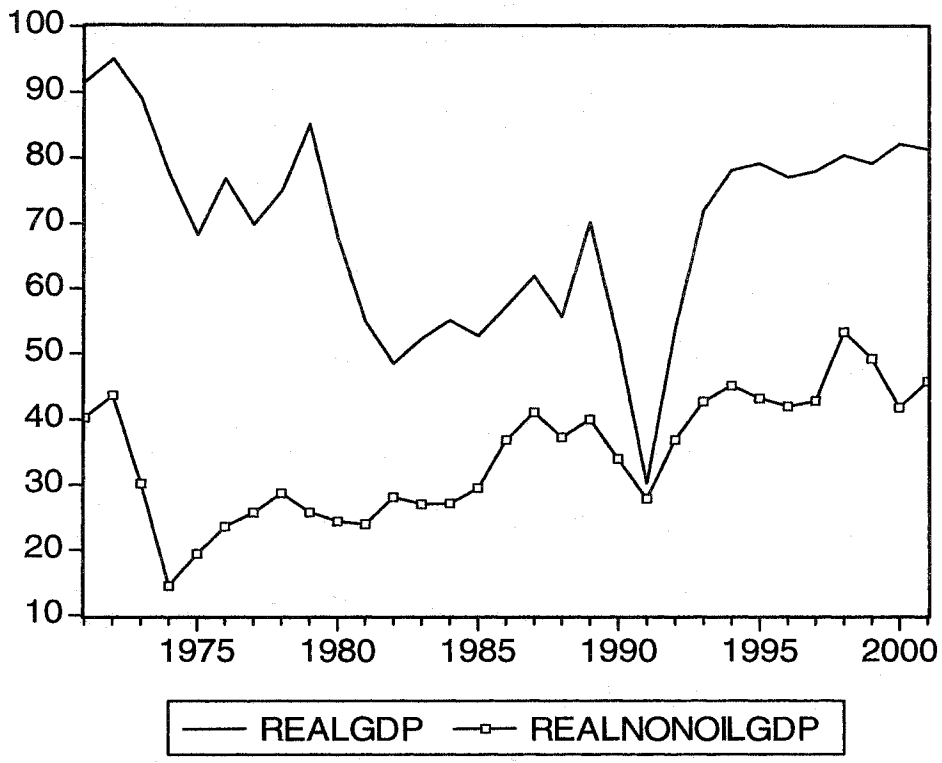
The growth rates of Kuwait's economy, both in nominal and real terms, have fluctuated significantly since 1990 as a result of the Iraqi invasion as well as the volatility of international oil prices. After substantial shrink stage in the Kuwaiti economy in 1990-91, the trend was reversed with a significant increase in 1992 and 1993, with GDP growing by 33.3% in real terms in 1993 alone, followed by 8.4% growth in GDP by the end of 1994. The contraction in the real growth of 2.7% in 1996 was because of the reduction in government expenditure after significant deficits accumulated following the post-war reconstruction.

The fiscal policy options of the Kuwaiti government are limited in terms of both expenditure and revenue. Oil is dominating budget revenues, which are thereby influenced by world oil prices. Non-oil revenues in the Kuwaiti budget are come mainly from taxes, foreign companies, and some user fees for government services. On the other hand, there is also some limited flexibility on budget expenditures. public-sector salaries, which the government pays to its member of staff and workers, and consumers subsidies, account for about 80-85% of all

current expenditure. Figure 4.3 shows real GDP and real Non-Oil GDP in Kuwait during the time-period covered in this study.

Figure 4.3

Real GDP and Real Non-Oil GDP in Kuwait



Source: IMF, International Monetary Fund, 2003

After the end of the Gulf war in 1991, the Kuwaiti government adopted some policies that removed subsidies on many commodities and services. However, it was reluctant to admit to inflation, as state salaries are often indexed to consumer price index (CPI) increases, and most Kuwaitis depend on public-sector salaries. The government has claimed that the prices of goods and services increased faster than the official inflation rates, which means that the government

somehow squeezed the real wage, and in many cases, nominal wages have also declined. However, Kuwait witnessed moderate inflation rate from 1991 to 2002, with an average inflation rate of 2.3%.

Once again, following the sharp drop in oil prices in 1998-99 and the associated financial pressure, the government of Kuwait started to do so by encouraging non-oil activities in the country.

The following Table summarizes some of the recent key structural reforms in Kuwait by Fasano and Iqbal (2003):

Table 4.3

Recent key structural reforms of Kuwait

Financial Sector	Adopted a foreign investment law allowing foreigners to own and trade shares of joint-stock companies listed on the Kuwait Stock Exchange, subject to specific limits.
Foreign Direct Investment	Passed a law allowing foreigners to own 100 percent of Kuwaiti companies and reduced corporate taxes from 55 percent to 25 percent. Established Foreign Investment Capital Office to process foreign direct investment applications.
State Enterprise Reform and Privatization	The privatization law, approved by the Finance Committee of the National Assembly, established a comprehensive framework for large-scale privatization, identified areas and modes of privatization, and set up a pricing mechanism and safeguards against job losses. The government plans to offer for sale to the private sector most of the 62 public sector entities still under its control.
Labor Market Reform	Established Manpower and Government Restructuring Program (MGRP) in July 2001 to implement the labor law, provide unemployment benefits to unemployed Kuwaiti nationals, and provide training and facilitate employment of Kuwaiti nationals in the private sector. Approved, in September 2002, quotas for the proportion of Kuwaitis that the private companies must employ; companies that fail to meet this target would be subject to a fine and sanctions such as exclusion from bidding for government contracts.

4.4.4. Oman

Oman is a small, well-off Middle Eastern country, located in the south-eastern corner of the Arabian Peninsula and is bordered by Saudi Arabia and the UAE to the West and Yemen in the South. According to The Economist Intelligence Unit (EIU), *Oman Profile*, 2004, until oil production began in 1967, the Omani economy was mainly based on subsistence agriculture and fishing. The Omani economy is dominated by the oil sector and a large central government. Their crude oil has accounted for about 30% of real GDP since the 1980s, and about 72% of government income over the same period. From 1981 to 1986, Oman compensated for declining oil prices by increasing production levels to 600,000 barrels per day. With the collapse of oil prices in 1986, however, revenues dropped dramatically. Even though Oman is not a member of the Organization of Petroleum Exporting Countries (OPEC), production was cut back temporarily in coordination with it and production levels again reached 600,000 barrels per day by mid-1987, helping to increase government revenues. By 2000, production had climbed to more than 900,000 barrels per day.

Oman's oil resources are relatively limited in contrast to other Gulf States and are difficult to extract. Oman's oil production comes from over 100 small fields. The country's reserves proved to be small and are expected to last roughly 20 years. The small size of the fields and reserves result in much higher production cost than in other GCC countries such as Saudi Arabia and UAE although they are not as high as those in the US and North Sea. These problems of oil production

caused the oil industry to fall in production in 2001, with further declines anticipated in 2004 and 2005.

The discovery of natural gas in large quantities in 1980s and early 1990s opened the door for diversification in the country. The diversification plans now focus on this resource both as a direct export (Oman has a growing liquefied natural gas-LNG-capacity) and as a fuel and feedstock for other industry ventures.

Oil and gas continue to be the major sources of government revenue and therefore the main source of funds for development in Oman. In the 1970s, oil prices increased sharply, which encouraged the Omani government to use the oil and gas revenues for improvement in the country through its five-year development plans. Consequently, the country started developing its service industries such as natural resources, healthcare and education. Spending on developing human resources at all levels of education is the most important part of development expenditure. The education system in Oman has expanded substantially over the last three decades. In 1970, there were only three primary schools in the whole country, and by 1998 this number increased to about 400. In 2003, there were over 1,000 government schools in different types. The literacy rate in the 15-24 year bracket stood at 98% in 2000, compared with 74% in 1985. In 2002, the share of education in government expenditure was about 9.5%. Also, Oman developed a very good healthcare system. Government spending on healthcare has accounted for an average of 5.7% of total government expenditure between 1998 and 2002. This heavy public spending has supported a rise in life expectancy from 57.5 years

in 1980 to 73.8 years in 2002. 92% of the nation now has access to an adequate sanitation facilities, and child immunization rate run at close 100%.

In addition, the government is undertaking many other development projects to modernize the economy, improve the standard of living, and become a more active player in the global marketplace. Oman became a member of the World Trade Organization (WTO) in October 2000, and continues to amend its financial and commercial practices to be matched with international standards.

The Sixth Five-Year Plan covering the years 2001-2005 focuses on the following; economic diversification, expansion of the private sector, raising productivity, rationalizing public expenditure and creating jobs for Omani youth are some of the objectives of the plan. However, defense spending still accounts for one third of total government expenditure.

Successfully implementing this development plan requires taking into considerations the government's budget. It has played an important and a major role in pursuing the six plan goals. Between the year 1992 and 1995, the government had large fiscal deficit of an average of 10% of GDP a year (about Omani Riyal 500m: $1.3bn). This budget deficit called for immediate elimination within the fifth five-year plan. In 1996, the government managed to reduce the budget deficit to about OR263.2m, with further reduction in 1997 of about OR40.2m, due to the increase in oil prices. In 1998, the budget deficit rose sharply once again reaching OR375m, due to the decline in the oil prices. In 1999, the budget deficit expanded further to OR472.9m, before declining to OR366.2m in

2000 and OR327.9m in 2001. In 2002, the budget generated a net surplus of just under OR70m as oil prices increased.

The performance of Oman's economy in recent decades as represented by real economic growth reflects the rapid increase in oil prices in the 1970s, but this growth slowed down during the weakening of oil prices in 1980s. Real economic growth in Oman has averaged around 5% a year over the past decade, which is an impressive performance by the regional standards. This average of real economic growth was between 0.2% in 1999 and 7.5% in 2001. The swings in the pace of the growth, in large part, was reflecting changing oil production and its prices, which is not only effect the oil sector but also transmitted into the rest of the economy through government expenditure (particularly on capital projects) and private-sector confidence. In 2002, real economic growth slowed to about 1.7% from 7.5% in 2001. In nominal terms, economic growth reached as high as 26.5% in 2000 after contracting by over 11% in 1998. Despite the marked slowdown in real growth in 2003, the economy expanded by more than 6% in nominal terms as oil prices increased rapidly.

The participation of the non-oil sector, through diversification efforts of the Omani government away from its reliance on the oil export, has increased in the last two decades at the same time the private sector plays an increasing important role in economic development. Growth in the non-oil sector has been led primarily by the development of natural gas resources, which has been a key factor behind growth in the recent years. During the development stage in the mid-1980s, there

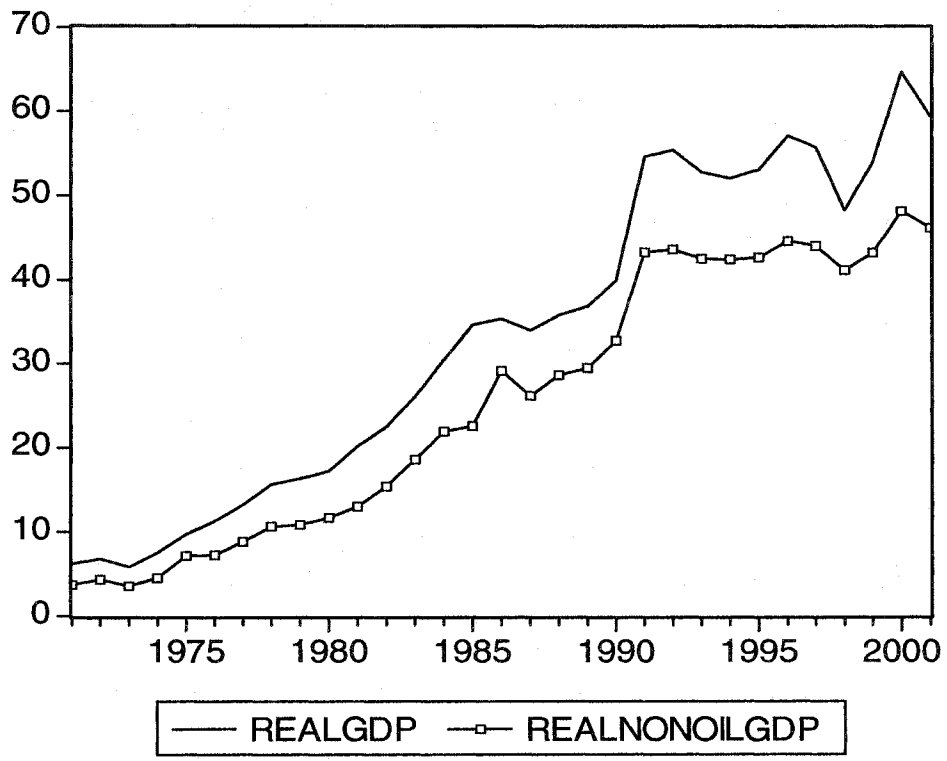
was a marked trend in investment spending to finance the construction of two liquefied natural gas (LNG) plants and their associated infrastructure. After the completion of the two projects and after production started, manufacturing increased to 40% of GDP in 2000 and 30% in 2001, accounting for around 35% of the increase in real GDP over those years.

Oman also has been promoting tourism in a big way. The introduction of the one-year multiple entry visit visa, for tourists and business people, has acted as a major boost in the country's growth.

The non-oil sector, as a part of real Non-Oil GDP, in general has expanded from 11.6% in 2001 to about 15.2% in 2002. Figure 4.4 shows real GDP and real Non-Oil GDP in Oman during the time-period covered in this study.

Figure 4.4

Real GDP and Real Non-Oil GDP in Oman



Source: IMF, International Monetary Fund, 2003

The inflation rate in Oman, as measured by the Muscat consumer price index, is relatively low. In the last decade, the Central Bank of Oman (CBO) used monetary policy as the key element for controlling price fluctuations. The maintenance of the Riyal's peg to the US dollar has also helped to limit the impact of imported inflation. Moreover, controlling prices of electricity and water helped lower the inflationary environment. Consequently, consumer prices have fallen in five of the six years between 1998 and 2003, with an average contraction of about

0.6% over the period. However, 0.9% is the highest pace of price growth recorded in the past decade.

Once again, following the sharp drop in oil prices in 1998-99 and the associated financial pressure, the government of Oman started to do so by encouraging non-oil activities in the country.

The following Table summarizes some of the recent key structural reforms in Oman by Fasano and Iqbal (2003):

Table 4.4

Recent key structural reforms of Oman

Financial Sector	Expanded repossession facilities to the inter bank market; implemented a capital market law to restructure the Muscat Securities Market into three separate bodies dealing with regulations, trading and exchange, and depository registration; and adopted a new banking law in 2000. The central bank has reactivated the issuance of certificates of deposits to manage liquidity, and implemented measures to reduce the risk of over-lending to individuals, corporations, and their related parties. Oman has taken steps toward full compliance with the Financial Action Task Force (FATF) recommendations on money laundering and combating the financing of terrorism. The central bank is also strengthening risk-management assessment.
Foreign Direct Investment	Allowed 100 %foreign ownership of companies in most sectors; reduced income tax disparity between Omani and foreign companies by raising the single rate for the former from 7.5 %to 12 %and lowering the rates for the latter from 15–50 %to 5–30 percent; redefined "foreign" company as one with more than 70 %foreign ownership instead of currently 49 percent; and allowed foreign, non-GCC, firms to own buildings and lease land. Opening up the service sector to full foreign ownership in line with WTO agreements, starting in 2003 with the information technology sector.
State Enterprise Reform and Privatization	The power sector is at the forefront of privatization efforts, with three power plants now under construction by foreign investors under a build-own-operate basis. Existing government power plants are being restructured for their future privatization. Oman has also recently privatized the management of airport services. Other services to be privatized in the near future include water distribution, waste water network, postal services, and telecommunications. The government also plans to gradually sell its participation in the few remaining non-oil public companies listed in the local stock market.
Labor Market Reform	Introduced measures to improve vocational and technical training programs, and set a uniform minimum wage for Omanis at RO 100 (plus RO 20 as transportation allowance) instead of the previous two-tiered (skilled/unskilled) minimum wage. The authorities are also modernizing the educational system at all levels. A new ministry of manpower was created in 2002 and a new labor law adopted in May 2003.

CHAPTER FIVE

EMPIRICAL FINDINGS AND ANALYSIS OF APPLYING THE SIX VERSIONS OF WAGNER'S LAW ON THE FOUR GCC COUNTRIES

5.1. Overview

Our findings in this chapter are based on employing the methodology that we discussed in chapter three. As we mentioned earlier, recent developments in time-series data analysis show that most macroeconomic time series data have a unit root (a stochastic trend) and this property is described as difference stationarity, so that the first difference of a time series is stationary. Therefore, in testing Wagner's Law in the four GCC countries, the non-stationary property of the time series data must be considered first. We employ the most widely used method to test the time series data in our study for unit root, which are the Augmented Dickey Fuller (ADF) tests (Dickey-Fuller 1981). Then, by employing the co-integration technique, we test for the existence of a long-run relationship (equilibrium) between the non-stationary time series variables. The final test we perform in our study is a Granger causality test, which includes the ECM and standard Granger causality, to see if one variable has been a leading indicator of another variable over time. All of these tests are conducted in terms of real GDP as well as in terms of real Non-Oil GDP for each individual country of GCC countries

in our study (Saudi Arabia, Bahrain, Kuwait, and Oman). However, before we proceed and report our findings, we would like to briefly discuss each of the six versions of Wagner's Law.

The organization of this chapter is as follows: the first section discusses each of the six versions of Wagner's Law. The second section reports the findings of each test we perform (Unit Root test, Co-integration test, and Granger Causality test) for each individual country of GCC countries in our study (Saudi Arabia, Bahrain, Kuwait, and Oman) in terms of real GDP as well as in terms of real Non-Oil GDP.

5.2. The Six Versions of Wagner's Law

Wagner (1883) offered a model of the determination of public expenditure in which public expenditure growth was a natural consequence of the growth in national income. In other words, it was endogenously determined. The most accepted interpretation of this Law, among several others, states that an increase in economic activities causes an increase in government activities, which in turn, increases public expenditure.

Wagner stated his ideas rather vaguely and in ways that do not always correspond precisely to contemporary economic terminology. As a consequence, in studying the nature of Wagner's law, there are different interpretations in the empirical work regarding the relationship between total government expenditure and state activities over time (the level of economic development). One comes

across as many as six versions of Wagner's Law. The different versions of Wagner's Law are summarized by Mann (1980), Afxentiou and Serletis (1992), and Demirbas (1999) in the form of "log-log models".

The six versions of Wagner's Law are briefly discussed in the following sub-sections:

5.2.1. Peacock-Wiseman Version

This version of Wagner's law is called the traditional version. According to Peacock and Wiseman (1967), Wagner's argument was that "government expenditure must increase at an even faster rate than output" (Peacock and Wiseman, 1967:17). In other words, the increase in total government expenditure is expected to be at faster rate than the one of gross domestic product. The symbolic statement of Wagner's law according to this version is:

$$TGX = f(GDP), \qquad f' > 0, \text{ and } f'' > 0 \qquad (5.1)$$

Where: TGX = Total Government Expenditure level in real terms.

GDP = Gross Domestic Product in real terms, and it used as the standard measures of the country's economic activities

The equation (5.1) is specified in the double logarithmic form.

$$LTGX = \alpha + \beta\, LGDP \qquad (5.2)$$

5.2.2. Pryor Version

This version of Wagner's law was represented by Pryor (1968). According to him, "Wagner ..... asserted that in growing economies the share of public consumption expenditures in the national income increases" (Pryor, 1968:451). The symbolic statement of Wagner's law according to this version is:

$$TGXC = f(GDP) \qquad f' > 0, \text{ and } f'' > 0 \qquad (5.3)$$

Where: TGXC = total government consumption expenditure level in real terms.

GDP = Gross Domestic Product in real terms.

The equation (5.3) is specified in the double logarithmic form.

$$LTGXC = \alpha + \beta\, LGDP \qquad (5.4)$$

5.2.3. Goffman Version

This version of Wagner's law was represented by Goffman (1968). According to him, "Essentially, Wagner argued that as a nation experiences economic development and growth, an increase must occur in the activities of the public sector and that ratio of increase, when converted into expenditure terms, would exceed the rate of increase in output per capita" (Goffman, 1968:359). The symbolic statement of Wagner's law according to this version is:

$$TGX = f(GDP/N) \qquad f' > 0, \text{ and } f'' > 0 \qquad (5.5)$$

Where: TGX = Total Government Expenditure level in real terms.

GDP/N = per capita Gross Domestic Product in real terms.

N = Population.

The equation (5.5) is specified in the double logarithmic form.

$$LTGX = \alpha + \beta\ (LGDP/N) \qquad (5.6)$$

5.2.4. Musgrave Version

This version of Wagner's law was represented by Musgrave (1969). According to him, "Ever since Adolph Wagner expounded his law of the expanding scale of state activity, economists have speculated on its validity and the underlying causes.... The proportion of expanding scale, obviously, must be interpreted as postulating rising share of public sector, or ratio of public expenditure to GDP ..... of the development of a country, from low to high per capita income" (Musgrave, 1969:73-74). The symbolic statement of Wagner's law according to this version is:

$$TGX/GDP = f\ (GDP/N) \qquad f' > 0, \text{ and } f'' > 0 \qquad (5.7)$$

Where: TGX/GDP = the share of Total Government Expenditure in Gross Domestic Product in real terms.

GDP/N = per capita Gross Domestic Product in real terms.

N = Population.

The equation (5.7) is specified in the double logarithmic form.

$$L(TGX/GDP) = \alpha + \beta\ (LGDP/N) \qquad (5.8)$$

5.2.5. Gupta and Michas Version

This version of Wagner's law was represented by Gupta (1967) and Michas (1975). According to this version, per capita government expenditure of a country rises more than proportionately as its per capita income rises in real terms. It is the traditional version of Wagner's law but in per capita terms. The symbolic statement of Wagner's law according to this version is:

$$TGX/N = f(GDP/N) \qquad f' > 0, \text{ and } f'' > 0 \qquad (5.9)$$

Where: TGX/N = per capita Total Government Expenditure level in real terms.

GDP/N = per capita Gross Domestic Product in real terms.

N = Population.

The equation (5.9) is specified in the double logarithmic form.

$$L(TGX/N) = \alpha + \beta\,(LGDP/N) \qquad (5.10)$$

5.2.6. Mann Version

This version of Wagner's law was represented by Mann (1980), and is a "modified" version of Peacock-Wiseman, in the sense that it converts the "traditional" Peacock-Wiseman formulation (equations 5.1 and 5.2) into a *share* version (share of total government expenditure in the gross domestic product). According to this version, the share specification most closely approximates the proper perspective of Wagner's hypothesis. The increase in the share of total government expenditure is expected to be at faster rate than the one of gross

domestic product. "This version is the formulation used most frequently in empirical work" (Ram 1987). The symbolic statement of Wagner's law according to this version is:

$$TGX/GDP = f(GDP) \qquad f' > 0, \text{ and } f'' > 0 \qquad (5.11)$$

Where: TGX/GDP = the share of Total Government Expenditure in Gross Domestic Product in real terms.

GDP = Gross Domestic Product in real terms.

The equation (5.11) is specified in the double logarithmic form.

$$L(TGX/GDP) = \alpha + \beta\, LGDP \qquad (5.12)$$

5.3. Empirical Findings from testing the Six Versions of Wagner's Law

In this section, we report separately the findings for each test for the four GCC countries (Saudi Arabia, Kuwait, Bahrain, and Oman), as a sub-sections, starting with Unit Root, Co-integration, ECM, and finally Standard Granger Causality. In each sub-section the findings reported include the findings of the different tests for the relationship between the independent variables (GDP or per capita GDP) and the dependent variables (TGX, TGXC, TGX/N, or TGX/GDP) as well as the findings of the different tests for the relationship between the independent variables (NONOILGDP or NONOIL per capita GDP) and the dependent variables (TGX, TGXC, TGX/N, or TGX/NONOILGDP).

Finally, the lag lengths of the following tests are chosen by taking into consideration the balance between ensuring approximately error term and allowing for enough degree of freedom in estimation.

5.3.1. Unit Root Tests

Since all variables under investigation are time-series variables, we needed first to test the properties of the series. In order to avoid the problem of spurious regression, each series is tested for stationarity. To do so, we apply ADF unit root tests, considering 1% level of significance, for the unit root tests whether to accept or reject the null hypothesis. However, we found the outcome of each variable used in all of the six versions of Wagner's Law in all four countries indicates that the series are non-stationary in levels but stationary after the first difference (i.e., order one or I(1)). The number of observations is 31 for Saudi Arabia, Kuwait, and Oman and 28 for Bahrain. The following Tables summarize the outcomes of the unit root tests for Saudi Arabia, Bahrain, Kuwait, and Oman.

Table 5.1: Unit Root Tests: Augmented Dickey-fuller (ADF)

Test Results for Saudi Arabia

Variables	T-Statistic		
	Level	1st difference	
LGDP	-0.53	-2.99	I(1)**
LTGX	-3.29	-3.61	I(1)**
LTGXC	-2.13	-5.49	I(1)*
L(TGX/GDP)	-1.06	-4.22	I(1)*
L(TGX/ Non-Oil GDP)	-0.40	-5.07	I(1)*
L(GDPN)	-2.19	-3.00	I(1)**
L(TGX/N)	-1.07	-3.76	I(1)*
LNon-Oil GDP	-0.08	-2.78	I(1)***
L(Non-Oil GDP/N)	-3.69	-2.98	I(1)**
Lag Length	6	1	

Note: *, **and *** denote significance at and 1%, 5%, and 10%, respectively; I(1) indicates unit root in levels and stationary after first difference.
The critical values in level at 1%, 5%, and 10%, are (-3.74), (-2.99), and (-2.64) respectively.
The critical values in 1st diff. at 1%, 5%, and 10%, are (-3.69), and (-2.97), (-2.63) respectively.
Number of observations is 31.

Table 5.2: Unit Root Tests: Augmented Dickey-fuller (ADF)

Test Results for Bahrain

Variables	T-Statistic		
	Level	1st difference	
LGDP	-0.78	-5.00	I(1)*
LTGX	-0.98	-4.11	I(1)*
LTGXC	-1.86	-3.07	I(1)**
L(TGX/GDP)	-1.92	-3.77	I(1)*
L(TGX/ Non-Oil GDP)	-1.78	-3.84	I(1)*
L(GDPN)	-0.69	-4.98	I(1)*
L(TGX/N)	-2.12	-4.03	I(1)*
LNon-Oil GDP	-1.02	-6.05	I(1)*
L(Non-Oil GDP/N)	-1.38	-5.78	I(1)*
Lag Length	1	1	

Note: *, and ** denote significance at 1%, and 5%, respectively; I(1) indicates unit root in levels and stationary after first difference.
The critical in level at 1%, and 5% are (-3.71), and (-2.98) respectively.
The critical in 1st diff. at 1%, and 5%are (-3.72), and (-2.99) respectively.
Number of observations is 28.

Table 5.3: Unit Root Tests: Augmented Dickey-fuller (ADF)

Test Results for Kuwait

Variables	T-Statistic		
	Level	1st difference	
LGDP	-2.44	-5.29	I(1)*
LTGX	-2.19	-5.13	I(1)*
LTGXC	-2.15	-6.18	I(1)*
L(TGX/GDP)	-1.89	-5.87	I(1)*
L(TGX/ Non-Oil GDP)	-0.90	-4.49	I(1)*
L(GDPN)	-2.18	-4.68	I(1)*
L(TGX/N)	-1.34	-4.75	I(1)*
LNon-Oil GDP	-1.79	-5.20	I(1)*
L(Non-Oil GDP/N)	-3.47	-4.34	I(1)*
Lag Length	0	0	

Note: * denote significance at 1%, respectively; I(1) indicates unit root in levels and stationary after first difference.
The critical in level at 1%, is (-3.67).
The critical in 1st difference at 1%, is (-3.68).
Number of observations is 31.

Table 5.4: Unit Root Tests: Augmented Dickey-fuller (ADF)

Test Results for Oman

Variables	T-Statistic		
	Level	1st difference	
LGDP	-2.08	-4.25	I(1)*
LTGX	-2.34	-3.19	I(1)**
LTGXC	-2.69	-3.73	I(1)*
L(TGX/GDP)	-1.10	-4.10	I(1)*
L(TGX/ Non-Oil GDP)	-0.85	-4.52	I(1)*
L(GDPN)	-2.03	-4.63	I(1)*
L(TGX/N)	-2.37	-3.31	I(1)**
LNon-Oil GDP	-2.22	-4.14	I(1)*
L(Non-Oil GDP/N)	-2.04	-4.47	I(1)*
Lag Length	1	1	

Note: *, and ** denote significance at and 1%, and 5%, respectively; I(1) indicates unit root in levels and stationary after first difference.
The critical in level at 1%, and 5% are (-3.68), and (-2.97) respectively.
The critical in 1st difference at 1%, and 5% are (-3.69), and (-2.97), respectively.
Number of observations is 31.

Now, this is being the case, we proceed to perform a co-integration test as the next step in our empirical investigation.

5.3.2. Co-integration Tests

Once a unit root has been confirmed for our time-series data, the question is whether there exists some long-run equilibrium relationship among variables that are non-stationary in levels but stationary in first differences. The null hypothesis is that the variables under investigation are not co-integrated. The rejection of the null hypothesis requires that the trace value of the co-integration test to be greater than at least one of the different critical values. Therefore, failing to reject the null hypothesis of no co-integration leads us to conclude that the long-run equilibrium relationship between government expenditure and national income over the time does not exist.

Co-integration tests in this study are conduct using the method developed by Johansen (1988), and Johansen and Juselius (1990). This procedure is the most reliable test for co-integration.

In this study we conduct two co-integration tests for each country in the study; the first one is with respect to Real Gross Domestic product (GDP) and the second one is with respect to Real Non-Oil Gross Domestic product (Non-Oil GDP), each one is for all of the six versions of Wagner's law.

5.3.2.1. Co-integration Tests with Real GDP

The co-integration test was preformed here in order to determine whether the integrated series exhibits a long-run equilibrium relationship in each country in the study. Since the series here are integrated with the same order (i.e. order one or I(1)), a co-integration test can be conducted in order to examine the existence of long-run equilibrium relationship among the variables in terms of real GDP. The following Tables summarize the outcomes of the co-integration tests with respect to Real GDP for Saudi Arabia, Kuwait, and Oman with 31 observations, and Bahrain with 28 observations.

Table 5.5: Co-integration Test: Johansen Co-integration Test Results for Saudi Arabia: the six versions of Wagner's Law with Real GDP

No	Version	Hypothesized No of CE(s)	Trace Statistic	Critical Values	
				5%	1%
1	Peacock-Wiseman (LTGX & LGDP) [1]	None **	19.72	15.41	20.04
		At Most 1	3.01	3.76	6.65
2	Pryor (LTGXC & LGDP) [4]	None **	17.26	15.41	20.04
		At Most 1	2.68	3.76	6.65
3	Goffman (LTGX & LGDP/N)	None	No Co-int.	0000	0000
		At Most 1		0000	0000
4	Musgrave (LTGX/GDP & LGDP/N) [3]	None *	20.67	15.41	20.04
		At Most 1	3.69	3.76	6.65
5	Gupta and Michas (L TGX/N & LGDP/N) [3]	None *	20.67	15.41	20.04
		At Most 1	3.69	3.76	6.65
6	Mann (LTGX/GDP & LGDP) [1]	None **	19.72	15.41	20.04
		At Most 1	3.01	3.76	6.65

Note: *, and ** denote rejection of the hypothesis at 1 %, and 5 % levels, respectively.
Number in the brackets indicates the lag length.
CE(s): indicates Co-integration Equations.

Table 5.6: Co-integration Test: Johansen Co-integration Test Results for Bahrain: the six versions of Wagner's Law with Real GDP

No	Version	Hypothesized No of CE(s)	Trace Statistic	Critical Values	
				5%	1%
1	Peacock-Wiseman (LTGX & LGDP) [4]	None *	23.10	15.41	20.04
		At Most 1	2.25	3.76	6.65
2	Pryor (LTGXC & LGDP)	None	No Co-int.	0000	0000
		At Most 1		0000	0000
3	Goffman (LTGX & LGDP/N) [4]	None **	19.58	15.41	20.04
		At Most 1	1.82	3.76	6.65
4	Musgrave (LTGX/GDP & LGDP/N) [4]	None *	22.21	15.41	20.04
		At Most 1	0.65	3.76	6.65
5	Gupta and Michas (L TGX/N & LGDP/N) [4]	None *	22.21	15.41	20.04
		At Most 1	0.65	3.76	6.65
6	Mann (LTGX/GDP & LGDP) [4]	None *	22.10	15.41	20.04
		At Most 1	2.25	3.76	6.65

Note: *, and ** denotes rejection of the hypothesis at 1 %, and 5 % levels, respectively.
Number in the brackets indicates the lag length.
CE(s): indicates Co-integration Equations.

Table 5.7: Co-integration Test: Johansen Co-integration Test Results for Kuwait: the six versions of Wagner's Law with Real GDP

No	Version	Hypothesized No of CE(s)	Trace Statistic	Critical Values	
				5%	1%
1	Peacock-Wiseman (LTGX & LGDP)	None	No Co-int.	0000	0000
		At Most 1		0000	0000
2	Pryor (LTGXC & LGDP)	None	No Co-int.	0000	0000
		At Most 1		0000	0000
3	Goffman (LTGX & LGDP/N)	None	No Co-int.	0000	0000
		At Most 1		0000	0000
4	Musgrave (LTGX/GDP & LGDP/N) [6]	None **	18.26	15.41	20.04
		At Most 1	1.87	3.76	6.65
5	Gupta and Michas (L TGX/N & LGDP/N) [6]	None **	18.26	15.41	20.04
		At Most 1	1.87	3.76	6.65
6	cMann (LTGX/GDP & LGDP)	None	No Co-int.	0000	0000
		At Most 1		0000	0000

Note: *, and ** denote rejection of the hypothesis at 1 %, and 5 % levels, respectively.
Number in the brackets indicates the lag length.
CE(s): indicates Co-integration Equations.

Table 5.8: Co-integration Test: Johansen Co-integration Test Results for Oman: the six versions of Wagner's Law with Real GDP

No	Version	Hypothesized No of CE(s)	Trace Stat	Critical Values	
				5%	1%
1	Peacock-Wiseman (LTGX & LGDP) [6]	None *	32.67	15.41	20.04
		At Most 1	0.09	3.76	6.65
2	Pryor (LTGXC & LGDP)	None	No Co-int.	0000	0000
		At Most 1		0000	0000
3	Goffman (LTGX & LGDP/N) [7]	None *	55.14	15.41	20.04
		At Most 1	0.54	3.76	6.65
4	Musgrave (LTGX/GDP & LGDP/N) [4]	None *	21.33	15.41	20.04
		At Most 1	2.73	3.76	6.65
5	Gupta and Michas (LTGX/N & LGDP/N) [4]	None *	26.40	15.41	20.04
		At Most 1	1.86	3.76	6.65
6	Mann (LTGX/GDP & LGDP) [6]	None *	32.67	15.41	20.04
		At Most 1	0.09	3.76	6.65

Note: *, and ** denotes rejection of the hypothesis at 1 %, and 5 % levels, respectively.
Number in the brackets indicates the lag length.
CE(s): indicates Co-integration Equations.

By looking at the Trace Statistic values in the above Tables, we conclude that in case of Saudi Arabia (Table 5.5) we must reject the null hypothesis of no co-integration in five versions of Wagner's law with respect to real GDP because the Trace Statistic values are greater than the critical values at either 1% or 5% levels. On the other hand, we can not reject the null hypothesis of no co-integration in Goffman's version (No.3). The results show a preponderance of evidence that the real total government expenditure and real gross domestic product are subject to an equilibrium relationship in the long-run.

In cases of Bahrain (Table 5.6) and Oman (Table 5.8), we conclude that we must reject the null hypothesis of no co-integration in five versions of Wagner's

law with respect to Real GDP. On the other hand, we could not reject the null hypothesis of no co-integration in Pryor's version (No.2). This result indicates that the total government expenditure on consumption and gross domestic product are not subject to an equilibrium relationship in the long-run.

In case of Kuwait (Table 5.7), we conclude that we must reject the null hypothesis of no co-integration in only two versions of Wagner's law with respect to Real GDP and they are: Musgrave (No.4), and Gupta/Michas (No.5). On the other hand, we could not reject the null hypothesis of no co-integration in the four versions of Wagner's law with respect to Real GDP and they are: Peacock-Wiseman (No.1), Pryor (No.2), Goffman (No.3), and Mann (No.6). Since traditional version, Peacock-Wiseman, and Mann version, as used most frequently in empirical work and they are among this group, the results indicate that the total government expenditure and gross domestic product are not subject to an equilibrium relationship in the long-run in the case of Kuwait. There are two possible reasons behind that; one is the oil crises in 1970s that affected oil revenue in the oil producing countries including Kuwait, the other reason the Iraqi invasion in 1990 is more harmful to the economic activities in Kuwait specifically. The latter one caused the country to stop producing oil for awhile which dropped oil revenues to the zero until liberation. In addition, the country developed a huge deficit after liberation to finance its debts as a result of the war cost as well as financing rebuilding the country almost from ground zero.

In case of Oman (Table 5.8), we conclude that we must reject the null hypothesis of no co-integration in five versions of Wagner's law with respect to Real GDP and they are: Peacock-Wiseman (No.1), Goffman (No.3), Musgrave (No.4), Gupta/Michas (No.5), and Mann (No.6). This result indicates a long-run equilibrium relationship between real government expenditure and Real GDP in case of Oman.

5.3.2.2. Co-integration Tests with Real Non-Oil GDP

The same procedure as above was applied to Real Non-Oil GDP. The following Tables summarize the outcomes of the co-integration tests with respect to Real Non-Oil GDP for Saudi Arabia, Bahrain, Kuwait, and Oman.

Table 5.9: Co-integration Test: Johansen Co-integration Test Results for Saudi Arabia: the six versions of Wagner's Law with Real Non-Oil GDP

No	Version	Hypothesized No of CE(s)	Trace Stat	Critical Values	
				5%	1%
1	Peacock-Wiseman (LTGX & LNon-Oil GDP) [3]	None **	19.54	15.41	20.04
		At Most 1	1.72	3.76	6.65
2	Pryor (LTGXC & LNon-Oil GDP) [5]	None *	33.24	15.41	20.04
		At Most 1	3.51	3.76	6.65
3	Goffman (LTGX & LNon-Oil GDP/N) [3]	None *	25.39	15.41	20.04
		At Most 1	3.76	3.76	6.65
4	Musgrave (LTGX/ LNon-Oil GDP & LNon-Oil GDP/N) [1]	None *	28.33	15.41	20.04
		At Most 1	2.44	3.76	6.65
5	Gupta and Michas (LTGX/N & LNon-Oil GDP/N) [1]	None *	28.33	15.41	20.04
		At Most 1	2.44	3.76	6.65
6	Mann (LTGX/ LNon-Oil GDP & LNon-Oil GDP) [3]	None **	19.54	15.41	20.04
		At Most 1	1.72	3.76	6.65

Note: *, and ** denote rejection of the hypothesis at 1 %, and 5 % levels, respectively.
Number in the brackets indicates the lag length.
CE(s): indicates Co-integration Equations.

Table 5.10: Co-integration Test: Johansen Co-integration Test Results for Bahrain: the six versions of Wagner's Law with Real Non-Oil GDP

No	Version	Hypothesized No of CE(s)	Trace Stat	Critical Values	
				5%	1%
1	Peacock-Wiseman (LTGX & LNon-Oil GDP)	None	No Co-int.	0000	0000
		At Most 1		0000	0000
2	Pryor (LTGXC & LNon-Oil GDP)	None	No Co-int.	0000	0000
		At Most 1		0000	0000
3	Goffman (LTGX & LNon-Oil GDP/N)	None	No Co-int.	0000	0000
		At Most 1		0000	0000
4	Musgrave (LTGX/ LNon-Oil GDP & LNon-Oil GDP/N) [4]	None **	19.64	15.41	20.04
		At Most 1	2.72	3.76	6.65
5	Gupta and Michas (LTGX/N & LNon-Oil GDP/N) [4]	None **	19.46	15.41	20.04
		At Most 1	2.72	3.76	6.65
6	Mann (LTGX/ LNon-Oil GDP & LNon-Oil GDP)	None	No Co-int.	0000	0000
		At Most 1		0000	0000

Note: *, and ** denotes rejection of the hypothesis at 1 %, and 5 % levels, respectively.
Number in the brackets indicates the lag length.
CE(s): indicates Co-integration Equations.

Table 5.11: Co-integration Test: Johansen Co-integration Test Results for Kuwait: the six versions of Wagner's Law with Real Non-Oil GDP

No	Version	Hypothesized No of CE(s)	Trace Stat	Critical Values	
				5%	1%
1	Peacock-Wiseman (LTGX & LNon-Oil GDP) [7]	None *	29.03	15.41	20.04
		At Most 1	2.46	3.76	6.65
2	Pryor (LTGXC & LNon-Oil GDP)	None	No co-int.	0000	0000
		At Most 1		0000	0000
3	Goffman (LTGX & LNon-Oil GDP/N)	None	No co-int	0000	0000
		At Most 1		0000	0000
4	Musgrave (LTGX/ LNon-Oil GDP & LNon-Oil GDP/N) [1]	None *	22.88	15.41	20.04
		At Most 1	0.01	3.76	6.65
5	Gupta and Michas (LTGX/N & LNon-Oil GDP/N) [1]	None *	22.88	15.41	20.04
		At Most 1	0.01	3.76	6.65
6	Mann (LTGX/ LNon-Oil GDP & LNon-Oil GDP) [7]	None *	29.03	15.41	20.04
		At Most 1	2.46	3.76	6.65

Note: *, and ** denote rejection of the hypothesis at 1 %, and 5 % levels, respectively.
Number in the brackets indicates the lag length.
CE(s): indicates Co-integration Equations.

Table 5.12: Co-integration Test: Johansen Co-integration Test Results for Oman: the six versions of Wagner's Law with Real Non-Oil GDP

No	Version	Hypothesized No of CE(s)	Trace Stat	Critical Values	
				5%	1%
1	Peacock-Wiseman (LTGX & LNon-Oil GDP) [5]	None **	16.60	15.41	20.04
		At Most 1	0.37	3.76	6.65
2	Pryor (LTGXC & LNon-Oil GDP)	None	No co-int.	0000	0000
		At Most 1		0000	0000
3	Goffman (LTGX & LNon-Oil GDP/N) [6]	None *	23.88	15.41	20.04
		At Most 1	0.09	3.76	6.65
4	Musgrave (LTGX/ LNon-Oil GDP & LNon-Oil GDP/N) [4]	None *	20.58	15.41	20.04
		At Most 1	3.30	3.76	6.65
5	Gupta and Michas (LTGX/N & LNon-Oil GDP/N) [4]	None *	20.58	15.41	20.04
		At Most 1	3.30	3.76	6.65
6	Mann (LTGX/ LNon-Oil GDP & LNon-Oil GDP) [5]	None **	16.60	15.41	20.04
		At Most 1	0.37	3.76	6.65

Note: *, and ** denotes rejection of the hypothesis at 1 %, and 5 % levels, respectively.
Number in the brackets indicates the lag length.
CE(s): indicates Co-integration Equations.

By looking at the Trace Statistic values in the above Tables, we conclude that we must reject the null hypothesis of no co-integration in all six versions of Wagner's law with respect to real non-oil gross GDP for only Saudi Arabia (Table 5.9), because the Trace Statistic values are greater than the critical values at either 1% or 5% levels. Co-integrated relationships were found for all six versions of Wagner's law with respect to real non-oil gross GDP in case of Saudi Arabia, an even stronger result indicating that the real total government expenditure and real non-oil gross domestic product are subject to an equilibrium relationship in the long-run.

In case of Bahrain (Table 5.10), we conclude that we must reject the null hypothesis of no co-integration in only two versions of Wagner's law with respect to Real Non-Oil GDP and they are: Musgrave (No.4), and Gupta/Michas (No.5). The results for Real Non-Oil GDP are weaker in Bahrain Peacock-Wiseman version (No.1) and Mann version (No.6) were not among the group where co-integration was found it indicates not a lot of evidence of long-run equilibrium relationship between real government expenditure and Real Non-Oil GDP. One possible reason behind that is the Bahraini government did not start to pay more attention to non-oil activities to diversify its income until the late 1980s. Therefore, Bahrain's development diversification efforts started by improving its financial sector which has receive the greatest priority. In addition, tourism facilities are a very important part of the diversification efforts. However, growth in tourism has been influenced by change in oil prices as well as the regional political tension including domestic political violence. Therefore, the share of the service industry has fallen since the beginning of the 1990s. In addition, the Iraqi invasion in 1990 affected the performances of all GCC countries economies including Bahrain.

In case of Kuwait (Table 5.11), we must reject the null hypothesis of no co-integration in four versions of Wagner's law with respect to Real Non-Oil gross domestic products. On the other hand, we can not reject the null hypothesis of no co-integration in two versions and they are: Pryor (No.2), and Goffman (No.3). Even though, the Iraqi invasion in 1990 caused the country to stop producing oil for a while which dropped the oil revenue to the zero until liberation, the non-oil

activities grew faster than activities in the oil sector. In contrast to the case for GDP, the results indicate that real total government expenditure and real non-oil GDP are subject to an equilibrium relationship in the long-run.

In case of Oman (Table 5.12), we conclude that we must reject the null hypothesis of no co-integration in five versions of Wagner's law with respect to Real Non-Oil GDP and they are: Peacock-Wiseman (No.1), Goffman (No.3), Musgrave (No.4), Gupta/Michas (No.5), and Mann (No.6). This result indicates a long-run equilibrium relationship between real government expenditure and Real Non-Oil GDP in case of Oman.

5.3.3. Granger Causality Tests

We could not draw any conclusions about Wagner's law for the four GCC countries from the above; we must now employ the Granger-Causality procedure in the framework of the error correction model (ECM) for variables that are co-integrated and Standard Granger-Causality for variables that are not co-integrated. Wagner's hypothesis suggests that the causal flow runs from the independent variable to the dependent variable, while the Keynesian proposition indicates an opposite causal flow. Therefore, in the following sub-sections we employ both ECM with respect to the level of the variables and Standard Granger-Causality procedure with respect to the first difference of the variables to test for Wagner's law.

5.3.3.1. Error Correction Model (ECM)

The existence of co-integration among variables indicates that there must be Granger causality in at least one direction, but it does not indicate the direction of causality between the variables. To investigate this, we perform Granger causality tests in the framework of error correction model (ECM). With regard to the lag length here, we used the same lag length for each version of Wagner's law that we used when we tested for co-integration

In error correction equations (3.6) and (3.7) λs, which are the coefficients values of $ECT_{t-1,}$ should be negative for y, which in our study is the dependent variable that takes four different forms: TGX, TGXC, TGX/GDP, and TGX/N, and positive for x, which in our study are the independent variables (GDP or per capita GDP). In addition, the t-statistics on the coefficients of the lagged error correction term (ECT_{t-1}) indicates the significance of the long-run causality between the two variables. The statistical significance of the t-statistics in our tests should be at most 5% level.

Tables (5.13 and 5.14) summarize the results for the long-run causality, using error correction model (ECM), in terms of GDP and in terms of Non-Oil GDP, respectively. They report the coefficients of the lagged error correction terms (ECT_{t-1}) as well as the t-statistics on the coefficients for all of the six versions of Wagner's Law for the four GCC countries.

In case of Saudi Arabia, with respect to GDP, the results indicate that there is long-run unidirectional causality that runs from GDP to TGX (version No.1),

from GDP to TGXC (version No.2), from GDP/N to TGX/GDP (version No.4), from GDP/N to TGX/N (version No.5), and from GDP to TGX/GDP (version No.6). We draw this conclusion because the signs for TGX, TGXC, TGX/GDP, and TGX/N are correct, negative, and at the same time their coefficients are statistically significant at the 5% level, while the signs for GDP and GDP/N are either incorrect, negative, and/or their coefficients are statistically insignificant at the 5% level. Thus, five versions (No.1, 2, 4, 5, and 6) of Wagner's Law are found to hold for GDP in the case of Saudi Arabia.

With respect to Non-Oil GDP, the results also indicate that there is long-run unidirectional causality that runs from Non-Oil GDP to TGX (version No.1), from Non-Oil GDP to TGXC (version No.2), from Non-Oil GDP/N to TGX (version No.3), and from Non-Oil GDP to TGX/Non-Oil GDP (version No.6). Thus, four versions (No.1, 2, 3, and 6) of Wagner's Law are found to hold for Non-Oil GDP in the case of Saudi Arabia.

The preponderance of evidence supports the Wagnerian proposition perhaps somewhat surprisingly for both real GDP and real Non-Oil GDP. Given the government heavy reliance on oil revenues for its spending, Wagner's Law might be expected to be more likely in the case of real GDP and real Non-Oil GDP for Saudi Arabia.

In Musgrave's version (No.4) with respect to Non-Oil GDP, the outcomes indicate that there is feedback correlation (bidirectional causality) because both variables, TGX/Non-Oil GDP and Non-Oil GDP/N, have the correct signs and at

the same time their coefficients are significant at the 5% level. In this case, when the lagged values of each variable are significant in explaining the other one, we could not establish Granger Causality between the two variables because in such case there is some third variable that is determining the movement of both variables; it is Causality from a third source. So, neither the Keynesian nor Wagnerian hypothesis is supported by the data.

In Gupta/Michas version (No.5) also with respect to Non-Oil GDP, the outcomes indicate that there is long-run unidirectional causality that runs from TGX/N to Non-Oil GDP/N, because the sign for Non-Oil GDP/N is correct, positive, and at the same time the coefficients is statistically significant at the 5% level, while the sign for TGX/N is correct, negative, but the coefficients is statistically insignificant at the 5% level, Thus, this long-run unidirectional causality for this version of Wagner's Law is supports the Keynesian proposition.

In case of Bahrain, with respect to GDP, the results indicate that there is long-run unidirectional causality that runs from GDP to TGX (version No.1), from GDP/N to TGX (version No.3), from GDP/N to TGX/GDP (version No.4), from GDP/N to TGX/N (version No.5), and from GDP to TGX/GDP (version No.6). Thus, five versions (No.1, 3, 4, 5, and 6) of Wagner's Law are supported by the data.

With respect to Non-Oil GDP, the results also indicate that there is long-run unidirectional causality that runs from Non-Oil GDP/N to TGX/Non-Oil GDP (version No.4), and from Non-Oil GDP/N to TGX/N (version No.5). Only two

versions (No.4, and 5) of Wagner's Law are supported by the data when looking at non-oil GDP in Bahrain.

Wagner's Law is supported by the preponderance of the evidence for both Saudi Arabia and Bahrain for GDP. This is because both governments undertaking many other development projects that are in form of "free" public goods and services that the governments provide to their people, for instance, spending on improving public education facilities and health, transfers, subsidies, etc. Therefore, the process of economic development causes the government expenditures to grow over time with growth in GDP.

In case of Kuwait, with respect to GDP, the results indicate that there is long-run unidirectional causality that runs from TGX/GDP to GDP/N (version No.4), and from TGX/N to GDP/N (version No.5). Thus, the long-run unidirectional causality of the two versions (No.4, and 5) of Wagner's Law are supports the Keynesian proposition.

With respect to Non-Oil GDP, the results also indicate that there is long-run unidirectional causality that runs from TGX to Non-Oil GDP (version No.1), from TGX/Non-Oil GDP to Non-Oil GDP/N (version No.4), from TGX/N to Non-Oil GDP/N (version No.5), and from TGX/Non-Oil GDP to Non-Oil GDP (version No.6). The long-run unidirectional causality for these four versions (No.1, 2, 3, and 6) of Wagner's Law are also supports the Keynesian proposition.

In the case of Oman, with respect to GDP, the results indicate that there is long-run unidirectional causality that runs from TGX to GDP (version No.1), from

TGX/GDP to GDP/N (version No.4), from TGX/N to GDP/N (version No.5), and from TGX/GDP to GDP (version No.6). As in Kuwait, long-run unidirectional causality for these four versions (No.1, 4, 5, and 6) of Wagner's Law are supports the Keynesian proposition, not the Wagnerian.

With respect to Non-Oil GDP, the results also indicate that there is long-run unidirectional causality that runs from TGX to Non-Oil GDP (version No.1), from TGX/N to Non-Oil GDP/N (version No.5), and from TGX/Non-Oil GDP to Non-Oil GDP (version No.6). Once again, this long-run unidirectional causality of the three versions (No.1, 5, and 6) of Wagner's Law are supports the Keynesian proposition.

In Goffman's version (No.3) for GDP and Non-Oil GDP, the results indicate that there is long-run unidirectional causality that runs from GDP/N to TGX, and from Non-Oil GDP/N to TGX. Thus, this version (No.3) of Wagner's Law is valid for both GDP and Non-Oil GDP, which supports the Wagnerian proposition.

In Musgrave's version (No.4) with respect to only Non-Oil GDP, the results indicate that there is long-run unidirectional causality that runs from Non-Oil GDP/N to TGX/Non-Oil GDP. Thus, Musgrave's version (No.4) of Wagner's Law supports the Wagnerian proposition.

The Keynesian proposition is supported by the preponderance of evidence for both Kuwait (Kuwait only for Non-Oil GDP) and Oman. From a macroeconomic point of view, when the causality runs from government

expenditure to GDP or to Non-Oil GDP, that means that the government is heavily spending on investment in infrastructure to accelerate the process of development. This type of government expenditure is expected to cause an increase in its national income.

Table 5.13: long-run Causality with Error Correction Model (ECM) Test

Results: The six versions of Wagner's Law with Real GDP

V	Dependent Variable	Saudi (ECT_{t-1}) [t-stat]	Bahrain (ECT_{t-1}) [t-stat]	Kuwait (ECT_{t-1}) [t-stat]	Oman (ECT_{t-1}) [t-stat]
1	ΔLTGX	(-0.429) [-3.511]	(-0.773) [-4.250]	No Co-int.	(1.023) [3.787]
	ΔLGDP	(-0.076) [-2.165]	(0.029) [0.293]	No Co-int.	(0.937) [5.216]
2	ΔLTGXC	(-0.559) [-3.319]	No Co-int.	No Co-int.	No Co-int.
	ΔLGDP	(0.058) [0.729]	No Co-int.	No Co-int.	No Co-int.
3	ΔLTGX	No Co-int.	(-0.441) [-3.556]	No Co-int.	(-4.904) [-3.493]
	ΔL(GDP/N)	No Co-int.	(0.056) [0.954]	No Co-int.	(-1.478) [-0.959]
4	ΔL(TGX/GDP)	(-0.742) [-3.612]	(-0.939) [-4.012]	(-2.064) [-1.670]	(-0.217) [-1.663]
	ΔL(GDP/N)	(0.085) [1.250]	(0.027) [0.218]	(2.250) [3.127]	(0.420) [4.251]
5	ΔL(TGX/N)	(-0657) [-2.893]	(-0912) [-4.477]	(0.0185) [0.181]	(0.203) [1.126]
	ΔL(GDP/N)	(0.085) [1.250]	(0.027) [0.218]	(2.249) [3.127]	(0.420) [4.252]
6	ΔL(TGX/GDP)	(-0.353) [-2.684]	(-0.802) [-4.189]	No Co-int.	(0.086) [0.366]
	ΔLGDP	(-0.076) [-2.160]	(0.029) [0.293]	No Co-int.	(0.937) [5.216]

Note: 1. V = Wagner's Law Version. See Table (3.1).
2. Number in the parentheses indicates the coefficients of the ECT_{t-1}.
3. Number in the brackets indicates the values of t-statistics considering 5% significant level.

Table 5.14: long-run Causality with Error Correction Model (ECM) Test

Results: The six versions of Wagner's Law with Real non-oil GDP

V	Dependent Variable	Saudi (ECT_{t-1}) [t-stat]	Bahrain (ECT_{t-1}) [t-stat]	Kuwait (ECT_{t-1}) [t-stat]	Oman (ECT_{t-1}) [t-stat]
1	ΔLTGX	(-1.104) [-4.187]	No Co-int.	(-0.383) [-0.233]	(1.081) [2.627]
	ΔLNon-Oil GDP	(0.028) [0.472]	No Co-int.	(1.437) [3.177]	(1.118) [3.423]
2	ΔLTGXC	(-0.759) [-3.072]	No Co-int.	No Co-int.	No Co-int.
	ΔLnon-Oil GDP	(0.046) [0.556]	No Co-int.	No Co-int.	No Co-int.
3	ΔLTGX	(-1.253) [-4.784]	No Co-int.	No Co-int.	(-0.126) [-2.741]
	ΔL(Non-Oil GDP/N)	(0.059) [0.921]	No Co-int.	No Co-int.	(-0.608) [-0.721]
4	ΔL(TGX/ Non-Oil GDP)	(-0.333) [-2.840]	(-0.857) [-3.634]	(-0.044) [-1.546]	(-0.856) [-3.762]
	ΔL(Non-Oil GDP/N)	(0.168) [6.000]	(0.239) [1.430]	(0.107) [5.464]	(7.465) [1.516]
5	ΔL(TGX/N)	(-0.165) [-1.534]	(-0.618) [-3.184]	(0.063) [2.053]	(0.091) [0.274]
	ΔL(Non-Oil GDP/N)	(0.168) [6.000]	(0239) [1.447]	(0.107) [5.464]	(0.504) [2.470]
6	ΔL(TGX/ Non-Oil GDP)	(-1.131) [-4.191]	No Co-int.	(-1.819) [-1.250]	(-0.037) [-0.162]
	ΔL Non-Oil GDP	(0.027) [0.472]	No Co-int.	(1.437) [3.177]	(1.118) [3.423]

Note: 1. V = Wagner's Law Version. See Table (3.2).
2. Number in the parentheses indicates the coefficients of the ECT_{t-1}.
3. Number in the brackets indicates the values of t-statistics considering 5% significant level.

5.3.3.2. Standard Granger Causality Tests

In the absence of long-run relationship (no co-integration i.e. failed to reject the null hypothesis) between the variables, it still remains of interest to examine the short-run linkage between them (Manning and Adriacanos, 1993; Gemmell, 1990).

It is possible to test for causality among variables when they are not co-integrated. Standard Granger causality tests are perform in order to test for the causality and indicate the direction of the causality between the variables with respect to the first difference of each variable that are not co-integrated. In testing Standard Granger Causality according to Wagnerian hypothesis, causality runs from the independent variables (GDP or GDP/N) to the dependent variable which takes four different forms: TGX, TGXC, TGX/GDP, and TGX/N. We also look at the Keynesian approach which assumes that causality runs from total government expenditure to GDP. The test is carried out using the first difference of each series (i.e. the stationary values).

The null hypothesis is that each variable from each pair of variables under investigation does not Granger Cause the other. The rejection of the null hypothesis of no significant effect requires that the probability value at least to be equal or less than 0.25. Rejecting the null hypothesis would determine the existence of short-run relationship between the two variables.

The Granger causality test is preformed in order to determine whether the pair of series has a relationship in the short-run and whether this relationship is unidirectional causation or bidirectional causation, which would establish whether

Granger Causality does or does not exist. This test is preformed with the first difference values of each series that found to be not co-integrated for both GDP and Non-Oil GDP, using the framework that was developed by Granger (1969) and Sims (1972).

In case of Saudi Arabia, Goffman's version (No.3) with regard to Real GDP, we found TGX and GDP/N are not co-integrated in the long-run. We run standard causality test and we report the outcomes in Table (5.15). By looking at the Probability values in this Table we conclude, that the outcomes of the Standard Granger Causality Test for this version of Wagner's Law indicates that there is a feedback correlation (bidirectional causality) because the probability of rejecting the null hypothesis is less than 25%, which means that there is more than 75% probability to accept it. In this case, when the lagged values of each variable are significant in explaining the other variable, we could not establish a Granger Causality between the two variables because in such case there is some third variable that is determining the movement of both variables; it is Causality from a third source. So, neither the Keynesian nor Wagnerian hypothesis is supported by the data.

In case of Bahrain, Pryor's version (No.2) with regard to Real GDP, we found TGXC and GDP are not co-integrated in the long-run. We run standard causality test and we report the outcomes in Table (5.16). By looking at the Probability values in this Table we conclude, that the outcomes of the Standard Granger Causality Test for this version of Wagner's Law indicates that there is no

causality between the two variables because the probability of rejecting the null hypothesis is more than 25%.

With respect to Non-Oil GDP, the results of co-integration tests indicate that there is no co-integration in the long-run for four versions: Peacock-Wiseman (No.1), Pryor (No.2), Goffman (No.3), and Mann (No.6).

After running the standard Granger causality tests, we conclude the following results that are reported in Table (5.17): the results indicate that there are unidirectional causalities that run from Non-Oil GDP to TGX (version No.1), from Non-Oil GDP to TGXC (version No.2), and from Non-Oil GDP to TGX/Non-Oil GDP (version No.6), because the probability of rejecting the null hypothesis is less than 25%. Thus, three versions (No.1, 2, and 6) of Wagner's Law are valid, which support Wagnerian proposition. For Goffman's version (No.3), the outcomes for this version of Wagner's Law indicate that there is no causality between the tow variables, TGX and Non-Oil GDP/N, because the probability of rejecting the null hypothesis is more than 25%.

In case of Kuwait with respect to GDP, the results of co-integration tests indicate that there is no co-integration in the long-run for four versions: Peacock-Wiseman (No.1), Pryor (No.2), Goffman (No.3), and Mann (No.6).

After running the standard Granger causality tests, we conclude the following results that are reported in Table (5.18): the results indicate that there are unidirectional causalities that run from TGX to GDP (version No.1), from TGX to GDP/N (version No.3), and from TGX/GDP to GDP (version No.6), because the

probability of rejecting the null hypothesis is less than 25%. Thus, three versions (No.1, 3, and 6) of Wagner's Law are not valid, which support the Keynesian proposition. For Pryor's version (No.2) of Wagner's Law, the outcomes indicate that there is a feedback correlation (bidirectional causality) between the two variables, TGX and GDP, because the probability of rejecting the null hypothesis is less than 25%. In this case, when the lagged values of each variable are significant in explaining the other variable, we could not establish a Granger Causality between the two variables because in such case there is some third variable that is determining the movement of both variables; it is Causality from a third source. So, neither the Keynesian nor Wagnerian hypothesis is supported by the data.

With respect to Non-Oil GDP, the results of co-integration tests indicate that there is no co-integration in the long-run for two versions: Pryor (No.2), and Goffman (No.3).

After running the standard Granger causality tests, we conclude the following results that are reported in Table (5.19): the results indicate that there is unidirectional causality that runs from Non-Oil GDP/N to TGXC (version No.2), because the probability of rejecting the null hypothesis is less than 25%. Thus, this version of Wagner's Law is valid, which support Wagnerian proposition. For Goffman's version (No.3) of Wagner's Law, the outcomes indicate that there is a feedback correlation (bidirectional causality) between the two variables, TGX and Non-Oil GDP/N, because the probability of rejecting the null hypothesis is less than 25%. In this case, when the lagged values of each variable are significant in

explaining the other variable, we could not establish a Granger Causality between the two variables because in such case there is some third variable that is determining the movement of both variables; it is Causality from a third source. So, neither the Keynesian nor Wagnerian hypothesis is supported by the data.

In case of Oman, the results of co-integration tests indicate that there is no co-integration in the long-run for Pryor's version (No.2) for both Real GDP and Non-Oil GDP.

After running the standard Granger causality tests, we conclude the following results that are reported in Tables (5.20, and 5.21): the results indicate that there is unidirectional causality that runs from GDP to TGXC and Non-Oil GDP to TGXC, respectively, because the probability of rejecting the null hypothesis is less than 25%. Thus, this version of Wagner's Law is valid, which supports the Wagnerian proposition.

Table 5.15: Standard Granger Causality Test Results for Saudi Arabia:

Goffman version (No.3) of Wagner's Law with Real GDP

29 observations with one lag included

V	Null Hypothesis	F-Stat	Pro.
3	DL(GDP/N) does not Granger Cause DLTGX	1.42	0.24
	DLTGX does not Granger Cause DL(GDP/N)	2.32	0.14

Note: 1. V = Wagner's Law Version. See Table (3.1).

Table 5.16: Standard Granger Causality Test Results for Bahrain:
Pryor versions (No.2) version of Wagner's Law with Real GDP

25 observations with two lags included

V	Null Hypothesis	F-Stat	Pro.
2	DL(GDP/N) does not Granger Cause DLTGX	0.15	0.88
	DLTGX does not Granger Cause DL(GDP/N)	0.04	0.96

Note: 1. V = Wagner's Law Version. See Table (3.1).

Table 5.17: Standard Granger Causality Test Results for Bahrain:

The four versions of Wagner's Law with Real Non-Oil GDP

25 observations with two lags included

V	Null Hypothesis	F-Stat	Prob.
1	DLNon-oil GDP does not Granger Cause DLTGX	1.64	0.22
	DLTGX does not Granger Cause DLNon-oil GDP	0.43	0.66
2	DLNon-oil GDP does not Granger Cause DLTGXC	2.00	0.16
	DLTGXC does not Granger Cause DLNon-oil GDP	1.00	0.39
3	DL(Non-oil GDP/N) does not Granger Cause DLTGX	1.01	0.38
	DLTGX does not Granger Cause DL(Non-oil GDP/N)	0.30	0.74
6	DLNon-oil GDP does not Granger Cause DL(TGX/ Non-oil GDP)	1.90	0.17
	DL(TGX/ Non-oil GDP) does not Granger Cause DLNon-oil GDP	0.43	0.66

Note: 1. V = Wagner's Law Version. See Table (3.2).

Table 5.18: Standard Granger Causality Test Results for Kuwait:

The four versions of Wagner's Law with Real GDP

29 observations with one lag included

V	Null Hypothesis	F-Stat	Pro.
1	DLGDP does not Granger Cause DLTGX	9.90	0.99
	DLTGX does not Granger Cause DLGDP	1.56	0.22
2	DLGDP does not Granger Cause DLTGXC	5.97	0.02
	DLTGXC does not Granger Cause DLGDP	2.42	0.13
3	DL(GDP/N) does not Granger Cause DLTGX	0.01	0.94
	DLTGX does not Granger Cause DL(GDP/N)	1.55	0.22
6	DLGDP does not Granger Cause DL(TGX/GDP)	0.61	0.44
	DL(TGX/GDP) does not Granger Cause DLGDP	1.56	0.22

Note: 1. V = Wagner's Law Version. See Table (3.1).

Table 5.19: Standard Granger Causality Test Results for Kuwait:

The two versions of Wagner's Law with Real Non-Oil GDP

29 observations with one lag included

V	Null Hypothesis	F-Stat	Prob.
2	DLNon-oil GDP does not Granger Cause DLTGXC	2.68	0.11
	DLTGXC does not Granger Cause DLNon-oil GDP	1.05	0.31
3	DL(Non-oil GDP/N) does not Granger Cause DLTGX	2.42	0.13
	DLTGX does not Granger Cause DL(Non-oil GDP/N)	2.10	0.15

Note: 1. V = Wagner's Law Version. See Table (3.2).

Table 5.20: Standard Granger Causality Test Results for Oman:

Pryor versions (No.2) version of Wagner's Law with Real GDP

29 observations with one lag included

V	Null Hypothesis	F-Stat	Pro.
2	DLGDP does not Granger Cause DLTGXC	3.23	0.08
	DLTGXC does not Granger Cause DLGDP	1.28	0.27

Note: 1. V = Wagner's Law Version. See Table (3.1).

Table 5.21: Standard Granger Causality Test Results for Oman:

Pryor version (No.2) of Wagner's Law with Real Non-Oil GDP

29 observations with one lag included

V	Null Hypothesis	F-Stat	Prob.
2	DLNon-oil GDP does not Granger Cause DLTGXC	3.36	0.07
	DLTGXC does not Granger Cause DLNon-oil GDP	0.40	0.53

Note: 1. V = Wagner's Law Version. See Table (3.2).

CHAPTER SIX

SUMMARRY, CONCLUSION, POLICY IMPLICATIONS, AND SUGGESTIONS

6.1. Introduction

Increasing in the size of the government, and more specifically the size of government expenditure, has been a trend through history. Economists have been long concerned with the relationship between government expenditure and gross domestic product (GDP). On one hand, government expenditure is seen as an exogenous factor, which can be used as a policy instrument to influence growth (Keynes). On the other hand, government expenditure is seen as endogenous factor or as an outcome, not a cause of growth in national income (Wagner).

In reality, most governments do undertake those activities based on their social rate of return and their lack of provision by the private sector because these kinds of good and services are unprofitable to them either as public goods or because of externalities. For four GCC countries, Saudi Arabia, Bahrain, Kuwait, and Oman, it is generally believed that the government has played a major role in encouraging economic growth and development. Our empirical findings in chapter 5 provide interesting and different evidence on this for each of the four GCC countries in this study.

6.2. Summary of Findings

This study examines the long-run causal relationship between total real government expenditure and real gross domestic product (GDP), in terms of GDP and in terms of Non-Oil GDP for four GCC economies, by utilizing aggregate annual time-series data. The time periods in this study cover from 1971 to 2001 for Saudi Arabia, Kuwait, and Oman, and from 1975 to 2002 for Bahrain. One of the contributions of this research is to shed some light on the importance of fiscal policy for promoting Non-Oil GDP growth. GCC countries have been making significant efforts to diversify their economies and this study will examine the extent to which government spending has driven this or been driven by it.

In this study we estimated six versions of Wagner's law using the Ordinary Least-Squared (OLS) method. We perform the following tests: Unit Root, Co-integration, error correction model (ECM), and finally Standard Granger Causality. These tests were performed for all six versions of Wagner's Law in terms of real GDP and real Non-Oil GDP for each individual country in this study.

We began our empirical work by testing the properties of the series of each variable used in all of the six versions of Wagner's Law by testing the unit root using the Augmented Dickey Fuller (ADF) test (Dickey-Fuller, 1981). We found the outcome of each variable indicates that the series are non-stationary in levels but stationary after the first difference (i.e., order one or I(1)).

Accordingly, we had to test for the existence of the long relationship between the two variables in each version of Wagner's Law in each country by

using co-integration tests method that developed by Johansen (1988), and Johansen and Juselius (1990). The outcomes of testing for the existence of a long-run relationship between the two variables in each version of Wagner's Law indicates the following: in case of Saudi Arabia, with respect to real GDP, five out of six versions of Wagner's Law are confirmed the by co-integration, only Goffman's version was not upheld. With respect to real Non-Oil GDP, the variables of each version of Wagner's Law found to be co-integrated. Thus, in this case, all versions of Wagner's Law confirmed the existence of a long-run relationship between the two variables.

In case of Bahrain, with respect to real GDP, also, the variables of five versions of Wagner's Law found to be co-integrated; Pryor's version was not upheld. With respect to real Non-Oil GDP, the variables of only two versions of Wagner's Law, Musgrave's version and Gupta's version, found to be co-integrated.

In case of Kuwait, with respect to real GDP, the variables of only two versions out of six of Wagner's Law found to be co-integrated, Musgrave's version and Gupta's version. With respect to real Non-Oil GDP, the variables of four versions of Wagner's Law found to be co-integrated; Pryor's version and Goffman's version were not upheld.

In the case of Oman, with respect to real GDP, the variables of five versions of Wagner's Law found to be co-integrated, Pryor's version was not upheld. With respect to real Non-Oil GDP, the variables of five versions of Wagner's Law found to be co-integrated, Pryor's version was not applies.

Since Wagner hypothesized that the causality runs from real GDP to real TGX, error correction causality tests were preformed for those variables that found to be co-integrated, and standard Granger causality tests were preformed for those variables found not to be co-integrated.

In sum, in the cases of Saudi Arabia and Bahrain, Wagner's proposition is confirmed by the preponderance of the results for both real GDP and for real Non-Oil GDP. The growth in real GDP and the growth in real Non-Oil GDP are found to cause real growth in real total government expenditures. From the macroeconomic point of view, it seems that governments undertake many development projects that are in form of "free" public goods and services and that governments provide such change on spending, on improving public education facilities and health that lead the process of economic development to cause the government expenditures to grow over time.

On the other hand, in case of Kuwait, the Keynesian proposition is confirmed by the preponderance of the results for both real GDP and for real Non-Oil GDP. In case of Oman, since the traditional version of Wagner's Law (Peacock-Wiseman) is a non-share version and Mann is a share version used most frequently in empirical work and they show that the causality run from the dependent variables to the independent variables as Keynesian propose, we can conclude that the results indicate that the Keynesian proposition is confirmed by the preponderance of the results also for both real GDP and for real Non-Oil GDP. Thus, growth in real total government expenditures causes real growth in GDP or

real growth in Non-Oil GDP. From the macroeconomic point of view, when the causality runs from government expenditure to GDP or to Non-Oil GDP, that means that the government is probably heavily spending on infrastructure to accelerate the process of development. This type of government expenditure may cause an increase in its national income.

Finally, for those versions of Wagner's Law for what the outcomes indicate that there is feedback correlation (bidirectional causality) and we concluded that we could not establish Granger Causality between the two variables. In such case there is some third variable that is determining the movement of both variables; it is Causality from a third source. So, neither the Keynesian nor Wagnerian hypothesis is supported by the data. Therefore, we recommend that the two variables should be treated as jointly-dependent variables in both the public finance studies and macroeconometric studies.

6.3. Policy Implications

The results of this study have important implications. In cases of Saudi Arabia and Bahrain, Wagner's proposition is supported by the preponderance of the evidence. Therefore, the total real government expenditure (TGX) has no long-run effect on economic growth and development including growth of non-oil real GDP. The policy implications of this finding imply that the government does not have to concern itself with maintaining any particular level of government spending to promote economic growth. It would allow the government to reduce its budget

deficit. It would also suggest that it does not have to continue encouraging shifts in government expenditures towards non-oil activities. The expanding role of private sector in the economy would seem to be more important.

In cases of Kuwait and Oman, the preponderance of the evidence supports the Keynesian proposition. In these cases, total real government expenditure (TGX) has positive effect on economic growth and development including growth of non-oil real GDP. Policy makers in these countries have to recognize the importance of their spending on economic growth and turn the direction of their spending towards sectors that have more effective on the economic growth and development for the country. The fact that government spending affects economic growth also implies that the policy makers can use oil revenue in order to promote non-oil activities to accelerate the growth of non-oil real GDP and have some independence from relying on oil revenue for their future prosperities

6.4. Comparison with Other Studies of Wagner's Law in GCC Countries

For all GCC countries, only Saudi Arabia has been the focus of previous two studies investigated the applicability of Wagner's Law. The first one was done by Ghamdi (1983), and the second one was done by Al-Obaid (2004).

Even though we reach almost the same conclusion with both studies, the big differences between this study and Ghamdi's study (1983) are as follows:

- This study tested Mann's version of Wagner's law, while he did not.

- His study covered the period from 1960 to 1980, while this study covers the period from 1971 to 2001.
- In terms of method for testing Wagner's Law, this study uses co-integration, and the error correction model, as well as standard Granger causality tests, none of which were available at the time of his study, he used basic OLS to estimate only the elasticity for each version of Wagner's law.
- The direction of the causality in his study was not determined, while in this study the direction is specifically determined.
- We looked at the causality between real TGX and Non-Oil GDP, while he did not.

For the second study, Al-Obaid (2004), there are two major differences between this study and his. First, he did not use the error correction model which is required in the case that co-integration exists among variables, instead he applied Standard Granger Causality test. Second, he did not look at the causality between real TGX and real Non-Oil GDP as we did.

6.5. Comparison with Others Studies that dealt with Government Expenditure and Economic Growth in GCC Countries

Fasano and Wang (2001) examined the relationship between government expenditure -broken down in current and capital spending- and the economic

growth of real non-oil GDP in some of the GCC countries[5]. Their conclusions did not support the claim that government expenditure tends to affect non-oil GDP growth. Comparing their conclusions with this study's conclusion, we have opposite conclusions in terms of non-oil GDP and government expenditures in Saudi Arabia, Bahrain, and Oman. One possible reason is could be to differences in data sources, or could be due to the different times periods that we covered, see Table 6.1 for more details

Al-Yousif (2000) examined the effect of government expenditure on economic growth in Saudi Arabia. His conclusion supports the Keynesian proposition that government expenditure tends to affect economic growth. Also, Khalifa (1997) examined the intertemporal interactions between the share of government spending in GDP and the growth of per capita real GDP in Saudi Arabia. His conclusion also supports the Keynesian proposition that government expenditure affects growth of per capita GDP. These conclusions are consistence with this study conclusion in the case of Saudi Arabia; see Table 6.1 for more details.

Treichal (1999) looked at the linkage between the growth of the total real government expenditure, disaggregated into current and capital expenditure, and non-oil real GDP in Oman. His conclusion supports the existence of a long-run positive relationship between government expenditure, both current and capital,

[5] Kuwait was excluded from their examination due to the missing information regarding the years 1990 and 1991 as a result of the Iraqi invasion.

and the growth rate of non-oil real GDP. This conclusion is consistence with this study conclusion in the case of Oman; see Table 6.1 for more details.

Ghali and Al-Shamsi (1997) examined the causal relationship between both current and capital government expenditures on the growth of the real GDP in United Arab Emirates. Their analysis provides evidence supports the Keynesian proposition that government investment in capital has a long-run positive effect on economic growth.

Chalk (1997) examined the effect of government expenditure on the level and sectoral breakdown of the private economy in Kuwait. His conclusion was that government expenditures have a positive and significant effect on private output. Also, Mohammad and Yousef (1990) examined the effect of government expenditure on the non-oil economy in Kuwait. Their results also show that government expenditure has a significant and positive impact on the non-oil economy. These conclusions are consistence with this study conclusion in the case of Kuwait; see Table 6.1 for more details.

Table 6.1 summarizes the findings of this study and the empirical examinations, the methodology, and the outcomes of the above studies

Table 6.1: Summary of the Studies of Government Expenditure and Economic Growth in GCC Countries

Study	Methodology	Concentration	Results
This Study	Co-integration and error correction model (ECM)	Saudi Arabia, Kuwait, and Oman (1971 to 2001), and Bahrain (1975 to 2002)	Wagner's Law is valid for Saudi Arabia and Bahrain. And not valid for Kuwait and Oman (Keynesian Versions is valid)
Fasano and Wang (2001)	Co-integration and error correction model (ECM)	Saudi Arabia, Bahrain, Qatar, UAE, and Oman (1980 to 1999)	No significant relation between disaggregated government expenditure and growth in non-oil GDP
Al-Yousif (2000)	OLS method	Saudi Arabia (1963 to 1992)	Positive relationship between government expenditure and economic growth
Khalifa (1997)	Vector autoregression (VAR) method	Saudi Arabia (1960 to 1996)	Positive and significant relationship between government expenditure and per capita GDP growth
Treichal (1999)		Oman (1981 to 1997)	Positive long-run relationship between government expenditure, both current and capital, and the growth rate of non-oil real GDP
Ghali and Al-Shamsi (1997)	Co-integration and error correction model (ECM)	United Arab Emirates (1973 to 1995)	Positive long-run effect of government investment in capital on economic growth
Chalk (1997)	Co-integration and error correction model (ECM)	Kuwait (1970 to 1994)	Positive and significant effect of government expenditures on private output
Mohammad and Yousef (1990)	Simultaneous equation system	Kuwait (1970 to 1985)	Significant and positive impact of government expenditure on the non-oil economy

6.6. Conclusion and Suggestions

Understanding the growth of government expenditure over a number of years in any nation requires that we fully understand the economic conditions as well as social and political conditions. In developing nations such as the four GCC countries in our study, development has required that government spending vary from one category to another depending upon the importance of this category or another in generating economic growth. Therefore, we expect that the government expenditures cause some categories to grow faster than others. In fact, it is more likely that most government expenditures go toward some important categories such as: social programs, education, healthcare, and infrastructure.

The conclusion of this study pointed out that the Wagnerian proposition holds for the preponderance of versions of Wagner's Law for Saudi Arabia and Bahrain. This conclusion reflects the tendency for both countries towards improving the provision of public goods and services for their nations. For example, as these countries have grown and developed, their governments are responding to the increased demand for social services such as education and healthcare. So the process of economic development causes government expenditure to increase. On the other hand, this study also pointed out that the Keynesian proposition holds for the preponderance of versions of Wagner's Law for Kuwait and Oman. This conclusion also reflects the tendency for both of these countries towards investing

in their infrastructure in order to accelerate their development process. In these countries the emphasis has been on discretionary spending on things like road constructions and building schools hospitals to stimulate economic growth.

For Kuwait this is very reasonable conclusion because the country needed to rebuild its economy and accelerate its economic growth and rebuild its infrastructure after Iraqi invasion in 1990, which requires massive government spending. In Oman the story is quite different, the Omani government was fully aware at early stages that their natural resources would not last for as long a time as in the cases of Saudi Arabia and Kuwait. Therefore, the country started to improve its infrastructure and encourage non-oil activities through its five-year fiscal plans since the early 1980s in order to diversify its production and increase its non-oil revenues. Consequently, these expenditures may cause the national income to increase over time, which is consistent with the result of this study.

Given the important of expanding private sector activities in the GCC countries as an engine of economic growth, the results of this study suggest that some countries will be better able to reduce the role and size of the governments (Saudi Arabia and Bahrain) then others (Kuwait and Oman).

Given the efforts that GCC countries governments have made to reduce the reliance on oil and diversify their economies, the results of this study suggest that some countries are further along in that process and are less reliance on governments spending (Saudi Arabia and Bahrain) then others (Kuwait and Oman).

Regardless of Wagner's proposition or the Keynesian proposition holds for the preponderance of versions of Wagner's Law in one country or another, we are able to provide some general and common suggestions that may enhance the potential of implementing and attaining a successful internal economic development process in each of the four GCC countries.

First, the governments, the private sectors, and even the people must engage effectively in the country's development plan that focuses on the long-run goals. The development plan must take into account how the function of each group complements functions of the others. Second, oil revenue must be used as a tool for speeding and stimulating the process of the country's development including non-oil activities, not just for increasing the country's wealth. Third, the governments should reduce its role and size to enhance and encourage the ability of its economy to function effectively, allowing more opportunities for the private sector to participate in the economy. Fourth, the governments should adopt some policies that aim to achieve gradual reduction in reliance on oil through a diversification of production within the economy. Those policies must be constructed in a way that enables the country to face the anticipated future of depletion of oil reserves. In addition, set time constrains for achieving those policies of diversifying the production of the economy. This could be achieved through the creation of a business-friendly environment, privatizations, and opening up the economy to foreign direct investment to bring expertise and new technologies to the country. Such policies would create more jobs for the increasing number of people entering

the labor force in the four GCC countries. Finally, oil and gas as sources of income for the country are subject to depletion. For example, oil and gas in Bahrain and Oman are expected to last between one to two decades, and even for countries that have huge reserves of them they may be substituted internationally before the country reaches the point of depletion. Therefore, searching for other source of income is essential to sustain the prosperity and the wealth of the country.

Finally, the people in the countries that comprise our study must understand and recognize that the majority of the existing outcomes of "development" in their countries are the result of oil revenues and not the outcomes of well-organized development plans and policies. Moreover, those countries need to recognize that the development process can be achieved only from internal source in the sense that economic development can not be imported. Therefore, the domestic economy and domestic private sector should involve themselves to a large extent in achieving development plan goals.

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