TRADE AND FOREIGN DIRECT INVESTMENT: IMPACT ON ECONOMIC GROWTH AND EMISSIONS IN GULF COOPERATION COUNCIL COUNTRIES

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FACULTY OF ECONOMICS AND ADMINISTRATION
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ABSTRACT

This study addresses foreign trade, FDI and carbon dioxide emission issues of the Gulf Cooperation Council states (GCC), namely the United Arab Emirates, Bahrain, Saudi Arabia, Oman, Qatar and Kuwait. We have found that the intra-regional trade remains modest, as the trade intensity index showed negative signs except in the UAE, and Saudi Arabia.

The study used a gravity model and confirms that the size of real GDP has a significant impact in determining the foreign trade. Moreover, the variable of transportation cost rate is not a concern for Saudi's foreign trade despite the increase, as Saudi Arabia as a hub economy tends to trade with countries like Australia and the UK more than with its nearby countries. The real GDP variable is the key agent that determines the level of foreign trade of GCC countries. The study concludes that the unified economic policy of the GCC countries has not achieved its target in terms of increasing the level of non-oil industries. Furthermore, transportation cost rate variable is not an important factor influencing trade of GCC countries.

Besides, the study measured the impact of foreign trade and FDI on GCC economies. We found that the role of FDI is positive in UAE and negative in Saudi Arabia, while having no effect on the rest of the GCC countries. In addition, the study infers the continued importance of oil exports of all GCC members. The non-oil variable did not affect real GDP, except for the UAE, and the commodity imports have a positive impact except for Bahrain and the UAE.

However, Gulf Cooperation Council countries are among the top 25 countries in terms of their contribution to increasing the level of carbon dioxide emissions and are much higher than the average for the world. Moreover, these countries emit from 45 per cent to 50 per

cent of the total emissions of Arab countries, due to the significant role of extractive sectors as major sources of income to these economies. Therefore, the most important factors pertaining to the increasing carbon dioxide emissions in GCC countries over the period 1998-2008 were examined. In this respect, the study objective is to determine how much the FDI inflows, economic growth, and commodity imports influenced the increasing level of emissions during the period of study, and find which variable has most effect. For this purpose, an empirical model was estimated in order to obtain the impact of said variables on GCC countries.

The model of carbon dioxide emissions as a function of FDI inflows, real GDP, commodity imports and health expenditure was examined using a panel data technique. We found that the real GDP has had an important positive effect on increasing carbon dioxide emissions in all GCC countries during the period 1998-2008, where it is the main cause of air pollution in these countries, while FDI inflows indicates its positive effect only in Qatar. Finally, the health expenditure variable has impacted reducing the level of emissions in Oman and Kuwait, similarly to the commodity import variable in Saudi Arabia.

ABSTRAK

Kajian ini berkaitan perdagangan asing, FDI dan isu-isu pelepasan karbon dioksida di negara Majlis Kerjasama Teluk (GCC), iaitu Emiriah Arab Bersatu, Bahrain, Arab Saudi, Oman, Qatar dan Kuwait. Kami mendapati bahawa perdagangan intra-serantau masih sederhana, kerana indeks intensiti perdagangan menunjukkan tanda-tanda negatif kecuali di UAE, dan Arab Saudi.

Kajian ini menggunakan model graviti dan mengesahkan bahawa saiz KDNK sebenar memberi kesan yang besar dalam menentukan dagangan asing. Selain itu, kadar kos pengangkutan yang berubah-ubah bukan satu kebimbangan bagi perdagangan asing Arab walaupun wujudnya kenaikan, ini kerana Arab Saudi sebagai hab ekonomi lebih cenderung untuk berdagang dengan negara-negara seperti Australia dan UK daripada negara-negara yang berdekatan. Pembolehubah KDNK sebenar adalah agen utama yang menentukan tahap perdagangan luar negara-negara GCC. Kesimpulan kajian ini adalah penyatuan dasar ekonomi untuk negara-negara GCC tidak mencapai sasaran dari segi peningkatan tahap industri bukan minyak. Tambahan pula, pembolehubah kadar kos pengangkutan bukan merupakan faktor penting yang mempengaruhi perdagangan negara-negara GCC.

Selain itu, kajian itu menilai kesan perdagangan asing dan FDI kepada ekonomi GCC. Kami mendapati bahawa peranan FDI adalah positif di UAE dan negatif di Arab Saudi, manakala tidak memberi kesan ke atas negara-negara GCC yang lain. Di samping itu, kajian ini menyimpulkan bahawa kepentingan berterusan eksport minyak bagi semua ahli GCC. Pembolehubah bukan minyak tidak menjejaskan KDNK sebenar, kecuali bagi UAE, dan import komoditi memberi kesan positif kecuali Bahrain dan UAE.

Walau bagaimanapun, negara-negara Majlis Kerjasama Teluk adalah antara 25 negara teratas dari segi sumbangan mereka kepada peningkatan tahap pelepasan karbon dioksida

dan ianya lebih tinggi daripada kadar purata dunia. Selain itu, negara-negara ini mengeluarkan 45 peratus sehingga 50 peratus daripada jumlah pelepasan negara-negara Arab, kerana peranan penting sektor ekstraktif sebagai sumber utama pendapatan kepada negara-negara tersebut. Oleh itu, faktor-faktor yang paling penting yang berkaitan dengan peningkatan pelepasan karbon dioksida di negara-negara GCC dalam tempoh 1998-2008 telah diteliti. Dalam hal ini, objektif kajian ini adalah untuk menentukan jumlah pengaliran masuk, pertumbuhan ekonomi, dan import komoditi untuk FDI yang mempengaruhi peningkatan tahap pelepasan dalam tempoh kajian, dan mencari pembolehubah yang memberi kesan ketara. Bagi tujuan ini, satu model empirikal dianggarkan untuk mendapatkan kesan pembolehubah yang diperkatakan negara-negara GCC.

Model pelepasan karbon dioksida sebagai fungsi pengaliran masuk FDI, KDNK sebenar, import komoditi dan perbelanjaan kesihatan telah diteliti menggunakan teknik data panel. Kami mendapati bahawa KDNK sebenar mempunyai kesan positif penting pada peningkatan pelepasan karbon dioksida di semua negara GCC dalam tempoh 1998-2008, di mana ia adalah punca utama pencemaran udara di negara-negara ini, manakala pengaliran masuk FDI menunjukkan kesan positif hanya pada Qatar. Akhir sekali, pembolehubah perbelanjaan kesihatan telah memberi kesan mengurangkan tahap pelepasan di Oman dan Kuwait, begitu juga dengan pembolehubah import komoditi di Arab Saudi.

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Ahmed Saddam

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CHAPTER ONE

TRADE, FDI AND EMISSIONS: A HISTORICAL PERSPECTIVE OF THE ECONOMIC POLICY OF THE GCC

1.1 Introduction:

On 25 May 1981, leaders of the United Arab Emirates, Bahrain, Saudi Arabia, Oman, Qatar and Kuwait agreed at a meeting in Abu Dhabi to cooperate on a number of economic aspects, as well as other areas through the establishment of the Cooperation Council for six of the Gulf countries (GCC, 2003). The Gulf Cooperation Council (GCC) is a regional organization that aims to achieve many common targets; its charter defines the strategic issues in this regard, while the respective countries retain their complete sovereignty, internally and externally. The main task is the achievement of economic integration and cooperation in various areas where economic collaboration is the key issue, and which makes the GCC an important economic bloc in the Middle East. It has played a significant economic role since its inception until now, which is primarily to unify the economic policy of the member countries (GCC, 2009).

As known, foreign trade based on commodity exports is considered a major tool of economic growth in all countries of the world, developed and developing alike. In policies under market liberalization and economic openness, regional and foreign trade play an important role in economic growth, especially in the GCC countries – the United Arab Emirates, Bahrain, Saudi Arabia, Oman, Qatar, and Kuwait – because of their high reliance on foreign trade. In addition, the export of goods comprises one of the main engines for economic growth in developing countries, and is a most important activity for enhancing the level of GDP. There is no doubt that this means that exporting national commodities is an essential way of improving the balance of payments, and, in turn, identifying various goods that could be imported from abroad. Therefore, increasing the commodity exports is a key factor for the reinforcement of foreign trade commodity, especially in oil countries, the economic growth of which significantly depends on the export of crude oil. However, the global fluctuations that occur in oil market prices have had a direct effect on the GCC economies. Foreign trade is not only the exchange of goods and products with other countries, but is also an indicator of the level of economic growth and openness with international markets. Therefore, most countries are continually trying to improve their economic policies as an attempt to vary foreign trade and increase the level of integration with the world markets. Foreign trade constitutes an important role in the economies of the GCC countries, due to their high reliance on the export of crude oil, where the obtained revenue is used to fund the import of various goods from other countries. Accordingly, the global oil demand affects GCC's foreign trade, as well as their intra-regional trade. However, the GCC countries are open economies, in which the high level of integration with the world market is a major role that leads to weakness in the level of intra-regional trade. The intra-regional trade was still a limited and modest activity over the period 1998 to 2008. The main reason for which is the similarity of the production pattern, which results in GCC's foreign trade primarily being with other countries, particularly developed countries as a main consumer of GCC's crude oil exports.

From the above, we note that the main feature of the GCC countries is represented by their oil exports, which form a high ratio of the total commodity export. However, the revenue obtained from these exports is subject to sharp fluctuations in oil prices. The oil revenue leads to adverse consequences for the economic growth of GCC countries, because the fluctuations negatively affect government expenditure, which, in turn, leads to volatility of the import level. Consequently, the high reliance on crude oil exports affects the development plans, and may hinder many vital projects that depend on the revenue from oil exports.

The common policy of these countries has targeted an increase in the level of FDI as a good way for varying the non-oil production structure. The foreign direct investment is one of the most important indicators of integration into the global economy. In addition, it has a significant role in the economic development process by enhancing economic capacity and increasing the level of value added of the commodity sector, especially non-oil. FDI is a key tool in exploiting the available resources and contributes to creating new employment opportunities. However, attracting more FDI is based on the stability of those investments that are unaffected by the fluctuations in oil prices and its revenue. Therefore, FDI could help in achieving stable economic growth in the host countries.

Practically, the GCC countries have attracted different levels of FDI over the period 1998 to 2008, in which the size of the domestic economy, as represented by GDP, is the main factor that limits these investments. In addition, other related factors, such as per capita GDP, provide an indicator of the level of local demand.

This study will tackle three main topics, namely foreign and intra-regional trade, which will be included in the first essay, while the second essay will address the reality of FDI and its effect on economic growth. The third essay focuses on the impact of economic growth, FDI and foreign trade on air pollution represented by carbon dioxide emissions. This is because the economic activities in the GCC countries have a high reliance on fossil fuels in general. Globally, the GCC countries are considered as a main emitter of carbon dioxide emissions, in which the average of their emissions has increased rapidly over the period 1998 to 2008.

1.2 Principles of Economic Policy in the GCC countries:

Joint industrial development strategy

This strategy was adopted in 1998, and is symbolised by the acceleration of industrial development consistent with the possibilities and conditions of the GCC countries to increase the growth rates in this sector. Its aim is to double the added value of the manufacturing sector every ten years (GCC, 2000), as well as increase the contribution of national employment and provide opportunities to use the available natural resources, and enhance the efficiency of industrial exploitation. However, we found that the industrial strategy focuses on industries that have high productivity with high added value and competitiveness in the domestic and international market. In other words, this strategy should lead to integration between industries, by exploitation of the comparative advantage of the oil and gas sector to develop the industries based on this sector, such as the petrochemical industry, and energy-based industries like aluminium and iron. Hence, the researcher sees that the unified industrial strategy in the Gulf Cooperation Council needs real government support for the industrial projects, especially heavy industries that are characterized by high capital requirements.

In addition, the unified industrial strategy of the GCC countries emphasizes following an economic policy to increase the level of production and diversify the sources of income. In other words, raise the contribution of the manufacturing sector in the GDP and reduce the share of the oil sector in the GDP, which is considered as an important determinant to achieve an increased level in non-oil exports and improved terms of trade. Accordingly, it can be seen that this strategy confirms the necessity for accelerating industrial development towards integration between the GCC countries, which should contribute to raising the level of intra-trade that we will analyse in the next part of this chapter. However, we can say that achieving an increase in the level of intra-trade during the period 1998-2008 will provide practical proof of the GCC's targets and reflect the positive role of the many initiatives that have been adopted by the GCC as a regional organization from 1998 to 2008. However, this implies activating the role of the investment sectors, especially the private sector by giving more encouragement to foreign companies to invest in the industrial sector, especially in industries that have substantial added value and that will contribute to increasing the relative importance of this sector. Thus, this strategy is the main key for organizing the economic role in the industrial field for the GCC countries, which will have a positive effect in enhancing the level of trade, foreign investment and their impact on supporting sustained economic growth.

The Unified Economic Agreement between the GCC countries:

This agreement, which was activated again in 2002, includes a comprehensive improvement to the economic agreement, which was signed in 1981 for organizing the economic relations between the member countries. The economic agreement aims to unify the economic policies and legislation concerning commercial, industrial and customs regulation. One of its main achievements is that the intra-trade in the GCC countries is a part of the unified customs tariff, which is determined by customs regulations and its procedures, as well as the movement of goods between GCC countries without tariffs and acceptance of all goods produced in all GCC countries as local products. Accordingly, the customs union of these countries should lead to an increase in the level of intra-trade between the six member countries, as demonstrated by the increase between them from 20 billion dollars in 2003 to 65 billion dollars in 2008. In addition, the annual growth rate amounted to 27 per cent (GCC, 2009), due to facilitating the customs procedures, unifying customs regulations and cancelling of customs duties between member countries and the rest of the world. Hence, the customs union is a major step in the work of the GCC to adopt many laws and economic policies in common, such as customs regulations anti-dumping, comprehensive development policies and joint industrial and agricultural policies, as a significant motivation to enhance the level of intra-regional trade of the GCC countries. In respect of international trade, the unified economic agreement has ensured that a common trade policy towards other regional blocs is followed through the adoption of a collective economic agreement with trading partners in the rest of the world.

Finally, the researcher considers that this agreement is compatible with the modern theory of international trade, in that it does not adopt an absolute protection policy, but focuses on the role of economic policy in terms of its regulation and promotion of trade, regionally and internationally, in order to maximize the advantages of free trade and reduce the negatives that could be obtained by economic openness. In other words, the role of the economic agreement will be through the integration of the GCC countries with the rest of the world, and to adopt a sound economic policy resulting from this integration. This is an important issue for economic blocs like the GCC, in order to protect the common targets and to maximize the role of foreign trade.

The Common Agricultural Policy:

The common agricultural policy of the GCC countries focuses on the optimal exploitation of the available natural resources, especially water. It has urged the private sector to invest in agriculture and the productive activities associated therewith. This policy covers three major programmes between the GCC countries, which are coordinating the agricultural policies to engage the natural resources, agricultural research programmes and enhancing agricultural production (GCC, 1996). Accordingly, the researcher sees that although the common agricultural policy has tried to increase the level of investment and agricultural production, there are significant challenges hindering the achievement of these aims, which diminish the importance of adopting a common agricultural policy. However, the main challenge is water, which is considered a significant obstacle to the agricultural policy, in that 90 per cent of the agricultural sector depends on industrially treated water (Abdul Rahman, 2004). This means a high cost of production, especially for crops that require abundant water, such as wheat crops. For example, Saudi Arabia has lowered the level of wheat production and stays within the limits of self-sufficiency. This case applies to the rest of the GCC countries, which are suffering the same problem in this respect.

Hence, the problem of water scarcity results in the inability of the economic policy towards real development in the GCC's agricultural sector, where the negative effects are increased quantities of imported food at higher cost. For example, the growth of food consumption in Saudi Arabia amounts to 7 per cent per year, while the growth rate of local food produced amounts to 2.5 per cent per year (The Arab planning Institute, 2003). This means that the GCC countries will witness high rates of imported food, which directly contribute to the deterioration in the terms of trade. In addition, the agricultural sector in the GCC countries is not a promising sector despite adopting a common agricultural policy to activate its role as a significant sector in enhancing the non-oil diversification and achieving acceptable economic growth, as the water scarcity is a major obstacle, as mentioned before. Therefore, we found that the Gulf's economic policy has targeted increasing the contribution of the manufacturing sector as an important sector in the area of economic diversification and increasing the level of industrial exports. However, the efforts of the GCC countries are focused on attracting more foreign direct investment to the industrial sector, particularly in sectors that depend a lot on energy in general in order to exploit their comparative advantage in this sector.

In conclusion, we see that the GCC countries are trying to enhance the level of integration with the global economy by introducing policies that aim to increase the economic diversification level and reduce dependency on the oil sector and the fluctuations thereof to which it is exposed from time to time. In addition, these countries are trying to improve the terms of trade through attracting more investment to the manufacturing sector and increasing the level of the commodity exports of this sector. An important issue that could be observed is that the economic policy of the GCC countries has contributed greatly in alleviating the obstacles of intra-trade within the GCC, as well as with other countries through a unified customs tariff and its procedures that facilitate trade among the member countries and other countries. However, the economic policy of the GCC countries emphasizes an open trade policy with the other countries based on the concept of the theories of modern trade. This policy supports and encourages the increased level of foreign trade through constant attempts to improve the terms of trade, as a good catalyst to attract local and foreign investment and promote trade and investment, which encourages producers to increase the level of production. Finally, and according to the economic policy of the GCC countries, we can say that this policy can lead to economic growth through encouraging foreign direct investment in sectors that achieve substantial value added to accelerate the GDP growth level, and to improve the terms of trade, which is a significant target of the GCC's economic policy.

1.3 Trade, FDI and Carbon Dioxide Emissions in GCC Countries:

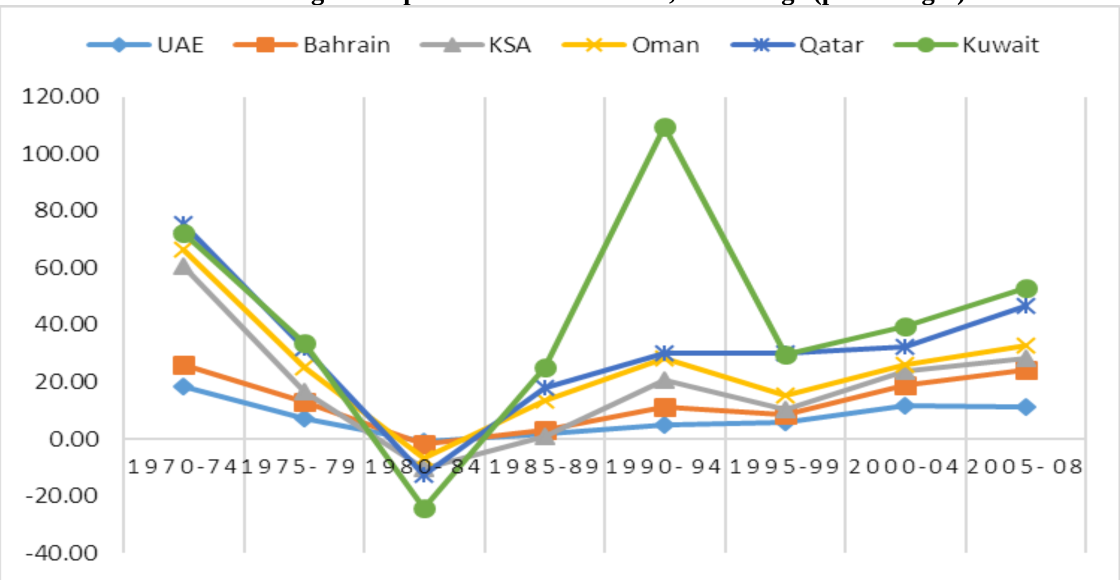
There has been a rapid increase in the past two decades. The historical data show that imports and exports, and FDI inflows and outflows have a parallel major stream over time, as shown in the following analytical approach:

1.3.1 Trends in Foreign Trade:

As is well known, the GCC countries are oil economies, in which the crude oil export revenue constitutes a major portion, and in which the export revenue is mainly linked to the oil price levels. Therefore, the trend of trade, exports and imports alike, is a dependent variable for the fluctuations of oil prices. Figure (1-1) below shows the trends of annual change in the GCC's exports over the period 1970 to 2008, however, the level of exports declined dramatically during the period 1980 to 1984. This was as a result of the declining level of oil export prices (Birks, Seccombe et al. 1988; Narayan and Smyth 2009). Hence, we can say that the level of trade and growth in the GCC countries follow the gradual decline in oil export prices. Through the figure, it is noted that Kuwaiti exports dropped sharply in comparison to the other GCC countries. This case could be attributed to the high reliance on oil exports.

From figure (1-1), we also note that the second boom in exports began in 1980, in which, on average, the exports of Kuwait surged from -11.57 per cent in 1980-1984 to 79.16 per cent in 1990-1994. However, the exports of other GCC member countries increased and declined steadily over the period spanning to 2008. Moreover, we see that this change is also parallel to the progress of oil prices (Reiche 2010).

Figure (1-1)
Annual change in Exports of GCC countries, on average (percentages)

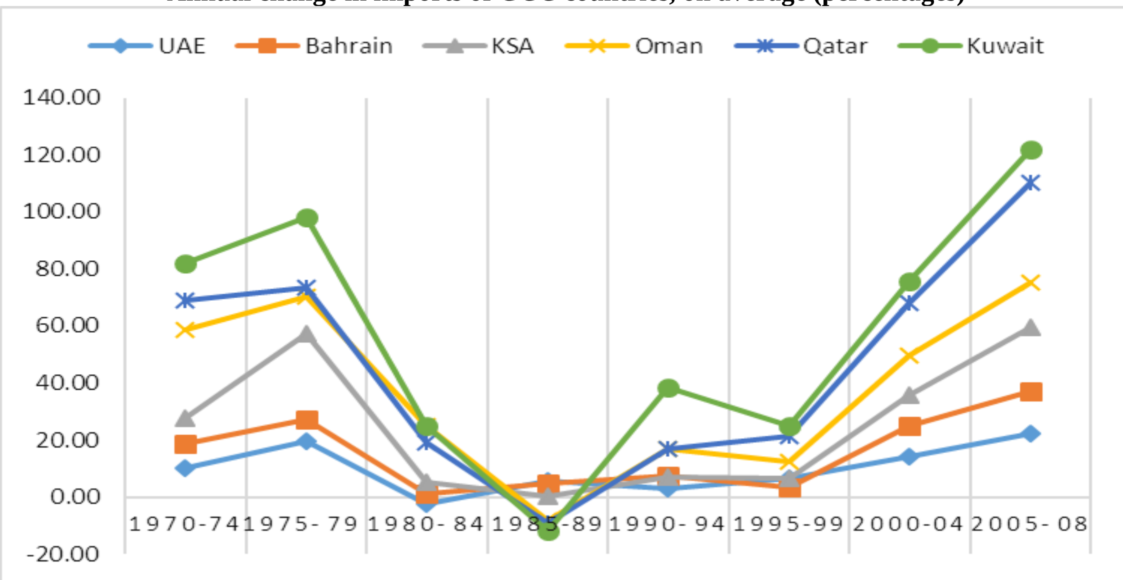


Source: By the author based on database of SECRIC; Statistical, Economic and Social Research and Training Centre for Islamic Countries: http://www.sesric.org/baseind-step1.php

This fact proves that GCC countries sell their exports, which is mainly crude oil and gas, and, in return, import various kinds of consumables and capital goods (Al-Yousif 2004), especially for the period 1970-1985.

Similarly, figure (1-2) illustrates that the annual change in imports of the GCC countries also fluctuated based on export revenue, particularly between 1970 and 1989. However, the level of imports dropped positively due to the export trend. In addition, for the period 1989 to the mid-2008, the level of imports grew steadily compared with that of exports for the same period. However, this case is obviously attributed to the weak level of diversification of these economies (Laabas and Limam 2002), where GCC countries still suffer from a persistent narrowness of local markets (Mallakh 1966; Al-Muharrami, Matthews et al. 2006).

Figure (1-2)
Annual change in imports of GCC countries, on average (percentages)



Source: By the author based on database of SECRIC; Statistical, Economic and Social Research and Training Centre for Islamic Countries: http://www.sesric.org/baseind-step1.php.

Hence, we can conclude that although the GCC export is related to oil prices, the period 1995-2008 witnessed a positive increase, which indicates that the economic activities of these countries achieved good performance in comparison to the period 1971-1994. However, this progress was a key factor to increasing the level of imports that meet different kinds of commodity needs, especially capital goods. Hence, this modest improvement could be linked to the role of the GCC block, which began working on many targets within a unified economic policy for the six member countries since its establishment on May 1980.

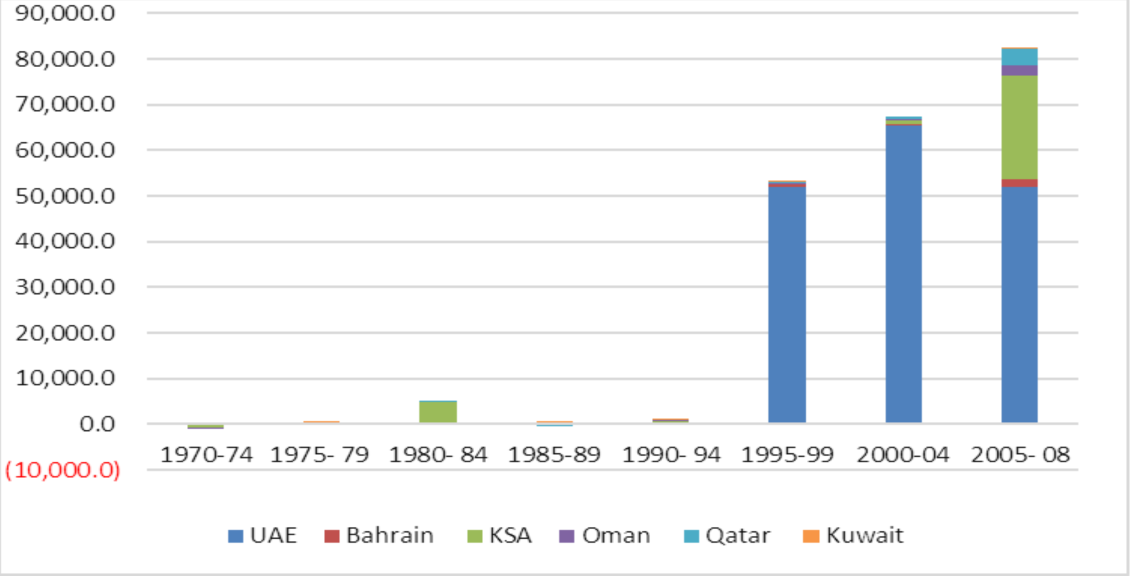
1.3.2 Trends in FDI:

Over the period 1970-1994, FDI inflows did not indicate a notable flow for all GCC member countries. The data show that there was a concentration in FDI flows across countries throughout the said duration, as shown in figure (1-3). However, importantly, the period 1995-2008 changed markedly, in which Saudi Arabia and the UAE are the main recipients of these investments. This progress mainly resulted from the full awareness of the decision-makers of these economies concerning the significance of attracting foreign investors as a key aspect to improve the level of growth and exploit the surplus of oil export revenue in joint ventures (Jaumotte 2004; Mina 2007). FDI inflows to GCC countries acted as a good catalyser for achieving a dynamic growth that helped in activating different economic sectors, particularly the oil and petrochemical sectors, as attractive sectors for foreign companies in the 1980s (Toone 2012). However, recognizing the importance of openness to economic growth, and adopting more liberal policies towards the flow of foreign capital, the FDI inflow to GCC countries increased by 0.02 per cent over the period 1970-1994, while between 1995 and 2008 the level of flows grew by 3.4 per cent (UNCTAD, 2014)[*]. Figure (1-3) below depicts a modest level of FDI inflows over the period 1970 to 1994. This is because of the lack of adopting open policies during that period, particularly for the time before the establishment of the GCC Council in 1981. However, Saudi Arabia shows a higher level of FDI flows compared to the economies of other members; it received about USD4845.6 million, on average over the period 1980 to 1984. However, this low level of FDI inflows not only relates to the policies of these economies, but is linked to the global levels of these flows, where the FDI inflows of developing countries increased from 0.1 per cent in 1970 to 3 per cent in 2001 (World Bank, 2005). However, figure (1-3) shows that the UAE economy distinguished itself by being a

[*] Calculated by the author based on database of UNCTAD, http://unctad.org/en/pages/Statistics.aspx

prior recipient of FDI, which begun in 1995 to 2008, while in Saudi Arabia the level of FDI inflows grew over the period 2005 to 2008. This variance between both countries could be strictly dependent on the policies adopted and practiced in these economies (Sadik and Bolbol 2001). In respect of FDI outflows, figure (4) presents a weak level of the average of these outflows over the period 1975 to 1999.

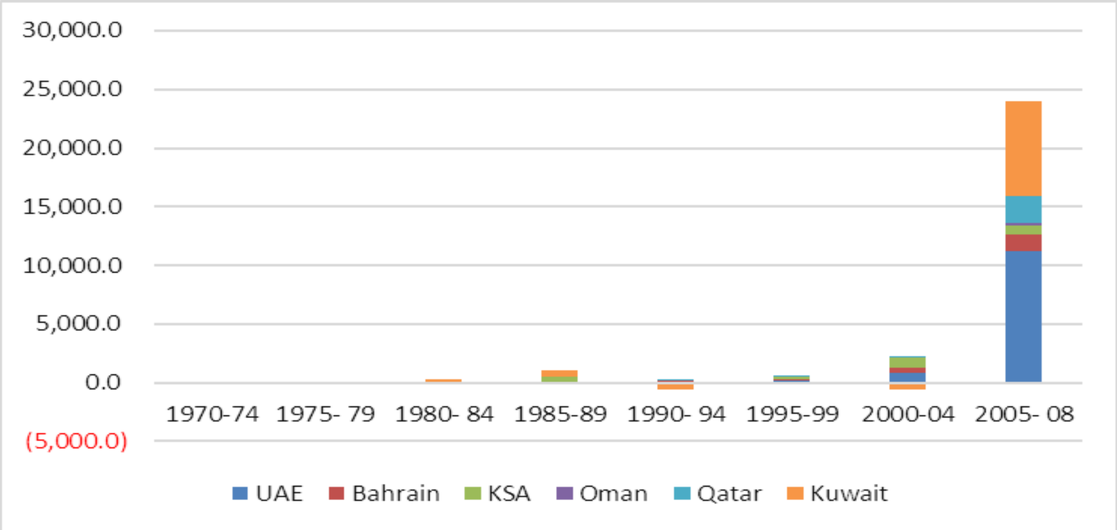
Figure (1-3)
FDI inflows to GCC countries, on average (Million USD)



Source: By the author based on data of UNCTAD database; United Nations Conference on Trade and Development: http://unctadstat.unctad.org/ReportFolders/reportFolders.aspx.
Database of the Arab Investment and Export Credit Guarantee Corporation; http://www.iaigc.net/.

The period 2000 to 2008 shows a remarkable level in which the UAE and Kuwait are the major contributors. Their outflows rose from USD855.5, USD600.1 million, on average, in 2000 -2004 to USD11257.5, USD8056.8 million, respectively. This progress could be explained by the economic plan of the UAE to exploit the revenue surplus in joint ventures to enhance the level of growth (Onyeiwu 2003). While for Kuwait, the main reason for possessing a relatively high level of FDI outflows is due to the narrowness of the Kuwaiti local market, where utilizing the oil revenue surplus was undertaken to improve the level of economic growth in Kuwait (Mallakh 1966; Mina 2007). Figure (1-4) illustrates that both Qatar and Bahrain occupied the third and fourth levels, their inflows increased from USD108.0, and USD438.5 million during the period 2000 to 2004, on average to USD2324.3, USD1.351.0 million, between 2005 and 2008, respectively. Saudi Arabia and Oman contributed modest levels compared to the other GCC countries.

Figure (1-4)
FDI outflows of GCC countries, on average (Million USD)



Source: By the author based on data of UNCTAD database; United Nations Conference on Trade and Development: http://unctadstat.unctad.org/ReportFolders/reportFolders.aspx.
Database of the Arab Investment and Export Credit Guarantee Corporation; http://www.iaigc.net/.

In conclusion, historically, the GCC countries faced a similarity in terms of the trends of their foreign trade and foreign direct investment. This is clearer over the period 1970 to 1984, in which the exports and imports witnessed a sharp decrease for all GCC countries. This result confirms the previous state of the similarity of production and their trade policies. In addition, the said period also reflects the GCC policies in hosting foreign investments. Both figures show that FDI, inflows and outflows were not a significant matter for these economies. In other words, the economic policy in GCC countries did not give much consideration to FDI during the abovementioned period.

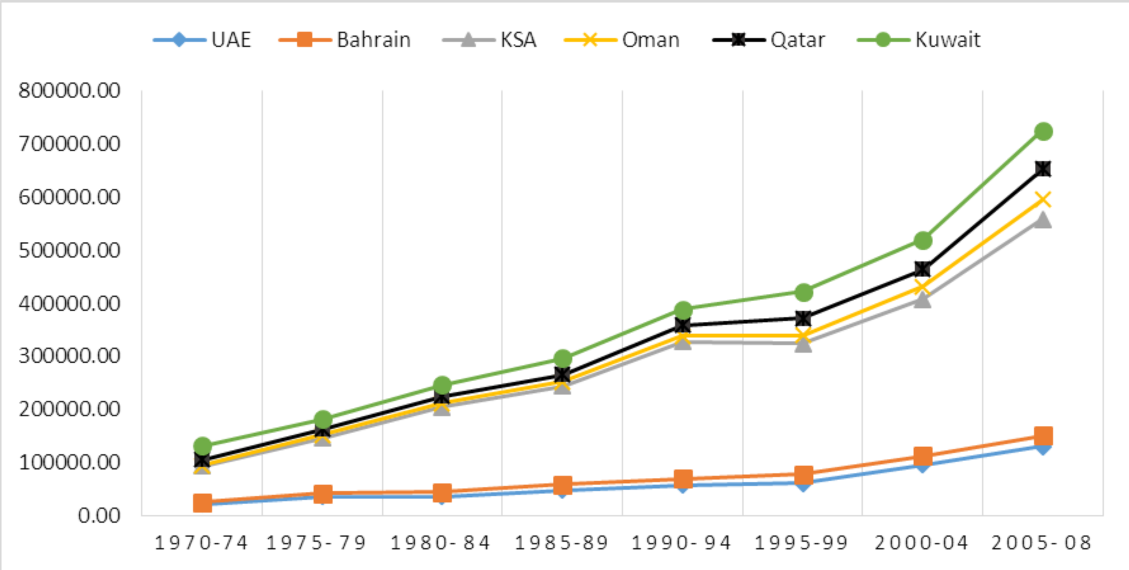
1.3.3 Trend in Carbon Dioxide emissions:

The average level of carbon dioxide emissions in GCC countries increased from 131624 thousand metric tonnes for 1970-1974 to 725588 thousand metric tonnes for 2005 – 2008 (SECRIC 2014). The GCC countries are among the top 25 countries (Reiche, 2010) that contribute to the increasing level of carbon, and emit from 45% to 50% of the total emissions of all Arab countries (Qader, 2009).

During the period 1998-2008, the GCC countries witnessed high rates of emissions. These emissions amounted to 254 million metric tonnes, due to their reliance on fossil fuel and other industries associated therewith. In 2003, the UAE, Qatar, Bahrain and Kuwait emitted about 13, 9, 8, and 7 times, respectively, more than the world average. The emissions of these countries exceeded the world average (Chaaban, 2008). This implies that these countries are still significant contributors to environmental pollution and climate change. Therefore, this study tries to measure the important variables concerning the key reasons for carbon dioxide emissions. In addition, we attempt to identify how much these variables have contributed to pollution in the GCC countries over the period of study, and which variable is the most significant in this respect.

However, figure 5 below illustrates the trends of these emissions over the period 1970 to 2008. This shows that carbon dioxide emissions increased over the time of economic growth of GCC countries, in which Kuwait, Qatar, Oman and Saudi Arabia were the main contributors, while the UAE and Bahrain showed notably low levels in comparison to the other GCC countries for the said period. This result could be linked to the nature of these economies, in that Bahrain as a small economy and relatively non-major producer of crude oil (Cheon, Urpelainen et al. 2013) emitted a low level, but higher than that of the UAE, as shown in figure (1-5). The UAE contributed a decreased level of emissions, which is because of the environmental government policy of the UAE to reduce air pollution (Yagoub 2004). However, this economy is the most energy efficient among the GCC and Middle Eastern countries in general (Reiche 2010). In contrast, Kuwait presented an increased level from 1970 to 2008, during which time its average emissions increased from 26014.62 thousands metric tonnes between 1970 and 1974 to 72809.00 between 2005 and 2008. This high increase was mainly the result of burning oil wells and chemical composition (Bakan, Chlond et al. 1991; Ferek, Hobbs et al. 1992), in which these sectors did take into account the environmental considerations.

Figure (1-5)
Total Carbon Dioxide emissions in GCC countries (Thousands Metric Tonnes)



Source: By the author based on database of SECRIC; Statistical, Economic and Social Research and Training Centre for Islamic Countries: http://www.sesric.org/baseind-step1.php

Qatar comes in the second level, and the key source of its pollution is due to the gas sector (Jaramillo, Griffin et al. 2008; Reiche 2010). While Oman and Saudi Arabia occupied a lower level compared to Kuwait and Qatar.

In conclusion, the critical time for attracting FDI and the increase of foreign trade was parallel to a high rise in carbon dioxide emissions. However, the GCC Council countries, as an economic bloc since its establishment in 1981, and the unified economic agreement in its twenty-eighth article have focused on the significant role of reinforcement of the level of trade and investment (Kechichian 1985; Marar 2004). This agreement, which was activated in 2003, is the base of the major policies of the GCC countries alongside the unified economic policy, which set the policies for sustaining economic growth (Fasano and Wang 2001; Hertog 2007). If we revert to figures (1-1), (1-2), (1-3) ,(1-4) and (1-5) it is worth noting that the increase in FDI is coupled with the increase in the level of trade and carbon dioxide emissions, particularly the period 1995-2008. This shows the important linkage among FDI, trade and carbon dioxide emissions. Therefore, in the empirical approach of this study, we will analyse the significance of this association through analysing the variables of FDI and trade and their impact on economic growth, as represented by real GDP, as well as air pollution, as represented by carbon dioxide emissions, over the period 1998 to 2008. This period witnessed a high level of income surpluses. However, the importance of this analysis is to assess how much the unified economic policy has affected the GCC economies in practice in terms of accomplishing economic growth, enhancing the level of FDI and reducing carbon dioxide emissions as the main policies of the Gulf Cooperation Council.

1.4 Problem statement:

The level of intra-regional trade is still modest, in that the GCC countries tended to trade more with other non-GCC countries over the period 1998-2008.

FDI flows are not supported by advanced technologies, and these investments have led to more carbon dioxide emissions in GCC countries due to their concentration on extractive industries compared to other sectors.

The rise in the level of economic growth was accompanied by an increase in carbon dioxide emissions over the period of study.

1.5 Objectives of the study: The main and specific objectives are:

To analyse the size of intra-regional trade and the direction of foreign trade, as well as to focus on the role of oil exports in the economic growth of GCC countries.

To analyse and measure the role of foreign trade and foreign direct investment, and their impact on the economic growth in GCC countries over the period of study.

To measure how much foreign trade and foreign direct investment affect the increase in the level of carbon dioxide emissions, as well as identify which variable has the most effect.

1.6 Questions of the study:

What was the role of the unified economic policy of the GCC countries in improving the level of intra-regional trade during the period 1998-2008?

What is the effect of the main criteria of economic growth in attracting foreign direct investment? What are the indicators that can be adopted to describe the impact of these investments in the GCC countries over the period 1998-2008?

How did FDI affect trade and economic growth in the GCC countries during the period 1998-2008?

Are there any changes in the structure of the commodity production of the GCC? What is the impact of the manufacturing industries on the economic growth?

Did foreign trade and FDI affect the environment of the GCC countries over the period of study?

1.7 Significance of the study:

The study will focus on the role of foreign trade commodity and its effect on the level of economic growth of the GCC countries, especially the non-oil industries. This reflects that economic diversification is a basic criterion for increasing the value added, and reducing the share of the oil sector on GDP, which leads to an improved level of foreign trade. Foreign direct investment has a significant role in economic reformation, trade liberalization, and developing new investment projects without funding from the government. It exploits the comparative advantage of the GCC economies, in terms of the abundant energy resources and cheap foreign labour. However, focusing on FDI is due to its importance, and because FDI tends to be a long-term commitment of capital investment through international production compared to indirect investments like portfolios. In addition, this study combines foreign trade, FDI and their effect on economic growth, and air pollution, namely carbon dioxide emissions, in GCC countries to determine whether or not GCC countries have achieved sustainable economic growth during the period of study.

1.8 Hypotheses of the study: This study attempts to prove or disprove the following hypotheses:

Enhancing the level of intra-regional trade of the GCC countries and reducing the share of crude oil exports in GDP reflects the success of the unified economic policy of these countries in improving the level of the non-oil sectors.

The growth of GDP, foreign direct investment and commodity imports have contributed to the increase in the air pollution in the GCC countries over the period of the study.

Foreign direct investment has made a significant contribution in achieving economic growth in the GCC countries, and has led to an increase in the level of value added and enhanced the share of the non-oil exports to GDP.

1.9 Scope of the study:

The study addresses the regional and foreign trade in the GCC countries during the period of study, and foreign direct investment and its role in achieving economic growth in the countries under study. This study focuses on analysing the direction of foreign trade of the GCC States and its causes, the structure of commodity exports, commodity imports and then the importance of foreign trade in general and its role in these countries during the study period. It will focus on analysing the direction of foreign trade, the structure of commodity exports, and commodity imports in order to explain the importance of foreign trade and its role in achieving economic growth.

In addition, the study will analyse the main criteria for economic growth of the GCC countries, and the role of foreign direct investment in supporting this growth during the period 1998-2008. It will include foreign direct investment as a proportion of GDP and the proportion of fixed capital formation as important indicators to analyse the importance of these investments in the economies of the countries of GCC. Finally, the study intends to analyse the role of FDI flows and their effect on economic growth, and the environment, which is represented by the emissions of carbon dioxide.

1.10 Data sources:

This study is based on a number of economic periodic reports issued by international and regional organizations, such as the World Investment Report (UNCTAD), World Trade Report (IMF), Joint Arab Economic Report (Arab Monetary Fund, AMF), Statistics of Economic and Social Commission for Western Asia (ESCWA), and Statistical, Economics and Social Research and Training Centre for Islamic Countries (SESRIC), refereed journals and books, working papers and studies related to foreign trade, foreign direct investment and the environment. In addition, official statistical data issued by the GCC countries and conferences on the subject of the study, as well as other refereed economic sources that relate to the topic of the study have been used.

CHAPTER TWO

LITERATURE REVIEW, METHODOLOGY AND CONCEPTUAL FRAMEWORK OF STUDY

2.1 Literature review:

2.1.1 Introduction:

The role of foreign trade as an engine for economic growth has increased considerably, particularly, in countries that follow a policy to encourage exports. This policy leads to an increase in the gross domestic product level and improved terms of trade, which can be reflected in acceptable economic growth. Many studies have emerged that emphasise the positive relation between foreign trade and economic growth. The capital movement across countries encourages the continued flow of foreign direct investments between countries. The mainstream of economic openness depends on attracting more investment as a key mechanism for achieving economic growth. In addition, it is considered to be an important source for external funding. Accordingly, several studies have addressed the effects of FDI on growth and trade in the host economies.

The increase in the level of foreign trade is a key factor, which helps attract more foreign direct investment, which will have a negative or positive effect on the environment. In this context, some empirical studies stated that there is a relationship between foreign trade, FDI and the environment through their impact on the level of sustainable economic growth. However, to obtain a more accurate analyses we will divide the literature review of this study into three essays: first, trade and economic growth. Second, foreign direct investment and economic grow, and then economic growth and air pollution in the third essay.

2.1.2 Trade and economic growth:

Fischer (2003) addressed the relationship between the policy of import substitution and its positive impact on growth after World War II, as well as the impact of the policy of encouraging export growth. However, he focused on the role of the economic policy in promoting exports in order to strengthen the rate of growth. Fischer reported that a greater degree of economic openness would enhance growth and the level of income, and suggested that the open countries have increased their economic growth of about 2 per cent compared with closed countries. This positive effect occurs through the increase of the level of productivity. However, Fisher stressed that countries that wish to achieve economic growth, must be integrated into the global economy to take advantage of the foreign market, and the flows of foreign investment. In this context, Bhagwati and Srinivasan (1975) stated that the policy framework is a key factor that determines the level of economic growth and export performance. This study found that the policy package affected the growth of the export sector in India via permitting and encouraging the expansion of excess capacity and by direct competition.

Rodrik (1999) stressed that the promotion of exports as a part of trade policy, can be considered as a tool for funding imports. His study showed the experience of 25 developing countries that had witnessed the fastest economic growth rates over the period (1965-1994) and which were characterized as high level; 10 per cent over the said period. The main notion of this study confirms the significant role of exports to stimulate economic activities and enhance the level of growth. In addition, Lall (2000) argued that exports have implications for growth and development. Low technology products tend to grow the slowest and technology intensive products the fastest; and the strategies used to achieve competitiveness differ greatly between countries.

Lill Anderson et al. (2008) concluded that there was a positive relationship between foreign trade and economic growth through improving the level of productivity. Their study focused on the role of education and property rights as a key factor in enhancing various economic institutions. This study was based on a survey of recent empirical and theoretical literature. It focused on the necessity for increasing the level of productivity in developing countries through foreign trade. It highlighted two fundamental problems concerning the empirical test for the relationship between foreign trade and economic growth. In the first problem, foreign trade might not lead to growth, or growth might not cause trade. While, the second problem is that it is difficult to develop a measure that includes all aspects of how trade affects growth.

Francisco Alcala et al. (2003) found that trade and local markets, were the major determinants of economic growth over the period 1960-1996. Their study tested trade openness as an appropriate measure for trade. In this study, the average growth rate of income per capita was the dependent variable of study's model, while trade openness, local market size, institutional quality, initial income per capita were the independent variables. Based on their initial income per capita and other factors, the main target of this study was to determine whether countries with larger local markets grew more over the said period. The empirical results of the study showed that trade is more significant than local markets, where the interaction effect between trade and size of economy indicated that the marginal effect of trade on economic growth depends on the size of GDP. In addition, the study found that the increased level of economic openness from 25-75 per cent was associated with a 0.8 per cent increase in the annual growth rate.

Vlad Spanu (2003) affirmed that the liberalization of foreign trade leads to a positive impact on the economy and may lead to economic growth. The critical issue in this growth concerns the economic and trade policies followed by the state to determine the trend of economic growth. The main point of this study concerns foreign trade, and the importance of the lifting of trade restrictions as a significant process to obtain WTO membership. These steps are consistent with the conditions of the International Monetary Fund (IMF) and World Bank (WB) for achieving economic reformation and enhancing the level of foreign trade. This study revealed that increasing the level of exports in developing countries was mainly associated with the nationalities of the transnational corporations. He reported that the share of foreign companies to total exports achieved high ratios which amounted to 90% in Ireland, Hungary 80%, Poland 56%, China and Costa Rica 50%, Switzerland 47%, Sweden 39%, and Mexico 31%. His study also confirmed that the continued reliance on the export of raw materials did not achieve sustained economic growth because of the linkage between the price of these materials and the fluctuations that occur in the global economy from time to time.

Imran Sharif et al. (2010) empirically investigated the causal relationship between trade and liberalization, human capital and economic growth in Pakistan during the period 1972-2007. Their study was based on Granger causality techniques. They found that the trade openness policies and education provided good motivation to sustain economic growth in Pakistan, where the causality runs from trade liberalization and human capital to economic growth. The study examined five independent variables – trade openness, human capital, GDP, employed labour force, and gross fixed capital formation as a per cent of GDP. The results of this study confirmed that trade openness and labour force have a significant impact on economic growth. In addition, there is an indirect impact on causality running from labour and trade openness to growth. Moreover, this study concluded that the trade openness and human capital were the key factors of economic growth in Pakistan over the period of study. In addition, this study suggested following certain policies in order to improve human capital and increase the level of exports, the most important of which were sustained macroeconomic stability, especially in the industry and agricultural sectors.

Rod Falvey and Neil Foster (2001) focused on the positive effect of foreign trade on the economic growth of developing countries through its role in transferring the technology to countries that imported capital goods. In addition, this study confirmed the expansion of trade relations between developing and developed countries. It reported that the open trade policy was a good factor that promotes economic growth that could result from foreign trade, and, in turn, could lead to sustainable economic growth. The study was based on endogenous growth theories, which suggest that countries benefit from foreign trade through the import of capital goods and industrial goods, and advanced technologies.

Walled Abid Mawlah (2010) examined the foreign trade flows of 21 Arab countries and their trade relation with 77 partners over the period 1990-2007. He estimated the expanded a gravity model, which included 16 variables, to analyse the export flows between the study countries. The main two independent variables were GDP and distance, while the other variables were used as dummy variables, which comprised border, language, colonizer, trade freedom, complementarity, Arab(*), GAFTA(**), GCC, UMA(***), AGADIR, EU, NAFTA, ASEAN.

The study concluded that the exports of Arab countries were positively affected by the size of the economies, and negatively by the distance between them, while the dummy variables played a modest role except ASEAN, NAFTA, EU, and colonizer. This study asserted that the four Arab agreements GAFTA, UMA, AGADIR and GCC had not achieved an important role compared with the other agreements mentioned.

Erica Vido et al. (2003) utilized two models to measure foreign trade flows between countries – the marine and land transport gravity model. In the marine model, the study only tested the quantity of lentils exported by container transport from Canada to 97 different countries, while in the land transport model, the study tested refrigerated transport trucks between Canada and the USA, in which the commodity tested was fresh and frozen pork. The regression result of the marine transport gravity model was statistically significant at the 5 per cent level. The model confirmed that a 1 per cent decline in freight rate would result in an increased level of exports by more than 1.2 per cent, which means that lentil exports were sensitive to the cost of transport. In addition, the result for the land transport gravity model indicated that the transport cost elasticity was significantly larger than for the marine transport model, inasmuch as sea transport is much cheaper than other means of transport. This study characterized the use of actual transportation cost data instead of distance, which is considered more useful.

Pack (1993) clarified that companies operating in the area of exports are always more efficient in production compared with companies that produce for the local market. His study affirmed that these results do not indicate a causal relationship between exports

(*) A dummy variable takes the value (1) if two partners are Arab countries, and (0) otherwise.
(**) A dummy variable takes the value (1) if two countries are members of the general agreement of free trade area of Arab countries, and (0) otherwise.
(***) A dummy variable takes the value (1) if two countries are members of Arab Maghreb Union, and (0) otherwise.

and efficiency resulting from the success of these companies in the technology transfer by foreign trade, and that the link between exports and efficiency might result from the fact that only more efficient companies are able to export their products to global markets, where the competition between these companies is a significant factor that stimulates the expanding level of exports.

Bee, Sukkyun, and Robert (2002) confirmed that if the fixed costs of selling goods in global markets is higher than in local markets, or if the world price of the product is less than the price sold in the domestic markets, companies with high productivity are capable of exporting to global markets, and that companies with low productivity would be forced out of the world markets.

Jean-Francois et al. (2003) confirmed in their study, which included 130 countries, that there was a decline in the estimated elasticity of trade to distance of about 11 per cent over the period 1962-1996 for the whole sample of study, especially between rich countries that showed a clear decline in this respect. In this study, the authors call the distance variable a "puzzle". However, the study strongly confirmed that the distance coefficient falls with respect to time, especially with the development of transport by containers. It used several variables and showed that the distance was an important factor. However, it was significantly reduced when the gravity model was specified to include remote countries, where the study confirmed the decreasing importance of the role of distance as a barrier to trade over time.

Abdulhadi al-Rifai et al. (2005) analysed the economic effects between the foreign trade sector and other sectors in Syria. Their study emphasized the importance of foreign trade in supporting economic growth through reinforcement of the level of value added and high revenue gain. It engaged in funding importing capital goods, which leads to an improved level of production capacity. In other words, they proved that increasing the level of foreign trade would reflect the level of development in the productive sectors and the effects of economic policies in this context. Furthermore, the study analysed the problem of an imbalance in the production structure, in that this issue played a significant role in supporting foreign trade in Syria, and then enhanced the level of economic growth. In addition, the study focused on foreign trade, especially exports, which helped to create a new ability to import various goods by exploiting other sectors. It reached its main conclusion through proving that the foreign trade in Syria was still suffering from a deficit that concentrated on the undiversified structure of commodity exports. However, the raw materials and agricultural products contribute significantly in that the revenue derived therefrom is used for importing various consumer and capital goods. Finally, the study recommended the necessity for diversification and an increase in the level of non-oil products.

Carlos Carrillo et al (2002) analysed the importance of trade agreements in enhancing intra-industrial trade in Latin American countries over the period 1980-1997. The study reported that the increasing level of intra trade in these countries was attributed to the role of intra-industrial trade, which witnessed a significant increase during the said period. The study tested the effectiveness of trade agreements in raising the trade level by applying a gravity model of bilateral trade flows. It found that these trade agreements had an impact on the dynamism of intra-regional trade and on the high increase of intra industrial trade. It proved that the distance and size of economy are statistically significant effects, which are considered as being the main determinants of trade. Finally, the study recommended that the countries in the study make efforts to reduce transaction costs between trade blocs to achieve deeper economic integration.

Alyousef (1992) discussed the customs policy and the development of foreign trade in the GCC countries during the 1980s. He addressed the major obstacles that hinder trade, and how to treat them. The study found several results, the most important of which is the need to diversify the sources of income and increase the share of the manufacturing sector to GDP, and standardization of customs tariffs with other countries, thereby eliminating obstacles to transport and the provision of supplies.

Sohn (2001) analysed Korea's trade pattern based on the gravity model. His study suggested possible ways to expand foreign trade by identifying the important factors that determine Korea's bilateral trade flows. In addition, this study added APEC membership as a new independent variable. This paper found that Korea's bilateral trade patterns strongly fit the gravity model and that inter-industry trade is explained by the Heckscher-Ohlin model. However, this study reported that the expansion of the bilateral trade volume of Korea could be promoted with closer countries that have large economies. It assumed that Korea's actual trade volume with countries like Japan and China presents greater advantages in terms of size of economy and distance. Nevertheless, the result of the gravity model for this study showed a shortage of trade volumes between Korea and these countries. The study explained that this phenomenon is caused by the existence of significant trade barriers between these countries. It recommended promoting a deeper form of trade liberalization with both Japan and China.

Al-rawashdeh et al. (2010) found that Jordan’s trade is positively determined by the size of the economies, per capita GDP and inflation rates. The study used annual data for the period 1976-2008. The analysis of this study confirmed the significant role of the joint agreements between Jordan and the EU. Jordan's imports from the EU were statistically significant, while Jordan's exports were statistically insignificant because of its components. In general, the study analysed the trade over the said period using a gravity model. Its results showed that the size of economy and per capita GDP were affected by the size of trade, as well as the exchange rate, and that partner countries were the major determinants of exports. Jordan's imports were determined by the inflation rate, per capita income, and transportation cost. Furthermore, these variables were significant in influencing the foreign trade between Jordan and the other countries in the study. This study recommended that the policymakers of Jordan should take into account the political relationships. In addition, the study stressed the necessity of giving consideration to the variety of the commodities exported.

Shiva S. Makki & Agapi Somwaru (2003) found that the role of foreign trade is an important tool for economic growth. This study was based on an analysis of the role of foreign trade and foreign direct investment in 66 developing countries over three decades. They found that foreign trade and foreign direct investments made a significant contribution to raising the level of economic growth in the countries under study, and that this growth was conditional on the stability of the macroeconomic policies and institutional rules, which were considered key factors for achieving economic growth. In addition, this study found that reducing the rate of inflation, tax rate, and government consumption would enhance economic growth in developing countries. Therefore, this study stressed that foreign trade was an important source of economic growth and that there was a direct correlation between FDI and foreign trade in raising the level of economic growth. This study also addressed the role of trade policies, which improve the level of production based on the principle of competitive advantage.

2.1.3 FDI and economic growth:

Dunning (1999) reported that the determinants of FDI in developing countries have changed from market-seeking and resource-seeking FDI to efficiency-seeking FDI, and that the size of the economy and a stable macroeconomic environment are the major reasons for attracting FDI to the host countries (Dunning, 1993). However, the size of the local market was considered to be one of the most significant determinants of FDI. In addition, cost differences between locations, infrastructure, and the ease of doing business have become more important (UNCTAD, 1996).

Hanson (2001) illustrated that the positive effects of FDI are very few and that it may have a negative impact on economic development. His study confirmed that there is no consistent relationship between FDI stock and economic growth. Moreover, the nature of the sector was the main factor to determine whether the effect of FDI would be positive or negative.

Aitken and Harrison (1999) affirmed that foreign investment was an agent for encouraging technology, but that it negatively affected the productivity of domestically owned plants. The net impact of foreign investment, taking into account these two offsetting effects, was quite small. The gains from foreign investment appeared to be entirely captured by joint ventures. In another study (Aitken, Hanson et al. 1997) it was concluded that firms can access foreign markets and reduce entry costs for other potential exporters, either through learning effects or establishing commercial linkages.

UNCTAD (2006) showed that the FDI could differ systemically from those of developed countries in the same industry. For instance, in the extraction sector in oil economies, it was noted that conducting FDI is for resource-seeking reasons to secure supplies for the markets of developed countries.

Hymer (1960) represented that the major function of the FDI is mixed with that of engaging in monopolist advantages and diversifying the production levels to avoid structural failure of the market. However, this study considered that the foreign investors are the creators of market imperfections through MNEs.

Bouklia and Zatla (2001) addressed the determinants of foreign direct investment and their impact on economic growth in South and East Mediterranean. They analysed the key variables in their study, namely, per capita GDP growth rate, investment in infrastructure, the degree of economic openness, inflation rate, loans granted to the private sector, and the budget deficit as a proportion of GDP. The study found the weak impact of the variables above in attracting foreign direct investment, except the variable of degree of economic openness, which significantly contributed to attracting foreign direct investment over the period 1976-1997.

Abdel-Hameed M. (1999) examined the relationship between foreign direct investment per capita and economic growth, theoretically and empirically, based on using the panel data technique, and tested a sample of six MENA[*] countries for the period 1975-1990. This study concluded that the rapid increase of FDI was a significant factor for achieving sustainable growth through technological progress. In addition, it confirmed that the large flows of FDI lead to economic growth. Furthermore, domestic investment and openness to foreign trade were complementary to economic growth. The study focused on the capital goods produced by the local and foreign firms.

Aizenman (1992) studied the role of foreign direct investment and its relation with foreign trade. The study concluded that these investments stimulated and encouraged economic growth in the host countries through the exploitation of the comparative advantage of these countries, for increasing level of foreign trade in terms of two sides – imports and exports. In addition, the economic policy in the host countries attempted for more open trade policy, which would lead to sustained economic growth. This could be achieved by increasing the level of value added in the industrial sectors in which the local investors could not invest. It reported that attracting foreign direct investment towards these sectors would increase the level of produced goods, which would help

[*] Middle East and North African countries.

reduce importing similar goods. In addition, it confirmed the possibility of increasing the level of exports of produced goods and meeting domestic needs.

Lyroudi Katerina et al. (2004) investigated the existence and nature of the effect of FDI on the growth rate of 17 transition economies – Albania, Azerbaijan, Belarus, Bosnia, Georgia, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, Moldova, Mongolia, Romania, Russia, Slovenia, Tajikistan, Turkmenistan, and Uzbekistan. The study showed that the FDI does not represent any significant relationship with economic growth for the transition countries. The results of this study derived the same conclusions after splitting the study sample into two groups, low- and high-income countries.

Muhammad Khalil (1995) tackled the most important reasons for attracting foreign direct investment. These included market-related factors, such as the appropriate investment climate, availability of raw materials, cheap labour force, and infrastructure, which would significantly contribute in achieving high profits, and lead to a positive impact on economic growth in the host country. In addition, this study found an adverse effect of foreign investment, when the host country accumulated foreign debt through macroeconomic instability. Therefore, it recommended that the governments of the host countries change their economic policies towards foreign investment, and the necessity of activating the industrial sector by encouraging competition between local and foreign companies, as well as achieving a balanced relationship between foreign and local investments and direct their role to improving the level of economic growth.

Argiro Moudatsou (2001) addressed the causality between FDI inflows and economic growth in 14 European Union countries. His study investigated three possible cases: growth driven FDI, which is the case when the growth of the host country attracts FDI; second, FDI leads growth, when it improves the rate of growth of the host country; and, third, the causal link between them. The empirical results supported the hypothesis of GDP driven FDI for 4 out of the 14 investigated countries (Italy, Finland, Spain and Ireland); in Ireland and Finland the growth was very attractive for FDI because of their small economies. In addition, the study found that the growth was driven by FDI in nine cases (Belgium, Denmark, Greece, Germany, France, Netherlands, Austria, Portugal and the UK); however, no causality was found between FDI and GDP for Sweden.

Al-Salama (1997) revealed the positive economic effect of foreign direct investment in developing countries, and on new manufacturing as a good catalyser for economic growth. This study stated that one of the reasons for the success of foreign direct investment was where no restrictions were imposed on the ownership of foreign investors inside the host country. This means that the investment policies should be distinguished in more facilities in order to attract a high level of foreign investment. This study also confirmed the need to enhance distinct circumstances for improving the condition of the investment climate. However, the study analysed the factors that stimulate foreign direct investment in developing countries, in terms of the view of foreign companies, such as maximizing profits, available incentives, abundance of raw materials, and political stability.

Ovidiu Serafim (2010) concluded that the impact of FDI on economic growth in Romania significantly depended on governmental policies which applied by decisional factors. The study reported the importance of applying some active measures for attracting FDI, and of the host country's actions towards modernizing the infrastructure and improving the level of human development. This study focused on following a long-term developing strategy to improve human and technological capabilities. It recommended following certain steps; the first is stimulating activities for research-development through attainment partnerships between the public and private sectors.

Second, encouraging investing firms to develop activities that generate a high value added in order to increase comparative advantage.

Balasubramanyan (1996) analysed the impact of foreign direct investment on economic growth over the period 1970-1985 for a sample of 46 developing countries. These countries were classified into two groups – those that followed the policy of exports and those that pursued a policy of import substitution. The study found a key result, which confirmed that the positive role of foreign direct investment in countries that pursued a policy of exports is greater than for those countries that adopted a policy of import substitution.

Myriam Blin et al. (2009) addressed the important question of whether foreign direct investment enhances economic growth in Mauritius. Their study was based on time series data for the period 1975-2001. Domestic private and public investments were also used to estimate a neoclassical production function in the long-term, as well as in the short-term. The results of the study indicated that foreign direct investment had a significant impact on the economic growth in Mauritius. In respect of domestic investment, the study showed that only private investment had a positive effect on the economic growth. However, the quantitative evidence of this study confirmed that the FDI, private investment, human capital and development of financial sector had a positive and statistically significant effect on per capita output. In contrast, public investment and openness did not have a significant effect on it. The major result of the study is that Mauritius, given its role in the growth process, must continue to attract FDI, and that the government must continue to promote private investment.

Pfaffermayr (1994) explained the relationship between foreign direct investment (FDI) and the growth of exports in Austria. He used the test of Granger causality to determine the total impact of foreign direct investment and exports on the Austrian economy. The study concluded that there was a significant causal link between foreign direct investment and exports, and that increasing foreign direct investment in the host country could achieve a positive impact on exports, especially in sectors that have modest value added. Moreover, FDI is considered a good way towards economic diversification.

Karimi et al. (2009) examined the causal relationship between FDI and economic growth in Malaysia over the period 1970-2005. The study did not find strong evidence of bi-directional causality between the FDI and economic growth in the long-term, in that FDI had an indirect effect on economic growth in Malaysia. The study indicated that the role of FDI on growth should be an indirect relationship between technology transfer and productivity, where, in the case of technologies, FDI is expected to be a potential source for productivity gains via the spillover, which has a positive effect on domestic firms. In addition, the causality between FDI and GDP is not important, in that the significant issue is that the performance of one variable does contribute to the stability of another variable.

Dosse Toulaboe et al. (2008) stressed that foreign direct investment contributed to the increase of fixed capital formation and technological progress, and that these investments are a good catalyst for the reinforcement of the industrial sector and improvement of economic growth. The study identified several testable hypotheses. First, foreign direct investment has economic benefits to the host countries. Second, the direct impact of foreign investment is substantial in more developed economies. Third, foreign direct investment has indirect economic implications in the host countries because of the positive relationship between foreign direct investment and the level of human capital formation. Finally, the indirect effect is significant in developed economies. The results obtained for this study can be summarized as foreign direct investment significantly contributed to the level of economic growth, directly and equally in low-income countries. It mentioned that there was a positive relationship between FDI and human capital formation. Meaning that it enhances the level of economic growth; this relationship was more obvious in the developed countries. The study showed that the capacity of the host countries was one of the most important factors that attract foreign direct investment, and that it has a major impact on achieving high economic growth in the host countries.

Borensztein et al. (1998) tested the effect of FDI on economic growth by using the data of the FDI flows from industrial countries to 69 developing countries during the period 1970-1989. The study found that FDI was an important vehicle for technology transfer. In addition, relatively, it contributes more in achieving economic growth than domestic investments when a sufficient absorptive capability of the advanced technologies becomes available in the host economy. The study indicated that FDI is considered as a tool for transferring advanced technology. However, the most significant finding of this study was that the effect of FDI on economic growth was dependent on the level of human capital of the host country, where the positive interaction between FDI and the level of educational attainment was a proxy for human capital. This study revealed that the human capital was not significant in the case of domestic investment as a reflection of the differences in the technological gap between FDI and domestic investments.

Salts (1992) analysed the level of FDI on the growth rate of GDP of 75 developing countries, and concluded that there was a reverse link between FDI and the rate of GDP growth over the period 1975-1980. He made it clear that the reasons for this inverse relationship were attributed to the failure of the economic policy of the host countries in that their attempts to attract more foreign direct investments had not led to an increased level of value added. This means that these investments did not achieve substantial or rapid economic growth. In addition, his study analysed the main reason for this failure, which he attributed to certain factors like economic instability, shortage of incentives and basic facilities that affect attracting foreign direct investment.

Zeshan Atique et al. (2004) found that the foreign trade policy regime followed by Pakistan had significantly affected both the amount of FDI inflows and the rate of economic growth, and that the government should emphasise export promotion policy and FDI inflows in order to achieve sustained economic growth. The study concluded that the growth impact of FDI tended to be greater under an export promotion regime compared to an import substitution regime. This was confirmed using data for the period 1970-2001. In addition, the study reported that FDI can stimulate human resources through education and training programmes to enhance the stock of human capital, and increase the level of productivity of labour and other factors of production. Finally, the study recommended improving the level of economic performance in Pakistan for attracting more foreign direct investments and achieving suitable economic growth.

Dharmendra Dhakal et al. (2007) studied the causal relationship between economic growth and foreign direct investment by using Granger causality for nine Asian countries: Bangladesh, India, Korea, Malaysia, Pakistan, the Philippines, Singapore, Sri Lanka and Thailand. The selection of these countries was based on their high rates in terms of the level of foreign direct investment over the past two decades. This study found that the linkage between FDI and economic growth was specific to the country; however, it showed that in Malaysia and Bangladesh, there was no causal relationship between FDI and gross domestic product. While, in Korea, Singapore, Sri Lanka and Thailand, there was a causal result for the growth direction to foreign direct investment, but not from FDI to growth. In Pakistan, there was a causality of foreign direct investment to growth, but not from growth to foreign direct investment, while in India and the Philippines there was causality for both sides, the direction of growth towards foreign direct investment, and vice versa. In addition, the study illustrated that there were differences in foreign direct investment and its relation with economic growth, which implies that the causality between the two variables cannot be extrapolated to all countries that are attracting foreign direct investment, whereas the effect of FDI on economic growth is specific to the country.

Rodney Schmidt (2008) analysed the relationship between FDI, growth, and cross-country income convergence in 128 countries over the period 1970-1999. The study was based on the non-linear growth regression model. It was concluded that a country must receive a minimum amount of FDI before its macroeconomic growth rate responds. This study asserted that the FDI makes an important contribution to economic growth because of its role in enhancing and improving the growth rate of GDP per capita by between 0.83 and 1.57 percentage points each year depending on the actual amount of FDI. In addition, the study confirmed that FDI was the main channel for technology transference across countries.

Abdul Khaliq et al. (2007) investigated the impact of FDI on economic growth by using sectoral data for FDI inflows to Indonesia over the period 1997-2006. The sectors of study included farm food crops, livestock product, forestry, fishery, mining and quarrying, non-oil and gas industry, electricity, gas and water, construction, retail and wholesale trade, hotels and restaurants, transport and communication, and other private and services sectors. The empirical results of this study suggested that Indonesia should consider more carefully whether a policy of stimulating FDI inflows in all sectors is beneficial as a means to enhance the level of growth. In addition, more attention should be paid to formulate policies that would maximize the benefits of attracting FDI inflows through its appropriate sectorial composition and by creating conditions that were beneficial for all economic sectors.

Gheorghe et al. (2010) investigated whether FDIs impacted on the Romanian economic growth by using simultaneous equations. His study analysed the linkage between economic growth and share of FDI in GDP. In addition, this attempt revealed a bi-directional relation between the study variables. This study highlighted the importance of economic growth for all the other independent variables, in that FDI had a positive effect on economic growth, and, in turn, a higher GDP attracted FDI. Moreover, it proved that labour cost played a significant role in attracting foreign direct investment.

2.1.4 Trade, FDI and air pollution:

Kakali Mukhopadhyay (2008) discussed two conflicting hypotheses that have emerged from the debate about the environment. The first is the pollution haven hypothesis (PHH) that suggests that developed countries impose strict environmental policies and distort the existing pattern of comparative advantage when the polluting industries shift their operations from the developed to the developing countries. Developing countries will become "Pollution Havens”. The second is the factor endowment hypothesis (FEH) that assumes that trade liberalization will lead to a consistent trade pattern. However, this notion is based on the Heckscher-Ohlin-Vanek (HOV) theory of comparative advantage and consists of factor endowment differentials. Moreover, the developed countries are well endowed with capital since capital-intensive goods are often also pollution-intensive. The factor endowment theory of international trade predicts that developed countries specialized in polluting goods. This means that PHH is in direct conflict with the FEH.

However, the study found that Thailand is a good laboratory for testing these two hypotheses, for which it was concluded that the pollution haven matters for Thailand

and that factor endowment does not. The results of the study confirm that this country is a pollution haven and that the effect of FDI on the environment has not been environmentally friendly. The study suggested several policies involving trade and the environment, of which the most important was paying more attention to the environmental quality of exported goods in order to create sustainable trade development in the future. This is because the country's economy depends on exports, as well as providing financial incentives to establish green industries and encourage using imported technology for the production of green products.

David I. Stern et al. (1996) found that there was an inverse relationship between environmental degradation and per capita national income, in which economic growth reduced the environmental impact resulting from various economic activities. In addition, trade had a neutral impact on environmental degradation. This study used cross-sectional regression for the per capita environmental impacts on per capita income, which could show the different patterns of effects.

Stacey M. Thomas (2009) found a significant relationship between GDP and carbon dioxide emissions (CO_2), where the data analysis showed that Trinidad produced 12 times more CO_2 per unit than Uruguay and Kenya, and over 20 times more than Sri Lanka and Uganda. The rapid movement of capital and expanding industrial base had increased the level of carbon dioxide emissions. This study was based on the qualitative approach, and it confirmed that Trinidad had improved its level of economic growth but with a high level of pollution. It recommended protecting the natural environment by improving energy efficiency in order to reduce the level of emissions to achieve high economic growth at less environmental cost and with a more positive impact on the quality of life.

Kathleen M., & and R. Quentin (2002) tested the relationship between per capita real GDP in Canada, and the four measures that negatively impact on environmental degradation. They proved that carbon monoxide has a negative impact in the long-term with the increase in per capita gross domestic product. They used the causality test to determine the relationship in their research. They concluded that Canada did not have a high level of per capita GDP to prevent the effects of other environmental problems associated with economic growth. In addition, they confirmed that the level of environmental degradation, declined with increasing per capita income, in which there was a positive relationship between per capita income and some indicators of the declining measures of environmental degradation. This study was conducted in Canada using official data with four criteria for measuring environmental degradation. In addition, it found a key result that stressed that environmental degradation did not affect the low level of per capita income. Furthermore, they illustrated that a high level of per capita income would improve the level of eco-efficiency in the long-term in Canada.

Accordingly, their study suggested that the economic policy in Canada should follow comprehensive steps to reduce the pollution intensity per unit of productive sector of the economy, and to move from production that had a high pollution rate to that which had a low level, in order to mitigate the environmental degradation associated with the total consumption, and economic activities.

Awudu Abdulai et al. (2009) examined the linkage between economic growth, foreign trade, and environmental degradation. This study was based on the theoretical and empirical approaches over the period 1990-2003. The results indicated that trade might influence the EKC relationship both positively and negatively. The study proved that GDP had a highly positive significant impact on the environment, while the trade coefficient was not statistically significant. Moreover, the income variable indicated that there was an EKC implication. The study concluded that solving environmental problems does not necessarily have a negative effect on economic growth. Furthermore, they reported that when a country does not have institutional capacity to set up proper environmental policies and protect some sectors, the environmental problem will still affect that country even though the level of income is rising. Moreover, the environmental issue needs international cooperative action to unify their policies for achieving suitable economic growth with a lower level of pollution.

De-yong (2010) revealed that there was a long-term relationship between export trade, economic growth and carbon emissions in China. There was a unidirectional Granger cause of carbon emissions and economic growth. However, Hoffmann, Lee et al. (2005) reported that FDI and pollution have a bidirectional causal relationship and that this linkage was mainly based on a host country's level of development.

Bruyn et al. (1998) revealed that environmental pollution was linked in a direct relationship with economic growth. This study indicated that the best way to reduce the effect of environmental pollution was to increase the level of investment in high technology to achieve rapid economic growth and increase the level of value added. This would lead to the fast economic growth and reduce the effect of environmental pollution resulting from the increased production.

The study showed that the economic growth had a direct positive impact on the levels of pollution in spite of the increase of the level of pollution resulting from economic growth. This pollution could decline over time via the economic progress that occurs at the level of advanced technology. In other words, in the long-term, continued economic growth would lead to the accumulation of advanced technologies, which replaced the old technologies, and, in turn, such progress could reduce the level of pollution. This study distinguished the relationship between economic growth and the environment during the long- and short-term.

Nickerson (2004) examined the effect of pollution by relating national per capita emissions to per capita GDP. His study was based on a combination of two environmental theories: the environmental Kuznets curve (EKC) and the Porter hypothesis. The study reached three main conclusions. The first was that a rise in manufacturing exports reduced emissions by increasing the competition between firms, which forced them to be highly efficient. In the second, the study confirmed that the regulations variable was significant in the result of the model. This means that there was an important role for promoting environmental regulations by the government, in that it would provide good motivation for reducing air pollution. Third, the level of carbon dioxide emissions increased with a high level of income, which is opposite to the EKC theory. The study explained that economic growth is not supported by the advanced technology.

Dinda (2005) found that economic growth was directly linked to the level of commodity stocks of goods, and that there was a direct relationship between economic growth and the environment. This study suggested that achieving sustainable economic growth could be through the protection of natural resources and optimal exploitation, which reduce the impact of climate change. In addition, this study found a significant relationship between economic growth and the environment, and confirmed the impact of economic growth on the economy and the environment. It was also found that the growth rate of output was negatively related to its initial level, and positively related to the environment. It examined several variables, mainly the cumulated per capita CO_2 emissions, and per capita protected forest area within the country. The study result showed that the cumulated per capita carbon dioxide emissions (CO_2), and per capita area of protected forests was linked to the positive economic growth rate. In other words, a rise in the level of economic growth leads to more pollution, and an increase in per capita carbon dioxide emissions, and degradation of the forest area. However, this study suggested that economic policy in less developed countries must protect the natural resources. This policy is considered as a major base for economic activities, and then economic growth. However, the study stressed again that the most important priority was maintaining the land and forest area in general, where the developed countries could help in achieving this by providing some incentives that lead to protect the natural resources, especially forest areas in order to reduce the effect of the emissions of carbon dioxide.

Pao and Tsai (2011) indicated that strong bidirectional causality existed between emissions and FDI and that there was unidirectional strong causality running from output to FDI. The evidence seemed to support the pollution haven and both the halo and scale effects. Therefore, in attracting FDI, developing countries should strictly examine the qualifications for foreign investment or promote environmental protection through the coordinated know how and technological transfer with foreign companies to avoid environmental damage.

Qader (2009) reported in his study that CO_2, NO_2, and CH_4 are the three most widespread greenhouse gases (GHGs), where the electricity consumption and the related CO_2 emissions resulting from the oil and gas combustion in GCC countries are the main contributors to the increasing level of air pollution. The study found that GCC countries contribute significantly to the global CO_2 emissions, and that the majority of their emissions are concentrated in the energy extraction and manufacturing sectors. It was found that the current rates of electricity consumption and related CO_2 emissions in the GCC countries are higher than for other developed countries with a similar population size. The study recommended encouraging the use of renewable energy and cleaner sources of power generation.

Ekins (1999) found that the relationship between economic growth and the environment could be positive. He reported that the government paid more concern towards the environment by engaging this growth and subjecting it to the considerations of maintaining the environment. This study stated that the population growth, combined with an increased level of economic activity that causes damage to the environment as a result of the high level of production and consumption, represent a major challenge. In addition, he reported that human welfare is also associated with the positive relation between economic growth and environmental degradation.

Kheder (2010) showed through empirical analysis and explained the relationships among foreign direct investment, environmental regulation and pollution, in order to shed new light on the environmental impact of pollution. The study was based on data for French FDI outflows in a mix of developing, transition, emerging and developed countries over the period 1999-2003. The study estimated three simultaneous equations to model the determination of FDI. It confirmed the negative impact of environmental regulation on FDI, and that French manufacturing FDI had led to an increase in the level of pollution emissions in the host countries.

Li-yan (2008) assessed the effect of foreign direct investment (FDI) on the environment. The results showed that FDI increased pollution emissions in China. At the same time, FDI entry also reduced pollution emissions through optimizing the economic structure and improving technology. As a result, the total effect of FDI on the environment was small and positive. In addition, the weaker environmental regulation was one of the main factors attracting FDI, which indicated that there is a pollution haven effect in China. However, Wang and Watson (2008) indicated that emissions embodied in internationally traded goods from countries do not pay attention to the environmental considerations.

Atici (2009) examined the impact of various factors, such as gross domestic product (GDP) per capita, and trade openness on carbon dioxide (CO_2) emissions per capita in the Central and Eastern European Countries. The extended environmental Kuznets curve (EKC) was employed, utilizing the available panel data from 1980 to 2002 for Bulgaria, Hungary, Romania and Turkey. The results confirmed the existence of an EKC for the region, such that CO_2 emissions per capita decreased over time as the per capita GDP increased.

Atici (2012) examined the interaction between trade and the environment in terms of carbon emissions for the group of ASEAN countries. The study found no evidence for the deteriorating impact of foreign direct investment (FDI) on environmental quality. Moreover, Japan's imports from the region do not cause pollution while China's imports stimulate the pollution per capita.

Zugravu, Millock et al. (2008) indicated that growth had increased CO_2 emissions in the Central and Eastern European countries by 31 per cent between 1995 and 2003, and that the composition effect corresponded to an increase of 8.4 per cent of emissions. This study confirmed the importance of institutional factors in reducing the level of pollution.

Copeland and Taylor (2003) found that increasing the level of GDP leads directly to more pollution, but, at a higher level of income per capita, the demand for health and environmental quality rises with income, which could be translated into environmental regulations. The study was based on a theoretical framework to analyse the impact of trade liberalization and its effect on economic growth and the environment. In addition, it used the quantitative approach depending on cross-sectional data for 100 major cities in the world. The study results showed that trade liberalization led to a rise in the volume of economic activity by 1 per cent and raised the level of pollution between

0.25 per cent and 0.5 per cent. This level is associated with an increase in the level of per capita income of between 1.25 per cent and 1.5 per cent, which is limited by the advanced technologies. However, these estimates confirm the important role of proper economic policy to achieve substantial income resources generated by trade. It illustrates that achieving economic growth through technological progress will increase the level of income and improve eco-efficiency at the same time. However, economic growth, which depends on capital accumulation alone, will lead to degradation of the environmental level.

In addition, this study argues an important question, which is: how can foreign trade affect the environment? Furthermore, the study focused on two main issues that are linked to trade and its impact on the environment. The first could be generated by the role of trade in activating the economy of a country. This means that trade will stimulate the production processes and increase the level of production, from which the obtained income will encourage more expansion of production, which would lead to a negative impact on the environment. The second issue can occur by increasing the productive activity and foreign trade with industrial countries, where the pollution of rich countries will move to poor countries by importing pollutant goods. In other words, the high growth rate would increase the level of income, which would encourage a rise in imports, as well as more capital and consumption goods that would lead to more pollution. However, this study found that both issues explained an environmental problem because of the increased level of pollution, on the one hand, and achieving high revenue related to economic growth. While, on the other hand, the existence of an economic policy could lead to an improvement in the level of environmental regulations and achieve high growth with a lower level of pollution.

Wen Chen (2007) tested the availability of the environmental Kuznets curve in China by using provincial panel data. The study analysed the relationship between GDP per capita and the emissions of five kinds of industrial pollutants, solid waste, wastewater, SO_2, soot, and smoke. It found that the relationship varies on the type of pollutant and region. This study confirmed that the EKC hypothesis was not clear in China, where the inverted U-shaped curve could not be generalized for all emissions. In other words, the relationship between economic growth and environment in China is complicated. The study recommended following more strict environmental regulations, which should be adopted by the Chinese government at all levels.

Jie He (2005) analysed the relation between FDI, emissions, and three economic determinants of emissions. In his study, he constructed a simultaneous model to analyse the relationship between FDI and final industrial SO_2 emissions in China by exploring the relationship between environmental regulation stringency and the impact of FDI on the level of emissions. The estimated model included panel data for 29 industrial provinces in China. It found a small total impact of FDI on industrial SO_2 emissions, where a 1 per cent increase in FDI capital stock will lead to an increase in industrial SO_2 emissions of 0.099 per cent. The study reported that an increase in the level of emissions was caused by the impact of FDI on economic growth. It provided convincing supportive evidence for the pollution haven hypothesis. Although FDI firms in China generally produce higher pollution efficiency, the environmental regulations still have a modest role in reducing the level of pollution resulting from FDI.

Jeffery A. Frankel et al. (2002) discussed the determinants of foreign trade and their effect on the environment. This study found that trade had a beneficial effect on some measures of environmental quality, in that it supported the environmental Kuznets curve (EKC). This inferred that there was no evidence for the pollution hypothesis, where trade helps the promotion of economic growth, which, in turn, is an indirect channel for the effect on the environment.

Hyun-Hoon Lee et al. (2005) examined the impact of income on the environment. The examination results showed that the income had a positive impact on pollution, where it had a specific effect on most of the criteria for environmental efficiency. This study explained that environmental policies often focus on how to control pollution, which is not sufficient, and confirmed the importance of creating a consistent situation between the economic policy and aspects of the environmental efficiency in order to reach a linkage that leads to achieving a suitable growth rate and controlling the level of pollution. The study also found that a low level of population density and political freedom is of great importance in influencing the level of environmental sustainability. The signal coefficients are estimated to be positive in all cases, and this situation is clear concerning the issue of civil liberty and politics. This study stressed that civil liberty and politics do not support the sustainability of the environment automatically in all cases.

Overall, we have presented the studies of a number of scholars in respect of the key related factors, such as trade policies, productivity, and economic openness degree as a tool to strengthen the rate of growth. However, despite adding extra variables to the gravity model, the majority of these studies found that GDP and distance are the key factors for trade between countries (Rodrik 1999; Fischer 2003; Anderson 2008). In contrast, many studies confirm that the elasticity of trade to distance declines over the time due to the technology of the container transport system and globalization (Hummels 1999; Brun 2003). In this context, Ghemawat (2001) found that the level of income of consumers is the most significant factor that affects the level of trade, and that rich countries engage in relatively more cross-border economic activity relative to their economic size.

However, the relationship between distance and trade was addressed in various directions that reflect its impact on the level of trade and a country's economy. For instance, Bougheas, Demetriades et al. (1999) tackled the level of infrastructure to analyse its influence in the gravity model through the use of data from European countries. The results of this study strongly support the theory of gravity. Therefore, the current study extrapolates how much oil-producing economies like the GCC countries are consistent with the related literature concerning other economies; in other words, investigating the status of GCC’s trade and which variables have more significance. This analysis will be revealed by the results of the model specified for this purpose.

The role of FDI and foreign trade have increased considerably, particularly in countries that follow a policy of encouraging exports and attracting more FDI for enhancing the level of economic growth (Rodrik 1999; Fischer 2003). This policy leads to an increase in the gross domestic product (GDP) and improved terms of trade. Many studies have emerged that emphasize a positive relation between foreign trade and economic growth (Balasubramanyan 1995; Spanu 2003). In addition, the capital movement across countries encouraged the continued flow of foreign direct investment (FDI) as a key mechanism for achieving economic growth (Brems 1970; Romer 1986; Li and Liu 2005). However, there is consensus that foreign trade and FDI have a positive impact on the host economies, particularly for physical investment (Dunning 1993; Grossman and Helpman 1993). Hence, an increase in the level of production would enhance the portion of goods exported, which means that efficient producing companies can meet the local market needs, as well as export their surpluses abroad (Pack 1993). In contrast, other studies represent that trade and the local market size are the major determinants of economic growth (Alcalá and Ciccone 2003; Chaudhry 2010), which emphasizes that the local economy is the main target of its trade policy. Other scholars suggest that the fixed cost of selling goods in the global market is higher than that of the local market. This finding could be justified by the linkage between the foreign trade sector and other local sectors in a local economy (Al-rifai 2005); however, it reflects a robust relationship between trade and the GDP level in a country. In addition, other findings show that FDI could enhance the level of technology in a host country, but affect the local market negatively (Aitken and Harrison 1999).

Furthermore, other studies stated that a stable macroeconomic environment is the most important reason for attracting FDI to developing countries (Dunning 1993). However, the growth of GDP is considered to be one of the most significant determinants of FDI (UNCTAD 1996). Accordingly, we can say that these findings cannot ensure a definite impact on the host economy due to the factors related thereto. This opinion was asserted by Bouklia (2001) and Hanson (2009) who illustrated that the positive effect of FDI is very little and might have a negative impact on economic development and growth, and that the relationship between FDI stock and economic growth might not be consistent. Thus, we note from the literature that the function of FDI is not unified; it is mixed with that of engaging the monopolist advantages and diversifying the production levels (Hymer 1976). Therefore, the role of FDI is linked to foreign trade and economic growth in the host economies through exploitation of the comparative advantage of these countries for increasing the levels of foreign trade in terms of two sides – imports and exports. In addition, the attempts of the economic policy in the host countries for a more open trade policy, will lead to sustainable economic growth, which could be achieved by increasing the level of value added in the industrial sector (Aizenman 1992). Hence, there are many reasons for attracting FDI, of which the most important represent market-related factors, such as appropriate investment climate, availability of raw materials, cheap labour force and infrastructure, which would significantly contribute in achieving a high profit and lead to a positive impact on economic growth in the host country (Khalil 1995). Accordingly, the association among FDI, foreign trade and growth is almost positive. This was revealed by Argiro (2001) who affirmed the causality between FDI inflows and growth in 14 European countries. The relationship between economic growth and FDI is significantly dependent on governmental policies (Trufin 2010). However, it is evident that FDI is an important factor for enhancing economic growth in the host economies (Myriam. 2009), which could be represented through improving the levels of production, and then exported goods (Pfaffermay 1994). Hence, we can say that FDI is a major way to increase the fixed capital formation and technological progress, and that these investments are good catalysts for reinforcement of the industrial sector, and improvement in economic growth (Dosse Toulaboe 2008); it is, however, a vehicle for technology transfer (Borensztein, De Gregorio et al. 1998).

Finally, the linkage between economic growth, foreign trade, and pollution usually indicates that the trade may influence the EKC relationship both positively and negatively. It also reveals that GDP has a high positive significant impact on the environment, while trade is not a significant factor (Abdulai 2009). Moreover, the income variable indicates that there is an EKC implication. In this respect, Bruyn (1998) and Nickerson (2004) stated that environmental pollution is linked to the direct relationship with economic growth. This study indicated that the best way to reduce the effect of environmental pollution is to increase the level of investment in high technology to achieve rapid economic growth and increase the level of value added. This leads to fast economic growth and reduces the effect of the environmental pollution resulting from the increased production. The related literature showed that economic growth has a direct positive impact on the level of pollution in spite of the increase in the level of pollution resulting from economic growth. This pollution could decline over the time via the economic progress that occurs at the level of advanced technology. In other words, in the long-term, the continued economic growth will lead to the accumulation of advanced technologies, which replace the old technologies, and this progress could reduce the level of pollution.

However, solving the pollution problems does not necessarily have a negative effect on economic growth. In addition, it has been reported that when a country does not have the institutional capacity to set up proper environmental policies and protect certain sectors, in this case the environmental problem, it will still affect the country even though the level of income might rise. Moreover, the environmental issue needs international cooperative action to unify policies for achieving suitable economic growth with less pollution. Carbon dioxide emissions are the most widespread greenhouse gases (GHGs), in which the extractive industry and mining are highly related to CO_2 emissions resulting from oil and gas combustion in the GCC countries, which substantially affect the increasing level of air pollution. These countries contribute significantly to the global CO_2 emissions, in which the majority of their emissions are concentrated in the energy extraction and manufacturing sectors (Qader 2009). In contrast, Ekins (1999) found that the relationship between economic growth and the environment could be positive when the government pays more attention towards the environment by engaging this growth and subjecting it to the consideration of maintaining the environment (Kheder, 2010). The negative impact of environmental regulation on FDI has led to an increasing level of pollution emissions in the host countries. However, the linkage between GDP and the emissions could vary based on the types of pollutant and region.

From the above, it is obvious that FDI and foreign trade and their effect on pollution have an effect on environmental quality, albeit each contribution does not necessarily support PHH, EFH and EKC, and that trade assists economic growth, which, in turn, is an indirect channel of the effect on the environment. In addition, the environmental policies are a major factor in controlling pollution; in this context, income can positively affect most of the criteria for environmental efficiency (Lee 2005).

2.1.5 Research gap:

Most studies were concerned about the developed countries and diversified economies of the developing countries. This study analyses foreign trade and FDI and their effect on growth and emissions in GCC countries, which mainly depend on the oil sector as a major source of income. Through the literature, we note that most empirical studies were based on using total foreign trade as an independent variable. This study tests three independent variables that represent aspects of foreign trade: oil exports, non-oil exports, and imports of goods. The key motivation for this is to ascertain the role of each variable, and its effect on economic growth, and emissions in the GCC countries. Moreover, the gravity model approach has been widely used in terms of using the distance variable between countries. We use the variable of cost of transport instead of distance variable. The main reason for this is to test it as a measurable variable, and not as a dummy variable. In addition, many environmental studies have been based on the assumptions of the environmental Kuznets curve (EKC) to measure the impact of growth on pollution; such studies were conducted in respect of countries that applied a strict environmental policy. This study, however, will be distinguished from previous contributions in several aspects. The sample adopted for the dataset is related to the GCC countries whose unified economic policy focuses on enhancing the foreign trade sector and attracting more foreign direct investment as a major means for achieving a high level of economic growth. Accordingly, and in order to continue with the related literature, this study tries to link key topics – foreign trade, foreign direct investment, growth and carbon dioxide emissions. For this purpose and to achieve its main objectives, we will use two approaches; firstly, the analytical approach, which is enhanced by tables and figures. This approach focuses on analysis of the variables in the study, which will be used in the quantitative approach to provide a clear picture about the GCC economies during the period 1998 to 2008. Secondly, the quantitative approach is based on three models related to three essays. Through these two approaches, the author tries to obtain findings by theoretical and empirical means to obtain accurate conclusions, as well as to identify the policy implications to enhance the value of this study. Based on the above, the difference between this study and other related literature could be summarized in the following sense:

This study deals with an important bloc in the Arab countries and Middle East in general. It provides empirical evidence for the linkage between trade and FDI, and their impact on economic growth and emissions, as well as an assessment of the unified economic policy of the GCC countries and their economic reformation programmes, which have been adopted since 1981. Moreover, this study determines the real attitude of these countries and their world commitments in reducing emissions based on an examination and analysis of one of the most significant factors of air pollution in the GCC countries, as represented by carbon dioxide emissions.

Thus, it contributes to filling the gap empirically in respect of the oil economies by analysing foreign trade and FDI and their impact on growth and the emissions of GCC countries. It tests the cost of transport as a proxy for distance and analyses a measurable variable instead of a dummy variable. This contribution is to investigate the validity of the new trends of gravity models that indicate that the elasticity of trade to distance has declined due to the development of the transport system. Finally, this study examines the reality of the environmental policy of the GCC countries through an analysis of the most important factors of the increase in the level of carbon dioxide emissions in the GCC countries as a major cause of air pollution.

2.2 Methodology:

2.2.1 Introduction:

The methodology adopted is based on both qualitative and quantitative approaches, through an analysis of the data for the GCC countries for the period 1998-2008. This will be enhanced by tables and graphs associated with the analysis of the study. Second, the quantitative approach is reliant on a number of key independent variables that could affect the main topics of the study. Therefore, we will form a specific model for each essay in order to interpret the obtained results and link it to the analytical approach. All the data used is examined using two statistical tests – the Augmented Dickey-Fuller test (Dickey and Fuller 1979) to ensure the data is stationary, and the CUSUM test of stability (Hansen 1992; Lee et al. 2003). We found that there is no unit root, and that all the data are stable. The variables for all the models of study are located within the red lines (*Appendices "B" and "C"*). This study is based on three econometric models that comprise its core subjects: foreign trade, foreign direct investment, and growth, and carbon dioxide emissions. It is divided into three main essays. The first essay, consists of two parts, the first part will analyse the intra-regional trade for the GCC countries, in which we use the commercial density indicator (*Ci*) in order to determine the key markets in the GCC. After that, we will use the basic gravity model, in the second part of this essay for analysing the trade relations between the main economies of the GCC countries and other markets.

The second essay will analyse the relationship between the GDP of the GCC countries as a dependent variable with other independent variables, such as FDI inflows, FDI outflows, oil exports, non-oil exports and commodity imports. The main goal of using this model is to identify the effect of the said variables on the economic growth of the GCC countries over the period 1998-2008. The third essay will examine the relationship between air pollution, as the dependent variable, and FDI, GDP per capita growth rate, and commodity imports as independent variables. This model aims to analyse the impact of foreign trade and FDI on the air pollution measured by carbon dioxide emissions of the GCC countries for the period 1998-2008.

In addition, it is important to say that the three essays above are designed to prove or disprove the hypotheses of the study. The first essay concerns the first hypothesis of the study, while the second and the third essay relate to the second and third hypotheses, respectively. The study will rely on official data for the Gulf Cooperation Council (GCC), such as the Economic Bulletin for the Cooperation Council for Arab Gulf States, Joint Arab Economic Report, Statistics of the International Monetary Fund (IMF) and the World Bank (WB), United Nations Conference on Trade and Development (UNCTAD), and the Economic and Social Commission for Western Asia (ESCWA), as well as other sources on the subject of study. As mentioned previously, the study addresses three basic interrelated subjects; it will adopt a certain quantity of formula for each essay separately, as follows:

2.2.2 First essay – Trade and its main direction:

This essay is based on two aspects. The first is the analytical approach, which will rely on analysis of the data of the study to extrapolate the reality of the GCC economies for the period of study, 1998-2008. In respect of the intra-regional trade of the GCC countries, we will adopt a mathematical formulation (ESCWA, 2005) to measure and assess the intensity of trade between these countries in order to identify the reality of regional trade, this formulation is:

*Ci= {[XGCC – MGCC] / [X total +M total]} – {[XGCC + M GCC] / [X total + M total] * [X total – M total] / [X total + M total]}*

Where:

Ci: Intensity of regional trade of the country (*i*) with other GCC countries in the net total exports.

$XGCC$: Intra-exports from country (*i*) to other GCC countries

$MGCC$: Intra-imports from country (*i*) to other GCC countries

$X\ total$: Total exports of the country (*i*) to other countries, except GCC

$M\ total$: Total imports of the country (*i*) from other countries, except GCC

From the formulation above, if the value of (Ci) is positive, this means that country (*i*) has an intensity of exports with other GCC countries in comparison with other countries, and, vice versa, when the value of (Ci) is negative, the country (*i*) has an intensity of imports with other GCC countries compared with other countries. However, the country that has the highest index value for the intensity of trade over the period 1998-2008, will be adopted as the leading market of the GCC countries. The second matter in this essay is forming the gravity model to estimate the trade of the leading market with the other GCC countries. In addition, we examine the model of the GCC's leading market with other geographically distant countries. The main reason for this is to determine whether the distance and real GDP matter to the leading market and the other GCC countries, on the one hand, and, on the other, compare the result of this model with that of other non-GCC countries. However, the formula used is based on the following assumptions: first, there is a positive relationship between the level of GDP and the level of trade in the GCC countries, and, second, there is a negative relationship between the level of trade and the cost of transportation between the countries under study. Based on these assumptions, the major formula for the trade model and commercial relations between the GCC and other countries can be expressed as a function of real GDP, and the cost of transport between countries. It can be specified as follows:

$$TRD_{ij} = f\,(GDPj,\ Costij) \qquad (1)$$

Where:

TRDij: Value of total commodity trade from country *i* to country *j* over period *t*.

GDPj: Value of real gross domestic production of country *j* over period *t*.

Costij: Transportation cost rate between the capital city of country *i* and country *j*.

As is well known, this model is based on Newton's gravity equation, which states that the trade flows between two countries have a positive relation to the size of the economy and a negative relation to the distance between them (Insel & Muhmut, 2010). This essay will analyse the gravity of intra-trade of GCC countries, as well as selected non-GCC countries. However, selecting these countries is based on their volume of non-oil commodity trade with the GCC countries, as the main trade partners over the period 1998-2008. Therefore, we will use a basic a gravity model in order to estimate the trade flows for the period of study, as follows:

$$Log\,(TRDij) = a0 + B1\,log\,(GDPj) + B2\,log\,(Costij) + U_i \qquad (2)$$

where:

i and *j* : Denotes the countries

a: Constant

B1, B2: Are coefficients to be estimated

Ui: Error term

The modelling framework dates back to the common gravity model, where we aim to identify how much the size of the economy affects the trade flows in order to realize whether or not the geographical position has an impact in respect of the GCC countries.

2.2.3: Second essay – Impact of foreign trade and FDI on economic growth:

This essay relies on the neoclassical and endogenous growth theories, which confirm that FDI enhances economic growth by increasing the efficiency of investment, as well as leading to various technologies in the host countries (Romer, 1986). In order to determine whether the FDI has a positive or negative impact on the economic growth in the GCC countries over the period of study an empirical model is used. In addition, we add three independent variables representing oil exports (*Oilx*), non-oil exports (*Noilx*) and commodity imports (*M*). The addition of these three variables is based on the comparative advantage and endogenous growth theories. These theories indicate that the open trade policy promotes the level of investment and reinforcement sectors that have a comparative advantage in trade (Balasuberamanyan, 1996), where a more open trade economy allows a country to reorient factors of production to increase the level of GDP, and its growth. However, the results of this model will determine whether or not the GCC's economic policy has achieved its target. In other words, we will determine the reality of the economic policy of these countries over the period 1998-2008. This model focuses on the assumption that the commodity trade and FDI have a positive effect on GDP in GCC countries over the period 1998-2008. Accordingly, the main formulation could be expressed in the form of economic growth of GDP as a function of FDI inflows, FDI outflows, oil exports, non-oil commodity exports and commodity imports, as follows:

$$GDP = f\,(FDin, FDout, Oilx, Noilx, M) \qquad (1)$$

Where:

GDP: Real gross domestic product (Million USD).

FDin: FDI inflows (*annual change in assets*) as a ratio of real GDP.

FDout: FDI outflows (*annual change in assets*) as a ratio of real GDP.

Oilx: Crude oil exports (Million USD).

Noilx: Non-oil commodity exports (Million USD).

M: Commodity imports (Million USD).

Ui: Error term.

However, this model is built based on the neoclassical growth theory, which considers that the FDI is the most important factor for enhancing the level of growth via moving the capital and technology to the host country. However, these investments will promote the use of advanced technologies and increase the level of capital stock for the host country by financing capital formation (Brems, 1970). Therefore, based on this theoretical framework, the FDI inflow and outflow variables will be added to the model in this essay to investigate the effect of FDI on economic growth for the GCC countries over the period 1998-2008. The theory emphasizes that the technological development is a source of growth. Accordingly, in this study, if the FDI achieves economic growth, based on this theory, we can say that the FDI has a positive impact on the host country (Grossman and Helpman, 1991). In addition, the endogenous growth theory mentions that achieving economic growth is dated back to a permanent change in the physical investment and export shares (Dunning, 1993). However, based on this view we will add three independent variables pertaining to foreign trade – oil exports, non-oil exports and imports – to determine the separate effects. After adding the error term variable, the final model will be in the following form:

$$Log\ (GDP) = a + B1(FDin) + B2(FDout) + B3\ Log\ (Oilx) + B4\ Log\ (Noilx) + B5\ Log\ (M) + Ui \qquad (2)$$

Where: *a*: constant

B1, B2, B3, B4 and *B5*: coefficients.

However, using the above model, we also aim to extrapolate the view of Findlay (1978) who stated that FDI leads to an increase in the level of growth through technological progress to the host country via the so called “Contagion Effect” from the imported advanced technology. In addition, Rodney (2008) also outlined that the trade and FDI are the main channels for technology transmission across countries.

2.2.4: Third essay – growth, FDI, imports and their effect on air pollution in GCC countries:

This essay examines the effect of economic growth, FDI, and commodity imports of the GCC countries in order to identify their impact on air pollution represented by carbon dioxide emissions. Selecting the air pollution as a dependent variable comes from its major role in the environmental pollution of the GCC countries over the period of the study.

This model relies on the environmental Kuznets curve assumption (EKC) and pollution haven hypotheses (PHH). Moreover, we added two further variables, FDI inflows and commodity imports, to determine the impact of these variables on the environment in the GCC countries, where a positive signal of FDI inflows coefficients will confirm that the FDI inflows of the GCC countries have not used advanced technology over the period 1998-2008, and vice versa in terms of obtaining a negative signal. In addition, in respect of commodity imports, the model will examine the effect of these imports in terms of its relation with the environment. However, to indicate whether the GCC countries have taken into account the environmental consideration, the negative signal reveals that these imports are friendly to the environment, and accompanied by technological transfer, where it will embody its effect on pollution over the study period. The assumption of this model could be stated as follows – the foreign direct investment inflows and commodity imports have a negative impact on air pollution in the GCC countries. In addition, the GDP growth rate has a positive impact on carbon dioxide emissions in the GCC countries over the period 1998-2008. Therefore, the air pollution model will be specified as a function of per capita GDP growth rate, foreign direct investment inflows and commodity imports, which can be expressed as follows:

$$Air = f\,(GDP, FDI, M, Hth) \qquad (1)$$

Where:

Air: Air pollution measured by carbon dioxide emissions. (Thousand Metric tonnes)

GDP: Real gross domestic Product (Million USD)

FDI: FDI inflows (*annual change in assets*) as a ratio of real GDP.

M: Commodity imports, measured as a ratio of total commodity foreign trade.

Hth: Environmental awareness measured by health expenditure as a ratio of real GDP.

It is worth noting that the conceptual framework of this model is based on the earlier studies that concentrated on the relationship between pollution emissions and economic activities, especially that achieved by economic growth as generated by the industrial sectors and foreign direct investments (Grossman and Kruger, 1991). However, in the early 1990s, they showed that the linkage between emissions and growth followed an inverted U shape. According to this view, we have built the model below in which we consider air pollution as a function of the GDP, and FDI as an independent variable that reflects the economic activities and its growth. Furthermore, we added the commodity imports variable based on the idea that imports will not reduce growth (Jeffery et al. 1999). Therefore, we aim to investigate whether or not the imports of the GCC countries have caused an increase in the level of pollution. However, we can see the import and FDI variables as external factors for economic growth, while GDP represents an internal variable for growth; the model can be described in the final form as follows:

$$Log\ Air = a + b1\,(GDP) + b2\,(FDin) + b3\,(M) + b4\,(hth.) + ui \qquad (2)$$

Where:

a: constant

$b1$, $b2$, $b3$ *and* $b4$ are coefficients to be estimated

ui: error term

2.3 A conceptual framework of study:

2.3.1 Introduction:

As known, foreign trade is considered to be an important factor that enhances the development process as well as economic growth. The economic history, which refers to economies that have focused on the role of foreign trade, was started in the seventeenth-century, when mercantilism considered that trade was a source of state power. In addition, in the eighteenth and nineteenth centuries until the present time, foreign trade is still considered a critical issue. Hence, several theories have emerged that aimed to explain how to maximize the role of trade in order to achieve high economic growth. David Ricardo and Adam Smith laid the foundations for the classical theories of foreign trade at the end of the nineteenth-century and the beginning of the twentieth-century, which were deemed acceptable at that time.

Subsequently, the neoclassical theories for foreign trade appeared as an alternative to the classical theories, for which Heckscher and Ohlin are the most memorable owners of these theories. However, when trade and its policies emerged in the modern theories, Krugman and Vernon emphasized the importance of free trade and the role of the state in activating foreign trade and its effect on enhancing economic life and achieving consumers' needs. In this chapter, the researcher reviews the stages of the theories of foreign trade, classic, neoclassic and the modern theories to shed light on their importance in explaining the role of foreign trade and the factors that led to the adoption of these theories. In doing so, the more logical theories that could be practically applied for maximizing the role of foreign trade for the present time will be identified.

However, foreign direct investment and its theories will also be addressed to set a background for this study. Furthermore, it analyses the role of FDI between countries and its effect on economic growth. In addition, to address the impact of FDI, foreign trade and economic growth on air pollution in the GCC countries, the last essay will focus on the air pollution issue represented by carbon dioxide emissions.

2. 3.2 Foreign Trade and its theories: an overview

Emerging economic theories seek how to gain the highest degree of economic welfare, by engaging available resources, in which the best means of exploitation is the key factor in maximizing the level of value added. In this context, the economic theories focus on the principle of specialization and labour division, as advocated by Adam Smith in his famous book "The wealth of nations". Smith outlined how the economic system shifted from barter to the trading system, and then turned to the idea of specialization and division of international labour. Adam Smith believed that the transition in the trade system leads to an increase in production level, and then economic surplus.

However, the subject of foreign trade and its role in economic development began with the era of trade in the seventeenth-century, when it was considered the proper way for getting more precious metals as the main source of state power. Moreover, the classic economists paid more attention to foreign trade throughout the eighteenth and nineteenth centuries, and until now, foreign trade is still an important way of improving the level of economic growth. In addition, it is considered a substitute for factor movements; this idea dates back to the early twentieth-century where it was based on the factor endowment theory of foreign trade by Heckscher and Ohlin (Heckscher 1991).

In addition, other models, stressed the role of imports in improving the level of economic growth, where capital imports can lead to economic capacity, and could be achieved through providing production sectors in different capital goods, and then improving the level of domestic investments, which means improving the level of capital assets and economic growth (Darid, 1964). During the 1960s, several models of economic growth emerged that were based on the foreign trade sector as a good stimulation for achieving economic growth. They focused on exports as the most active factor. In this context, the most important models were based on two main components: fixed capital formation as a major factor of economic growth and foreign trade. However, these two components experienced some obstacles, which hindered the accumulation of fixed capital formation (Strout. 1960). These restrictions created a trade gap and generated a differential between the level of imports and exports, with an increasing level of imports of various goods against a declining level of exports, particularly in developing countries.

Based on the above, we see that the role of foreign trade in developing economies can be generated by using export revenue as an important source of income in financing the needed imports, especially the capital goods that enhance the economic development process of these countries, in which foreign trade is an independent variable that affects economic growth. In this context, we note that when foreign trade becomes the main source of income, especially in countries that depend too much on exports, it implies that some growth models are not applicable for developing countries, such as the Harrod - Domar model, due to the income level not being generated domestically and being directly linked to foreign trade, particularly commodity exports. However, in another way the country will have greater ability to exploit such revenue in increasing the level of investment, and then achieving economic growth (Hirshman, 1985). Moreover, most developing countries started their development process at the time when their local markets were not integrated. In contrast, these markets were linked to international markets by exporting raw materials, and, in turn, importing various goods that have a negative effect on the terms of trade of developing countries. However, many of these countries have adopted economic strategies in order to reduce the level of imbalance and mitigate the effect of fluctuations of the international market. Therefore, two known strategies emerged – the substitution import strategy and the export promotion strategy. In both strategies, foreign trade is subject to the condition of the international market and the level of economic progress. Hence, many developing countries have adopted the substitution import strategy due to the significant role of this strategy in covering the trade deficit and shortage of production, and where improving the level of production is a key factor in increasing the export level and addressing the imbalance of its structure. Therefore, the implementation of this strategy helps to diversify the economy and enhance the level of linkage with other sectors, which, ultimately, leads to creating many job opportunities, as well as the level of income and economic growth.

From the above, we see that this strategy requires a good economic policy because trade expansion by this policy may lead to a decrease in the level of foreign exchange in the first stage of the development process, which has a negative effect on economic growth. However, the impact of foreign trade on economic development and structural change reflects the redistribution of economic resources towards producing various goods that have relatively low cost. In addition, the significant role of foreign trade in developing countries has encouraged development strategies based on manufacturing for exporting in order to adjust the imbalance in the terms of trade by enhancing the level of production and achieving extra resources for income. Foreign trade is also considered a good motivation to import advanced technologies that replace the disadvantaged technologies, through which the role of foreign direct investment (FDI) emerges.

However, we see that the activation of foreign trade is one of the sources of capital formation, where achieving an increased level of capital accumulation can happen in two ways. First, foreign direct investment in industry sectors, such as iron, steel and machinery, and, second, importing capital goods from developed countries, through which the role of foreign trade emerges, because developing countries cannot meet all the capital needs of their domestic markets as a result of inadequate local productive capacity. Therefore, the rate of fixed capital formation in these countries depends on their ability to import various capital goods in order to compensate for the lack of production capacity. Thus, foreign trade is considered a major factor in determining economic growth in general. In this context, Lewis (1955) reported that if developing countries target to accelerate the growth rate by 6 per cent annually, the capital imports should be growing at a rate of 8.7 per cent annually. This mechanism requires a growing level of exports at the same rate to create a balance between the exports and imports. Moreover, the level of foreign trade grows faster than income growth in the early stages of the development process because of the increased requirements to meet the needs of new projects. In addition, this means importing capital and intermediate goods, as well as raw materials, which are considered essential to support the level of domestic production. In contrast, achieving a high level of economic growth leads to an increase in the level of per capita income, and then raises the level of consumer demand, which induces increasing foreign trade activity. In addition, the role of foreign trade in developing countries is embodied through supporting balanced economic growth, especially in countries that suffer from inherent low growth. As well as the weak linkage between economic sectors because of dependence on a small number of production branches, the foreign trade helps in adjusting the structural imbalance by stimulating local and foreign investors to exploit comparative advantage. This leads to the production of extra goods, an increase in the level of productivity and raises the possibility of exporting the surplus production to other markets, and, in turn, the import of various goods. In other words, foreign trade gives greater economic freedom, and encourages the country's master plan towards comprehensive economic progress. Therefore, a sound economic policy is a key issue, especially in the short-term of development, to mitigate the problems that hinder encouraging the role of foreign trade and increasing the level of products in order to raise the level of exports and economic growth.

In addition to the above, we see that the role of imports emerges in the long-term by providing the domestic sector with various capital goods, as well as other consumer needs. This means that the role of imports in the long-term will lead to an increase in specialization followed by a rise in the level of job opportunities and labour productivity, which are considered crucial factors in expanding domestic markets and enhancing economic growth (Linsel, 1967). Moreover, the problems that hinder trade and economic growth in developing countries are linked to the lack of advanced technologies. This issue makes some countries, such as African countries for example, focus their efforts on attracting advanced technologies and expertise in order to engage their own economic potential and enhance the level of growth and foreign trade.

In conclusion, we find that the barrier of development process and constraints of importing advanced technologies are the main challenges faced by developing countries. These factors hinder improving economic capacity, and then have a negative effect on economic development. Although many of these countries have local potential, the shortage of technology plays a significant role in restricting these economies. However, the open economic policy is a key factor in solving economic problems through the adoption of suitable strategies and reforming of economic rules related to investment. Attracting foreign investors is important for exploiting the available resources and bringing advanced technologies, which have a positive impact on enhancing the scale economies that gradually lead to a diversified level of production and reduction in the shortage of economic capacity.

2.3.3 Theories of foreign trade:

In the late eighteenth- and the beginning of the twentieth-century, Adam Smith and then David Ricardo set up rules and fundamentals for foreign trade as part of their efforts to promote free trade, in which they respond to prevailing mercantilists. The classical theories were accepted by policymakers for about one century (Thomas A. Pugel, 2004), in which the classical economists called for free trade because of its benefits for all countries. However, they believe that foreign and domestic trade encourages full competition, an assumption that is not practical.

In fact, the liberalization of trade between countries is an important issue for enhancing commercial relationships, as well as for encouraging competition between all traders. The theory of international trade witnessed a little improvement in the 1970s and 1980s. The basis of comparative advantage, which was laid by David Recardo in 1817, provides an explanation and clear reason for encouraging free trade between countries. His claim became more acceptable when many countries started taking into account that all trade restrictions cause damage to all parties. However, since the 1980s, the modern theories of the international trade have emerged, which, primarily, are based on the former classical theories in order to be viable. The new theories propose that there is no presumption for free trade, in that it cannot be entirely derived from the simple recipes of the classical theory. This proves that full competition does not exist in the capitalist economies, and, thus, they refute the idea of the liberalization of foreign trade.

Classical theories for foreign trade; The Absolute Advantage.

The classical economists were concerned with foreign trade, and they decided that the cost of production of goods was determined by the value of the work undertaken in its production. In this way, the factors of production were turned to produce goods that had high work value, and neglect the production of other goods in which the final value is less than its work value. This theory was built based on factors that moved production from one industry to another.

Adam Smith reported that foreign trade is an important factor in exploiting the surplus of domestic income in order to overcome the problems of narrow markets. He confirmed that foreign trade stimulates the increasing level of production, which is export oriented. This means that the state will benefit from specialization and labour division. However, in his book, "The wealth of nations", Adam Smith identified a number of criticisms to refute the views of mercantilism and the opinions that consider gold to be an important source of wealth. He illustrated that gold is not wealth, but that the obtained income from produced goods and services are based on the gold price in terms of increased or decreased value. According to this view, Adam Smith formulated the basis of the economic policy (Thomas, 2004). He believed that the specialization and division of international work for the production of certain commodities characterized an absolute advantage, and that this was a sufficient factor to establish foreign trade between countries that have different absolute advantages in the production of other goods, in that this encourages commercial relationships between all countries.

Next, the theory of absolute advantage stressed the liberalization of foreign trade in order to increase the wealth of each country, and confirmed the various barriers to foreign trade, such as tariffs or full prevention of imports. These restrictions have narrowed the size of international markets. In this respect, Adam Smith assumed that restricting imports is considered a tool for protecting infant industries. Moreover, he explained in his theory how imposing a tax on imports affects the local economy and causes enormous damage resulting in a deflationary impact of the amount of imported goods that are subject to taxes. The effect of this extends to an increase in the level of demand for goods, which are domestically produced, and leads to higher prices for the domestic goods.

Finally, and according to the opinion of Adam Smith, we note that the cost of production is a key factor that determines the level of foreign trade, where production with high cost and imposing customs duties does not encourage the producers to increase the level of production. This leads to a decline in the level of gross domestic product (GDP) and a drop in the level of exports as a result. In this context, the role of the state and its policy emerges, where if it allows foreign investors to compete in the industries that produce in high cost, this stimulates all parties to produce at low cost and encourages them to invest in sectors that have absolute advantage, which in turn, leads to an increase in the level of production. Therefore, we note that the open economies and free trade policy between countries achieve high economic benefits, which are represented by an increasing level of output and welfare in general.

Theory of Comparative Advantage (David Ricardo)

David Ricardo founded the theory of comparative advantage in 1817. This theory remains the core of the argument for preferring foreign trade freedom. Its essence can be explained by the following simple example; imagine a doctor who engages a gardener in his garden based on the assumption that the doctor does not have enough time for gardening, because there is a demand for his work as a doctor, but he is also a good gardener. The question is: why does this doctor engage the gardener? The answer is, his work as a doctor has greater value if he continuous as a doctor, and engages another person in his garden. This is the essence of the theory of comparative advantage (Dominick et al. 1977), in that the benefits will be maximized, individually and at the level of a country. In addition, David Ricardo was not concerned with the role of scale economies as the main reason for foreign trade, as this view is unable to explain the large trade flows between countries that have a high level of GDP (Davis, 1995). He confirmed that the differences in the comparative advantages between countries is the main cause of foreign trade, and, therefore, that all countries can benefit from trade (Baldwin 2008, p2).

Based on the above, the liberalization of foreign trade will maximize economic growth by achieving benefits for all trade countries, through which each country tends to trade with countries that have a different comparative advantage. Therefore, this theory has emerged to justify the main reason for the adoption of free trade. The most important question is: what is the source of differences between countries? In this regard, David Ricardo reported that the differences in comparative advantage between countries were attributed to labour productivity in different countries, specifically the labour cost, which determines the value of products. Therefore, those countries that have high labour productivity tend to gain a comparative advantage in producing products that characterize advanced technology, and vice versa in countries that have low labour productivity, in that these countries tend to produce goods that need low technology.

In conclusion, we see that the theory of comparative advantage has emerged as a key economic theory explaining the available benefits obtained by foreign trade. In addition, this theory considers the significant gain of the modern theories of foreign trade, because it encourages the liberalization of trade. Moreover, the protection theory needs government intervention when the local economy adopts this policy in order to increase the production level and then expand domestic markets via their integration with other markets; for example, when many countries form an economic bloc such as ASEAN, EU, NAFTA, and GCC. However, enhancing the level of trade relationships needs a proper economic policy that targets improving the level of intra-regional trade. In this context, some economic blocs have established a joint market like the European market, which achieved an increased level of foreign trade between member countries. This shows the successful efforts of these economies in reinforcing their trade relationships, as well as improving the level of economic growth as a result of adopting a sound economic policy.

Theory of Reciprocal Demand (Marchal - Edgworth)

The main idea of this theory is that when one party produces and trades in commodities they in fact represent the demand of another party. In addition, the supply of other commodities produced is also a demand for those goods produced by the first party, where the level of trade is determined as a result of the convergence of demand of the parties by the confluence of reciprocal demand.

Alfred Marchal analysed the basic idea of this theory, and Edgworth completed Marchal's efforts through which the efforts of both the price of foreign trade can be determined. They found that the classical theory failed to explain the features that characterized the modern international trade, especially after World War II. This can be summarized as follows: First, declining productive specialization that placed by classical theory of international trade, where, at the present time, we note that the car exporters in industrialized countries are also the biggest importers of cars that are manufactured in other countries. Second, the growth in the level of goods and services has not prevented the movement of foreign trade and capital flows, in that many countries specialized in production in industrial branches that depend entirely on imported resources. For example, Japan has a scarcity of natural resources, but witnesses a high movement of capital flows around the world by multinational corporations.

In addition, the modern theories of international trade consider that technology is based on other elements of production and other technology, which are distinct from other elements of production. Therefore, technological progress is a permanent component for increasing production efficiency based on the competition of foreign trade. The investment firms and countries are concerned about obtaining the technology due to its role as a significant agent that improves the level of its competitiveness towards other countries in order to enhance the production level in terms of its quality and quantity, which support the level of foreign trade and economic growth.

Neo-classical theories of foreign trade:

These theories emerged as a result of criticism that involved the classical theory of foreign trade, as a simple and illogical theory. The most important of these theories are as follows:

Theory of Relative Factor Endowments: Heckscher - Ohlin

The classical theory showed that the reason for foreign trade is attributed to the differences of the relative expenditure to the production of goods, but did not explain why the relative expenditure is different from one country to another. Heckscher analysed this reason based on the assumption of the classical theory. In 1933, Ohlin focused on the impact of free trade due to its role in income distribution among countries, where relative factor prices would move in the direction of equality between trading countries that had the same technologies. Moreover, Ohlin's view takes into account the impact of the changes that occur on such determinants as the relative quantities and qualities of productive factors, technological progress and the consumer preference in each country. He analysed the dynamic implications of these factors on the quantitative and qualitative nature of the determinants (Baldwin 2008).

However, Ohlin refuted the classical assumption in terms of considering the work as the basis of commodity value, in that he considered the price and production factor price a key issue in analysing the reasons for foreign trade. He considered that foreign trade is not based on the inequality of the ratio of production cost, but based on the inequality between the prices of the production factors that affect the prices of the produced goods. The importance of this theory emerged when Ohlin applied it to the price theory by using the theory of supply and demand on foreign trade. He noted that the reason for foreign trade between countries is due to differences in the prices of goods resulting from the different prices of the production factors, which he attributed to the circumstances of the countries in terms of the abundance or scarcity of these factors. However, it effects or determines the level of the produced goods and encourages countries to specialize in the production of certain goods in which they have an advantage in the production thereof. This feature, achieving economies of scale, which could result from engaging abundant factors that support producing large quantities for trading with other countries, is considered to be the major basis for foreign trade between countries.

In addition, the view that considers that the work is a key factor of commodity value is not accepted. Accordingly, in 1933, Heckscher-Ohlin suggested that the opportunity cost between countries occurs when one country has unskilled labour, and another has a lot of stock of productive capital (Robert et al., 1995). In this way, the first country has a comparative advantage in producing labour intensive products, while the other country has a comparative advantage in producing capital-intensive products. Hence, the specialization will redirect the foreign trade between countries accordingly. However, we see that the theory of Heckscher-Ohlin is based on two main issues – that countries converge with each other in the composition of their factor endowments, and thus the production of these countries reflects the level and pattern of their endowments. In this way, the foreign trade stimulates the producers of these countries in the production of those activities that engage the available resources which distinguished in competitive factor prices.

From the above, we see that the Heckscher-Ohlin theory is a more logical theory compared to the other classical theories. However, it also proposes an unacceptable assumption in that it supposes that the economy has full-operation. In addition, it is based on the feature of comparative advantage in the specialization of countries in the production of certain commodities, while the practical situation is that most of the world's trade occurs between developed countries that trade in relatively similar products. However, the real situation refers to when a country becomes richer with an expanded level of economic diversification and economic growth, in that the total demand will be more a result of the increasing level of income; such a case will lead to an increasing level of trade between developed countries. For example, many people in rich countries prefer Japanese cars than the cars produced in their own countries.

Moreover, the most important contradiction against the Heckscher-Ohlin theory is called the "Leontief Paradox". This theory emerged through the study of Leontief in 1954, when it was found that the US exports are much intensive work, while the US economy has a comparative advantage in capital. Leontief's study refuted the assumptions of the Hechscher-Ohlin theory, in that there is no evidence that the US is a developed country in consideration of the relative factor endowment theory (Minabe, 2007). However, the reality is opposite, as the USA is known to have abundant capital. However, foreign trade is still the main stimulation of the increasing level of economies of scale, in that it has a significant role in the expansion of the foreign markets, and then in the reduction of the production cost in the long-term. In addition, foreign trade enhances the possibility of supporting competition between countries that produce similar commodities, and achieving large production, which provides a good motivation for reducing the costs in that the competitive situation seems to be desirable at the lowest prices (Minabe, 2007).

In conclusion, the classical theory of international trade focuses on the availability of capital, but has not paid much concern to the role of technological progress, and the accumulation of human capital in generating economic growth. It considers that the differences in technologies is attributed to the comparative advantages of the resources of the countries, in that countries that have abundant capital will continue producing capital intensive industries, and vice versa in the case of countries that have a large labour force.

Modern theories of foreign trade:

Product life cycle theory and international trade: Vernon

This theory is based on technological invention, focusing on new products and its stages. Vernon reconciled between the evolution of commodity nature, and the length of its session, on the one hand, and the progress that occurs in foreign trade, on the other. He reported that a commodity passes through four stages – the emergence, growth stage, maturity stage, and then the declining stage. Vernon determines that in the first stage, the goods have intensive technology and that production on a large scale requires significant investment intensity. In the maturity and declining stages, the commodity will be widespread, which leads to neglect by its parent company, which leads to the country of origin importing it from other countries. However, Vernon implied that the last two stages are the main reason for the increasing level of foreign trade between countries. While in the first and second stages, the commodity is exported by the original country, where the parent company has a monopoly in producing goods and exporting its production to different countries (Robert et al. 2001). Therefore, we see that these four stages are attributed to the inventing company, which gradually abandons the production of that commodity during the last two stages because of its orientation towards producing new goods after the demand reaches saturation point and demand emerges for new kinds of goods.

From the above, we see that this theory seeks to link between the determinants of technology and foreign trade as a key driver in guiding foreign investments and then its impact on trade and growth. Therefore, the foreign trade between industrial countries is governed by technological factors. In other words, the technological gap between corporations is a major issue in determining the level of monopoly and producing a new product by controlling its advantage for a certain period by exporting it to many countries. This continues until the emergence of another company that is able to compete with the original corporation with the monopoly in the production of the same products, but by more advanced technology. In this case, the new technology is considered to be a new comparative advantage.

According to the above, we conclude that the determinants of increasing the level of international trade depend on the technological gap between countries, in which, practically, developed countries export goods that have intensive technology. In addition, we can say that this theory is logically accepted because it is supported by considerable evidence. For example, in the real situation, electronic industries, such as computers, started in the USA before spreading to the UK, Germany, and Japan, where they gradually expanded to include developed and developing countries like Taiwan, South Korea, Hong Kong and others.

Finally, this theory has success in its applicability to certain products, but it is also difficult to apply to some kinds of goods like “boast cars”, such as "Rolls Royce" or another good that is difficult to produce in other countries. Moreover, this theory provides an explanation for the monopoly behaviour of the producing corporation and its tendency to obtain benefits from the host countries by exploiting the feature differentials of production cost and prices, or by using the facilities introduced by the host countries, which may have a negative effect on the role of customs protection procedures imposed by the host countries in order to protect its imports.

Theory of imperfect competition and trade between the branches: Krugman

This theory focuses on the branches of production that produce similar commodities, where it shows that the production of closed economies is done by one monopoly in each country. While in the open economies, may there are two companies which are belong same country are specific to produce similar commodities in the case of existing free trade with other countries. In this case, each company will seek to gain an important part of the market of the other countries, and, then, this model will be as a duopoly between two companies, where the balance between them will be achieved when the two companies own half of the market share of the partner country.

This theory is considered as a starting point of the modern theories established by Krugman in 1987. The important issue in analysing the modern theories is that the perfect competition considers unreasonable assumption (Krugman, 1987). Moreover, Krugman reports that any suggested form of foreign trade is targeted to be one of the major benefits of foreign trade in the practical situation, as well as the establishment and expansion of foreign markets that support the gain and profit of the producers from economies of scale, more than facilitating trade between countries. However, economies of scale will stimulate producers to increase the level of products, which lead to an increase in the level of competition. This dynamic induces a reduction in the level of cost production in order to dominate the market, where, practically, a small number of big companies has control of a significant share of production and foreign trade. Hence, these companies usually create barriers against new competing companies (Rudiger, 1985). Therefore, the modern analyses suggest the protection of small companies for a period to allow them to grow and to be able to compete with big companies at the level of international trade.

From the above, we identify the significant role of government intervention for enhancing the level of foreign trade and improving the terms of trade in order to protect the economy against any fluctuations that may occur internationally and negatively affect the economy. Therefore, full free trade is not desirable in countries that have not reached economies of scale. In this case, the government role is a key issue to sustain the level of economic stability and growth. In other words, the economic policy is the main determinant for achieving a successful trade policy and its major targets in increasing scale economies by enhancing the level of industrial production and then increasing income revenue, where economic policy can lead to economic growth based on the commodity sector. In this context, there is an ongoing debate concerning whether or not the modern theory leads to a restriction in the freedom of foreign trade. In this regard, we see that there are a number compelling reasons that hinder foreign trade, where it is not considered the main target. However, adopting a restrictive trade strategy is still considered a significant way in the case of uncertainty in order to ensure the success of the economy and the production sector in a country, especially in conditions of instability. However, the government should consider several steps to save the level of the economy and foreign trade within a suitable situation of economic stability.

2.3.4 Foreign direct investments:

Foreign direct investment (FDI) implies the transmission of foreign capital from the parent country to other countries in order to invest directly in various sectors – industrial, constructional, agricultural and others – where the profit is the main motivation that drives and directs these investments (Hassan, 1997).

In addition, both the International Monetary Fund (IMF) and the Organization for Economic Cooperation and Development (OECD), defined FDI as an investment inside a country that is controlled by the original owners in another country. The IMF suggests in its definition that the property of foreign investors in a host country should be more than 50 per cent to be considered as foreign investment, as well as having effective control over all the policies and decisions concerning the projects (AIECGC, 1999)[*].

The major reason for attracting FDI is to expand the exploitation of domestic raw materials, obtain advanced technologies, as well as to engage in the comparative advantage via using the available resources to increase the level of production and then foreign trade. Accordingly, we see that the multinational corporations have played a significant role in the development process of the host economies. For example, FDI has led to the improved level of industrial exports in East Asia countries, especially in Singapore, Malaysia, and South Korea. This implies that the FDI is a suitable way for raising the level of efficiency in the host countries, improving productivity and creating the ability for reaching more competitiveness in international markets. In this context, the IMF (1994) indicated that the FDI in the host countries that adopted a strong protection policy towards its imports achieved an increasing level of export-oriented, more than countries that adopted a weak protection policy. Moreover, FDI may affect the balance of payments, in which its impact is determined by the system of exchange

[*] The Arab investment export credit guarantee corporation.

rate in the host country. In the case of an existing flexible exchange rate, any imbalances that occur between the supply and demand on foreign currencies are corrected by adjusting the exchange rate, where in the case of increased demand, the economic policy will reduce the exchange rate. In contrast, in respect of the fixed exchange rate system, the net increase in demand for foreign exchange resulting from foreign direct investment leads to a reduction in the surplus, with an increase in the level of deficit of the balance of payments.

2.3.5 Theories and motives for foreign direct investment:

The classical theory:

This theory assumes that foreign direct investment achieve significant benefits, but that these benefits mainly revert to the investing companies. This assumption is based on a number of reasons, as follows:

The volume of foreign capital flows to host countries is too small and this type of investment is not acceptable.

Some foreign corporations have a negative impact on state sovereignty and political independence, via reliance of the host economy on the technological progress of foreign countries, in that there is a possibility that the multinational corporations of these countries will put pressure on the government of the host country, and may lead to political dependency.

The technological transfer by foreign investors does not fit the requirements of the host economy. The major profits of foreign corporations will transfer to their parent countries. This means that the obtained profits are not invested inside the host country, where there is no linkage between the foreign investors and the local economy of the host country.

From the above, we see that these assumptions are not considered a main justification for refusing foreign direct investment because the current practice situation is opposite to these assumptions, in that many countries have realized the importance of FDI and its benefits in general. Therefore, avoiding the negative effects that have been assumed by this theory depends on the role of the host country and its negotiation power against the foreign companies in terms of its conditions for using advanced technologies. However, the host economy can impose that as a key issue for attracting FDI and exploiting the comparative advantage of the host economy in order to achieve a high level of production and then enhance the level of value added and economic growth. Moreover, improving employment opportunities, human resources and encouraging domestic investors to participate in joint productive projects. Hence, imposing conditions such as these could circumvent the hypotheses of the classical theory in this respect. Regarding the assumption that tackles political dependency, we can say that this assumption has become very weak in the era of globalization and large economic openness between most of the countries. In other words, this assumption is not acceptable practically, in that its application implies preventing the integration of the economy with other economies and remaining in a vicious circle of underdevelopment, and depriving the economy of the benefits from the development that occur globally via the role of FDI in enhancing the level of technology and economic growth in general.

Modern theories of foreign direct investment:

These theories are based on the basic idea that the host country and the investing company share a common relationship, and that both benefit from each other to achieve the desired goals. However, the size of the revenue earned by each party depends on the policies and strategies of each. The supporters of these theories see that the foreign direct investment in the host country helps to achieve an optimal exploitation of domestic resources thereby enhancing the economic linkage between the production sectors, activating foreign trade and economic growth, as well as expansion of the markets and commercial relationships with other countries.

Theory of imperfect market:

This theory agrees that the competition is one of the most important factors that supports companies in achieving their targets. Companies that are not able to compete in the market against other companies will be forced to get out of the market. This is based on the assumption that could be summarized in the absence of perfect competition in the market of the host countries (UNCTAD, 2003). In addition, the domestic economies of the host countries suffer from a shortage of goods supply, and the local companies in these countries do not have adequate capacity compared to the foreign companies. They cannot compete with them, especially in respect of skilled administrators, technological progress and financial capacity, in that these factors are major drivers of foreign companies that encourage them to invest in developing countries.

In addition, and regarding the competition case assumed by this theory, we see that this competition will reduce the capacity of other multinational companies to influence the market, and cause a drop in the level of competitive advantage with other multinational companies in the host economies. Moreover, multinational companies will have benefits through their linkage with the local economy of the host country, and owning some assets, in that these factors will distinguish the foreign companies from the domestic. In other words, we can say that the main motivation for taking the decision to invest in developing countries concerns the monopoly feature that the foreign companies obtain in these economies.

However, there are two main determinants of FDI – the owning advantages by corporations of vital activities, and the removal of the competition (Hymer, 1976). This view shows that FDI only takes place in where the relative cost of the host country is less than the country of origin. Therefore, the benefits of exploiting will be maximized abroad. This means that the FDI flows will be attracted due to the market imperfections. However, in this respect, (Dunning et al 1985) outlined that the internalization of the market is a natural reaction of FDI and its MNEs in respect of the market imperfections. This feature leads to engage the available resources of the host country, which is considered the main manner to develop the host economy through following planned strategies to achieve long-term growth. In addition, when foreign companies are able to compete with their counterparts in a host country, this implies a new advantage resulting by imperfect competition due to the product differentiation. However, there is an imperfect competition in the factor market, such as access to proprietary knowledge. These advantages would support foreign investors in supplying the foreign market by way of FDI, especially in developing countries instead of through direct exports (Hymer, 1976).

In addition, doing foreign investment is a result of the monopoly feature, which own by foreign corporations, in that these specific advantages achieve higher marginal profitability (Dunning, 1980). This means, that the lower marginal cost is the main motivation for shifting investments from the developed countries to the developing ones. Dunning classified the specific advantages into three types: monopoly advantages through ownership of available resources, technology and economies of scale. Behrman, (1972) outlined four kinds of FDI flow, through which the investments are attracted by the available resources in a host country, low cost labour and skills. The first type is called resource-seeking FDI. The second type is efficiency-seeking FDI, which is based on the comparative advantage of a host economy, and the third is market-seeking FDI. Lastly, strategic assets-seeking FDI, which is driven by the strategy of the MNEs; however, the FDI flows, are strongly based on the rates of return which encourages the foreign investors for doing their investments in the host countries. Therefore, and to attract more FDI, a country can create an incentive FDI policy, which is an important factor in increasing FDI flows. However, we see the necessity for the existence of a sound economic policy in order to achieve more benefits for the host country (Suzana 2008). Thus, we see that the emergence of multinational companies in their parent country, and their investments in developing countries occur when there are significant variations in the products of these companies compared with the products of the host countries, and where the foreign companies have good management skills and advanced technologies that give these companies high superiority over the companies in the host countries. In other words, multinational companies are characterized by the monopolistic feature in the host economies, which can be summarized as follows:

First, the technological features, which support the ability of foreign companies to create new kinds of commodities and products, improvements and diversify the level of production according to consumers desires. Second, the financing feature; this feature includes extensive use of capital equipment and machinery, as well as the ability to bear and experience commercial risks by diversifying the investments as much as possible. Third, the organizational feature, where their high administrative skills are not only in management, but, in addition, the multinational companies can lead to the transfer of important knowledge via holding training programmes for human resources in the host countries.

Hence, we find that this theory assumes implicitly that multinational companies have full awareness about the opportunities of foreign investment in the host economies, where this assumption is not logical practically. Moreover, this theory does not provide an acceptable explanation about the style of investment in the host countries in terms of its owning absolute projects or sharing contracts with domestic companies of the host countries. However, the reality of this theory in achieving targets of multinational foreign companies will be determined by the flexibility of the conditions and customs procedures of the host economies. Moreover, the ability of foreign companies is also dependent on exploiting the real feature of the imperfect theory in order to achieve a favourable investment, which can positively affect the level of economic growth in the host countries, and obtain high profits to continue to compete with other foreign companies.

Theory of protection:

This theory emerged as a result of the assumptions of the theory of the imperfect market. It assumes that optimum exploiting of trade opportunities and foreign direct investment cannot be achieved by unequal competition between foreign and domestic companies in the host countries, in that the success of multinational companies in achieving their targets is dependent on the role of the developing countries in imposing their conditions and rules in order to have a positive effect on freedom of trade, investment, and other related activities in general.

The protection policy implies that some procedures are taken by multinational companies against the host country to ensure there is no leakage of its recent innovations in the areas of production or management towards the markets of the host economy over a certain period (Romer, 1997). This policy will enforce the host countries to open new outlets to attract foreign direct investment. Therefore, this policy targets maximizing the benefits of multinational companies and their revenue via their monopolistic feature. This means that these companies have control of significant protected activities, such as advanced research, development technologies and new marketing methods. However, this theory largely focuses on the benefits of multinational companies in order to preserve their assets, especially experience and new innovations that serve their excellence. These companies are more concerned about sustaining their required protection and then achieving their core targets, which concentrate on internationalization of their investments.

Accordingly, we see that the theory of protection focuses directly on the motivation of protection, where the multinational companies attempt to be the key party in the decision-making process within the parent company. Moreover, this theory does not consider the role of the government of the host country and its regulations against foreign investors. However, implementation of the required protection can be achieved by following alternative methods that are available, and have more effect than the protection process. For example, nowadays there are many rules for protecting various kinds of patents in the world, as issued by United Nations and other international organizations, where there is no practical justification for multinational companies in introducing their own process to protect any economic activity.

In conclusion, we can say that there is no ideal theoretical view for specifying a certain theory because there are many factors that affect the decisions of foreign investors, both in terms of multinational companies or the host country. It is very difficult to apply all the theories practically. In general, we find that the determinants and motivations of FDI are considered as a core outcome that results from the contribution of the aggregate of previous theories in this respect. We can summarize these determinants by the factors associated with the imperfect market in developing countries, and the desires of multinational companies to overcome the constraints that are related to trade and the markets of the host countries.

2.4 The relationship between foreign trade and economic growth:

The relationship between foreign trade and economic growth can be clarified through enhancing the role of exports and reducing imports, especially consumer goods, where the priority should be given to promote the level of exports. Emergence of the linkage between foreign trade and growth has become clearer after many countries removed trade barriers due to the accession rule of WTO membership. Moreover, the real situation confirms that these countries have gained economic benefits from their economic' partnership, such as trade agreements and free trade zones, as well as investment and bilateral trade agreements.

Development of foreign trade relations between countries explains clearly that there is a mutual influence between the increasing level of trade flows, and economic growth. Therefore, removing trade restrictions leads to an increase in export levels and then an improved level of economic growth, which support the terms of trade due to enhancing the level of economic capacity of the new commodities produced. This progress supports export-oriented industries and is considered to provide good stimulation to create new employment opportunities, increase the level of operation, and maximize value added for various sectors of the economy.

Many studies [(*)] tackle the relationship between foreign trade and growth, the most notable being the study of Fischer who stressed the important role of reducing imports and its positive impact on economic growth. Fischer argued about following a suitable policy to encourage an increasing level of exports, especially those that have high value added. However, this policy, which started in the 1970s and 1980s, focuses on the importance of the promotion exports for strengthening the growth rate. Furthermore, Lill Anderson confirmed that the open economies are growing more than those that are relatively closed, as a result of the increased level of production that leads to an increase in the country's exports. However, it has a significant role in meeting the various needs for imports, where the financial surplus achieved supports the importing of significant imports, especially capital goods.

In general, the economic reality indicates that there is a positive relationship between the world's economic growth and foreign trade (Arab League et al. 2004). This is shown by the increasing rate of world economic growth from 2.4 per cent and 3 per cent over the years 2001, 2002, respectively, to 3.9 per cent in 2003, which is associated with the high growth in world foreign trade over the said period. Accordingly, the trade growth increased from 3.1 per cent in 2002 to 5.4 per cent in 2003, which is considered to be the highest world growth rate. This resulted from the increasing level in foreign trade, especially the developing countries in Asia, in that their exports increased by 6.5 per cent in 2002 to 8.7 per cent in 2003; the Asian imports increased by 6.2 per cent to 8.9 per cent over the same period. Hence, it is evident that the high level of exports will stimulate economic growth by providing more income revenue, which enables the import of capital goods. In this context, the emerging role of the state's economic policy to direct the obtained revenue from exports in importing capital goods that have high technology in order to increase the level of growth and reduce the pollution that occurs from various economic activities in a country. Furthermore, the imported capital goods lead to sustained economic growth, because they replace the old goods that have disadvantaged technology. In addition, improving the level of foreign trade is a key factor to expand local markets, especially in countries that suffer a narrowness of their market, such as the GCC countries.

However, the growth rates of exports for developing countries ranged between 1.9 per cent in 2002 and 2.7 per cent in 2003, while their imports growth rates ranged between 2.3 per cent and 3.5 per cent over the same period. Moreover, the world's growth rate dropped from 5.3 per cent in 2004 to 4.9 per cent in 2005. In contrast, a low level of world trade was noted, where it decreased from 10.6 per cent in 2004 to 7.4 per cent in 2005 due to the positive linkage between trade and growth. The main reason for this drop could be attributed to the low domestic demand in the US and a number of developed countries that affect the decreasing volume of trade in developing countries and other emerging economies. In this context, the export growth fell significantly in developed countries from 8.8 per cent in 2004 to 5.5 per cent in 2005, as well as their imports, which dropped from 9.1 per cent to 6 per cent over the same period (Arab League et al. 2006). In addition, the developing countries and emerging market economies also witnessed a low level of export growth, which decreased from 14.6 per cent in 2004 to 11.8 per cent in 2005. Moreover, the level of imports dropped from 16.4 per cent to 11.9 per cent over the same period (Ibid). The following table shows the world's growth rates over the period 1998-2008.

Table (2-1): The level of world growth over the period 1998-2008 (percentages)

Year	World's economic Growth			Growth of world trade				
	World	Developed Countries	Developing Countries	world	Developed countries		Developing Countries	
					X	M	X	M
1998	2.8	2.7	3.0	4.4	4.2	5.9	5.3	-0.9
1999	3.7	3.5	4.0	5.9	5.6	8.2	4.5	0.5
2000	4.9	5.2	6.1	12.5	11.7	11.6	14.6	15.9
2001	2.5	1.2	4.3	0.1	-0.8	-0.8	3.2	3.0
2002	2.8	1.6	4.7	3.1	1.9	2.3	6.5	6.2
2003	3.6	1.9	6.2	4.5	2.7	3.5	8.7	8.9
2004	4.9	3.2	7.5	10.6	8.8	9.1	14.6	16.4
2005	4.4	2.6	7.1	7.4	5.5	6.0	11.8	11.9
2006	5.0	3.0	7.8	9.2	8.4	7.4	10.6	15.0
2007	5.2	2.7	7.9	6.8	5.8	4.2	8.7	12.3
2008	3.2	0.9	6.1	3.3	1.8	0.4	6.0	10.9

Source: By the Author based on General Secretariat of the League of Arab States and others, Unified Arab Economic Report for the years 2006-2009, tables and different pages.

Table (2-1) shows that the world economic growth rate increased from 4.4 per cent in 2005 to 5 per cent in 2006, while the growth rate of developed countries ranged between 2.6 per cent in 2005 and 3 per cent in 2006. Moreover, in developing countries the economic growth rate increased from 7.1 per cent to 7.8 per cent for the same period. In this context, we can conclude that the marked level of the world growth is linked to the increase in the level of world foreign trade, which increased from 7.4 per cent in 2005 to 9.2 per cent in 2006. However, Table (2-1) illustrates more clearly that there is a positive relationship between the growth and trade level. We also note that the world trade is larger than its growth, and vice versa in the case of a drop in the level of world growth. This confirms that both trade and economic growth have begun to drop increasingly since 2006, especially world trade, which witnessed a sharp decline (Arab League, 2008). This turndown was significant in the USA and Euro zone, which caused a reduction in the level of foreign trade in other developed and developing countries. Moreover, it reflects that any fluctuations occur in the world economy will react positively on other linked economies, particularly developed economies.

In addition, the level of growth and world trade have continued to decline, reaching 3.3 per cent in 2008 due to the last financial crisis that hit the US economy. However, this crisis had a negative effect on the level of demand in other developed countries resulting from the reduction in the level of crude oil and raw materials imported from developing countries. We note that this crisis led to a drop in the consumption level by 3.1 per cent. In addition, the public expenditure decreased by 14 per cent (Ibid), which had a negative effect on trade between developed and developing countries, especially oil countries because of their high reliance on crude oil export revenue and raw materials.

From the previous analysis, we can conclude that there is a significant linkage between economic growth and world trade. This linkage is related to comparative advantage and technological progress that have made developed countries the main producers of capital goods, while developing countries are still exporting raw materials and, in turn, importing various consumables and capital goods. Accordingly, this fact is considered a key factor in justifying the high reaction of any crisis in developed countries, where it moved directly towards developing countries resulting in a negative impact on their economies through foreign trade. We see that the developing countries have the opportunity to improve their economic performance and reduce the level of world fluctuations by attracting foreign direct investment in order to transfer advanced technologies and improve the level of production, especially in sectors that have high value added like manufacturing industries. In this context, the role of a country's economic policy emerges through maximizing the positive impact of FDI and promoting the level of trade through diversifying and increasing the level of production, which have a positive effect on enhancing the level of GDP growth in the host economies. In addition, achieving trade surpluses that support an expansion in the local markets of these economies thereby increasing the level of economic growth.

2.5 State's role in support of foreign trade:

The theories of foreign trade suggest that the government has a major role in supporting foreign trade and economic growth through protection of the domestic industries against other economies that have high competitiveness (Al-kawas, 2008). This strategy is considered a major means to improve the level of infant industries and increase the level of foreign trade. In this context, we see that the state's economic policy contributes to the level of trade balance, and then economic openness. In other words, following a sound economic policy will strengthen the trade relations with other partners in the world, especially in countries that have small economies like the GCC countries.

In addition, the role of the state could be determined in its efforts to achieve economies of scale by following a policy that attracts foreign firms to invest in beneficial sectors that lead to a gain in high value added. However, when the economy reaches the stage of scale economies, it will be able to compete with other regional economies by direct exports towards these countries in order to gradually increase the level of economic openness.

Moreover, targeting an increase in the level of economic openness and integration with the world economy does not mean a high reliance on other economies, and importing consumables and capital goods, as much as it is considered a good motivation to encourage domestic and foreign investors to increase the level of production and exports. In this context, the role of a country emerges from the protection of its local markets by adopting reliable policies in order to experience foreign competition. However, we see that the main factor for economic stability is the state and its policy for providing significant subsidies and facilities for domestic investors. This policy will create the ability to compete with foreign products and increase the level of exports in order to improve the terms of trade, and enhance the level of economic growth.

According to the above, we note that the state economic policy encourages local producers, which leads to an increase in the level of domestic investment against foreign investment, where sound economic policy targets achieve high economic growth on the one hand, and protect the economy on the other. Therefore, maximizing the benefits of foreign trade and economic openness between countries is attributed to their economic policies, with the possibility of exporting commodities to other countries. This means that the economic policy of the state contributes to supporting foreign trade through its industrial strategy and protection of the domestic production sector.

In addition, we see that the proper state policy should not adopt an absolute protection or non-interference policy, but it should pay more attention towards the strategy sectors. In other words, achieving a balance by following a policy of free trade while taking into account protection of important industries in order to achieve and maintain economies of scale with an increasing level of economic growth. Therefore, in this manner, the role of the state will maximize the importance of foreign trade, and then their relationship in enhancing the level of economic growth based on modern trade theories that are limited by comparative advantages and the role of the trade policy of the state in controlling the direction of foreign trade. In addition, stimulating foreign investors for increasing the level of industrialization and then maximizing the level of foreign trade, which justifies the role of state intervention in attracting FDI and achieving high economic benefits.

2.6: Foreign direct investment, growth and foreign trade:

The most important factor for attracting FDI is its significant role in improving the level of economic growth and foreign trade through activating the use of available resources and diversifying the production sector in order to increase the source of income. This progress is considered a key factor that encourages exploitation of the surplus achieved in projects that have high value added, especially the manufacturing sector, which supports an increase in the level of commodity exports.

Moreover, the benefits obtained through foreign direct investment are concentrated in production that have low cost as a result of the use of new technologies, which induce a reduction in the cost of production. This encourages an increase in the level of foreign trade and completion with other producers. Based on modern theory, we see that attracting foreign investors to host economies and achieving a high level of production that is characterized in low cost, implies that FDI is considered as a new incentive that encourages domestic producers to use advanced technologies, where the host country gains joint benefits that are concentrated in attracting foreign investors and an increase in the level of production and value added. In addition, it stimulates the domestic sector to earn many features from foreign investors, such as, obtaining advanced technology, experience, and new job opportunities, which lead to an increase in the level of real wages and productive capacities.

Furthermore, foreign direct investment in the commodity sector is a major motivation for increasing the level of goods produced, capital and consumers. In other words, it supports achieving various new goods that have low prices, where enhancing the level of economic welfare and consumption pattern positively affects an increase in the level of economic growth. Moreover, the capacity of multinational companies increases, inasmuch as these companies experience an increase in operation cost compared to companies that have limited activities (Henk, 1999). This compels these companies to seek another comparative advantage in other countries in order to maximize their profits and achieve high revenue by achieving economies of scale. Therefore, we have found that the reasons for seeking new markets is to improve the position of these companies in terms of their competitive power towards other companies, where the comparative advantage is the main factor that stimulates foreign investment. In this context, the host economies should follow a sound policy to facilitate attracting FDI flows and achieving all the requirements that lead to maximizing the level of the benefits obtained by FDI.

The real situation indicates that there is high competition between developing countries for attracting more FDI (UNCTAD, 1997), which implies that these countries have realized the importance of FDI as a good contributor for enhancing the development process in these economies. However, the positive effect of FDI on the host economies depends on a number of factors; the most important is the policies related to the liberalization of foreign trade, as well as other factors, such as macroeconomic stability and the availability of infrastructure and so on.

However, there is a positive relationship between FDI and foreign trade, and then economic growth (Streeten, 1972). Streeten found that an increase in the level of FDI led to an escalation in the level of foreign trade in the electronics industry in South Korea and Taiwan, and that this progress was accompanied by developing new products at lower cost. Accordingly, these positive results stimulated other Asian countries to attract more foreign direct investment in order to increase industrial production and enhance the level of exports. For instance, China is considered the best example compared with other developed countries. It declared an “Open Door” policy in 1979 and began a new era of socioeconomic change. However, the long path of institutional and economic reforms turned China into the second best foreign investment destination in 1994 (Suzana, 2008). Moreover, (Urtara 1995) reported in his study that the growth of US companies out of the parent country has achieved a positive impact in increasing the level of exports from parent companies in the US. The main conclusion was that the huge production of these companies is linked to an increase in the level of exports. This implies that there is a positive direct linkage between FDI and foreign trade. In another study, (Bergsten et al. 1999) indicated that FDI in Canada is associated with an increase in the level of exports and imports, and that comparative advantage is the most influential factor compared to the other economic factors in attracting foreign direct investment and then raising the level of foreign trade.

Foreign direct investment is considered a substitution for trade, when it operates in the production sector, such as manufacturing, and achieves a high level of production. However, this progress meets the domestic needs of various goods and products, as well as the possibility of exporting the surplus products to other countries. Based on that, the existence of FDI in the host country means the products are produced inside the country instead of imported from other countries. In contrast, we see that economic growth has a significant role on the investment decisions of multinational corporations. In this way, the rate of growth will be an attractive factor for foreign investors, especially in small economies, where the impact of FDI seems to be clear compared with large economies.

According to the above, we see that FDI has a clear effect and is affected by the liberalization of foreign trade and the economic situation. This has been proven if we take into account the last global financial crisis in 2008, which affected the US economy and then other economies. This crisis led to a reduction in the level of FDI flows resulting in a drop in profits of multinational companies. This crisis was also accompanied by a low level of foreign trade all around the world, where the decline in the level of FDI flows was estimated to be 29 per cent (UNCTAD, 2009). In contrast, these investments have risen dramatically in developing countries, where the growth rate of its flows was about 37 per cent in 2008 (Ibid). This progress is attributed to the effect of the economic growth of developing countries in attracting FDI from developed to developing countries. This fact confirms the positive linkage between FDI and economic growth.

However, during the period 1998-2008, the developing countries received a high level of FDI in comparison with the flows to developed countries for the same period. These flows positively affected the increase in the level of economic growth of the developing countries. Table (2-2) indicates that the FDI flows rose from USD190,752 million in 1998 to USD620,733 million in 2008, and that this increase had a significant role in enhancing the level of economic growth. Moreover, we note that the FDI flows have clear fluctuations, dropping from USD1,117,795 million in 2000 to USD361,265 million in 2003 due to the declining level of economic growth in developed countries, where the growth level dropped from 5.2 per cent to 1.9 per cent over the said period. However, we see that the second declining stage was obvious during the last two years of our study, in which the FDI flows of the developed countries dropped from USD1,358,628 million in 2007 to USD962,259 million in 2008 because of the financial crisis that occurred in the USA, and affected other developed countries.

Table (2-2) shows that the FDI flows increased over the period 2003-2007, due to the significant economic growth in the developing countries, which led to further FDI flows. Based on that, we can say that the financial crisis which began in late 2007 was a key factor that stimulated FDI flows to be directed towards developing countries more than developed countries.

Table (2-2)

Flows of FDI for developing and developed countries, 1998-2008 (million USD)

Year	Developing Economies	Developed Economies
1998	190,752	506,553
1999	228,178	841,942
2000	256,883	1,117,795
2001	215,421	595,284
2002	175,935	442,448
2003	183,994	361,265
2004	290,397	414,186
2005	329,292	613,089
2006	433,764	972,762
2007	529,344	1,358,628
2008	620,733	962,259

Source: Database of United Nation Conference on Trade and Development (UNCTAD) http://stats.unctad.org.FDI/tableviewer/tableview.aspx?report1d=3084

The table above also explains that the FDI flows in developed countries declined during the period 2000-2003, and witnessed a sharp drop for the years 2007-2008. This decline was accompanied by a low level of economic growth rates over the said period. This status reveals a positive relationship between economic growth and FDI flows. Table (2-3) clearly shows that the level of economic growth in developed countries declined from 2.7 per cent in 1998 to 0.9 per cent in 2008. In contrast, we note that the growth level in developing countries rose from 3 per cent to 6.1 per cent over the said period. However, we can explain that by the positive role of FDI in the two cases, which confirms that FDI flows have a significant impact on economic growth. Therefore, if we go back to the table (2-2) we will see again that there is a linkage between the FDI flows and economic growth, which represents that the level of economic growth of developing countries was significant in comparison with its level in the developed countries over the period 1998-2008. However, we note that the growth trend of the two groups shifted in the same direction in terms of their rising and declining.

Table (2-3)

Economic growth in developing and developed countries, 1998-2008 (percentage)

Year	Developed Countries	Developing Countries
1998	2.7	3
1999	3.5	4
2000	5.2	6.1
2001	1.2	4.3
2002	1.6	4.7
2003	1.9	6.2
2004	3.2	7.5
2005	2.6	7.1
2006	3	7.8
2007	2.7	7.9
2008	0.9	6.1

Source: Arab League, Joint Arab Economic Report, different issues, 2004 - 2009.

During the years 2000-2002, we see that there was a sharp drop in the level of economic growth of developed countries. The main reasons for this was the declining growth level in the Euro area, Canada, Australia, and New Zealand, while we see notable economic growth in developing countries during the period 2001-2007. This is attributed to the distinct performance of Asian countries, inasmuch as these economies grew larger than the growth level for the Middle East and African countries (Arab League et al. 2009).

The economic growth of developed countries continued to decline during the years 2004 and 2005, where the growth level dropped from 3.2 per cent to 2.6 per cent for two main reasons. These include the rise in oil export prices for the two mentioned years, which affected the reducing level of domestic demand in developed countries. The second reason is represented by the negative effect of the "Katrina and Rita Hurricanes" (Arab League et al. 2006). Moreover, we note from table (2-3) that the developing countries have achieved an increased level of growth over the period 2001-2007. This growth reflects an improvement of economic performance despite its slight drop in 2005 due to rising oil export prices. However, we can say that the developing countries achieved an improvement in their balance of payments, especially the oil countries. In Asian countries the significant growth is attributed to the high economic performance of China and India as a result of the growth in Chinese exports and the technological progress of the industrial sector of India; in 2005, the growth rates of the two countries amounted to 10.2 per cent and 8.5 per cent, respectively (Arab League et al. 2006).

In 2006, the global economic performance in developed and developing countries rose by 3 per cent and 7.8 per cent, respectively, as a result of the enhanced level of economic growth of the US economy which reached 3.3 per cent in 2006. In addition, in the UK it increased by 2.7 per cent and in Japan 2.2 per cent, while the Canadian economy witnessed a slight decline, from 2.9 per cent in 2005 to 2.7 per cent in 2006.

Regarding the last two years of our study, 2007-2008, the world growth rate recorded a notable decline, from 5.2 per cent in 2007, to 3.2 per cent in 2008. Furthermore, the economic growth in developed countries fell from 2.7 per cent in 2007 to 0.9 per cent in 2008, while in developing countries, it fell from 7.9 per cent to 6.1 per cent as a result of the financial crisis, which affected foreign trade, foreign direct investment and then the reduction in the level of world economic growth (Arab League et al. 2009). However, the last financial crisis affected the world economic growth, where its negative impact was significant on trade and FDI in developed countries, which induced a sharp decline in the level of economic growth.

In addition, in developing countries, the decline in economic growth was better than for the developed countries in terms of the effect of the financial crisis. This was because these countries were considered to be outside of the centre of crisis, as they were less linked to the US economy compared to the developed countries. In conclusion, we can say that the foreign direct investment will remain a key factor that enhances foreign trade and economic growth despite world economic fluctuations. FDI is considered more flexible than other types of investment, such as financial portfolios and bank loans. In other words, the foreign direct investments have a long-term developmental impact in comparison with other kinds of investment. Therefore, we find that economic growth and FDI have a significant linkage, the enhancement of which will directly lead to improved foreign trade and then encourage the producers to increase the level of production. This is especially the case in sectors that can achieve rapid economic growth like manufacturing and other sectors that use the available raw materials and support growth and economic stability, which have an important impact on foreign trade and foreign direct investments.

2.7 Economic growth and the environment

2.7.1 Introduction:

The global environmental challenges have been exacerbated in recent decades and affect economic growth. Air pollution is the main kind of emission that has attracted high consideration all over the world due to its cross-border effect, in that it not only affects the country that induces air pollution, but extends to other countries.

The past two decades have witnessed significant concern in respect of the environmental challenges, where an increasing number of governments have tried to set a comprehensive policy in an attempt to reduce the level of environmental impact against maximizing the level of economic growth. The governmental efforts have led to the establishment of multilateral agreements in respect of the environment, regionally and internationally in order to restructure cooperation towards the environment, especially in respect of joint resources like air and water in order to assess the effect of economic activities on the environment in general.

However, in this thesis, we aim to focus on the effect of air pollution on economic growth in the GCC countries over the period 1998-2008, as this is one of the most significant factors of pollution in these countries, in that by following non-strict environmental policies, the level of pollution steadily increases. This issue has attracted the attention of the world community because of its impact, which is one of the main reasons for the volatility of the global climate.

2.7.2 Trade and the environment:

World concern for environmental problems emerged in 1972, and after the United Nation's conference that was held in Sweden, through which many developed countries realized the risks of environmental degradation. Based on this conference, some legislation was issued with particular reference to the environment (Wilfred, 1994).

Most of the environmental empirical studies have focused on examining the impact of liberalization of international trade and its relationship with the environment, on the one hand, while analysing the effect of the environmental policies on trade, on the other, in an attempt to determine the policies that can achieve high trade flows and economic growth with less pollution. These studies target the increasing quality of production and encourage the use of technologies that lead to improving the level of goods produced (UN, 1996).

In addition, another study (Copeland et al., 2003) shows that reducing the restrictions of foreign trade leads to the relocation of polluting industries from countries that have strict environmental regulations to countries that follow lax regulations, in an attempt to produce at cheap prices with modest technology. Although this has led to a rise in the level of income in some poor countries, this progress is associated with an increased level of pollution (Ibid). According to this view, we see that rich countries like the GCC should follow a strict environmental policy towards the production process of their domestic sectors and foreign investors alike, in that these countries have achieved high economic growth due to their high level of oil exports. However, with the existence of non-strict environmental regulations, this growth may induce an increase in the level of pollution, especially in those countries that depend too much on fossil fuels as a main source of income, as they emit high quantities of carbon dioxide into the atmosphere.

Accordingly, we find that a strict environmental policy in developed countries indirectly contributes to granting a comparative advantage to the countries that follow lax environmental policies in producing polluting commodities, such as petrochemical industries, cement, iron, and other industries, that have a major effect on the environment. In other words, strict environmental policies in developed countries have shifted pollutant industries to developing countries as a result of the unwillingness of the developed countries to establish these industries inside their economies. However, the environmental policies have forced foreign investors and companies to move their industries to developing countries, particularly to countries characterized by a comparative advantage in terms of the availability of raw materials, which encourage foreign direct investment.

Moreover, the liberalization of foreign trade may lead to an adverse effect on the environment when it induces an increase in the level of pollution. However, rising income and economic growth will lead to an increase in the level of total demand, production and imports of various goods and commodities (Alyousuf, 1992). Furthermore, we also see that trade liberalization has led to several changes in the use of elements of production and technology, which are considered a major determinants in terms of their negative and positive effect on the environment (Ibid). In addition, foreign trade and environment are subject to the country's circumstances and the policies that govern the economy, in that these factors play a significant role in achieving balanced development and sustaining the economic growth of the country. Hence, the relationship between the environment and trade is considered to be a dependent variable for the economic policy implemented in a country.

In conclusion, although we cannot say that trade liberalization definitely leads to environmental pollution, it is possible that it leads to environmental improvement via the increase in the level of GDP and achieves significant income revenue, which can bring about the required legislation and policies that help to reduce the level of pollution. In this way, we believe that trade and economic growth enhance the level of environmental quality, particularly in developing countries that do not follow a strict environmental policy in comparison with developed countries. However, the level of environmental management in a country is a major determinant of the pollution issue.

2.7.3 Foreign direct investment and the environment:

Although there is no doubt that foreign direct investment may lead to undesirable effects on the environment that does not mean that the level of FDI flows between countries should be reduced, particularly between developed countries. Moreover, trade liberalization and the reduction in the level of tariffs have facilitated the movement of capital between these countries, in that three quarters of FDI flows are concentrated in the US, EU countries, and Japan, while the remaining quarter is distributed in different parts of the worlds (UNCTAD, 1999). However, the developing countries have adopted many economic reform programmes to attract more FDI. In addition, the issue of the environment and pollution, which could result from FDI has also attracted attention in these economies, in that the manufacturing sectors and other industries that feed these sectors have caused more pollution. Furthermore, the main reason is that there are no strict environmental regulations. Hence, many foreign investors have exploited the existence of natural resources, which lead to an increase in the level of the pollutant industries, especially in oil countries due to the high dependency on quarrying and mining industries. However, these industries are considered to be the major cause of the increase in air pollution. In other words, developing countries have attempted to attract FDI flows without paying attention to the environmental issue, as these countries focused on relocating technologies and enhancing the level of economic growth through lax environmental policies. However, the environmental programme of the United Nations identified Saudi Arabia, the UAE, and Kuwait as having the highest per capita energy consumption in the world. In addition, the six GCC countries contribute approximately 45 per cent to 50 per cent of the total carbon dioxide emissions of the Arab countries (Reiche 2010). Therefore, we can say, that developing countries in general are a "pollution haven" where lax policies towards the foreign investors indirectly facilitate attracting FDI from countries that have a strict environmental policy towards countries that allow pollutant industries. However, there is no clear evidence confirming that FDI flows have a bad effect on the environment in general (Gallagher, 2003) as it is difficult to report a direct causal relationship between FDI flows and their effect on the environment. Accordingly, as previously mentioned, we will depend on a specific model to identify whether FDI has positive or negative implications for the GCC countries.

From the above, we can say that the impact of FDI on the environment is subject to the role of the economic policy of the host country. This means that its impact is specific to the country, which may lead to a negative or positive relation with the environment. However, practically, the countries that have attracted more FDI to their industrial sectors have achieved acceptable economic growth. These countries cannot reach this level of growth without the existence of FDI in their economies; therefore, FDI has a significant role in increasing the level of capacity and per capita GDP. However, receiving FDI flows may be able to enhance the situation of the environment, which is directly related to the policies of the host economies, by engaging the surplus from the achieved revenue to implement many projects that target improving the level of environment. In addition, applying a strict environmental policy in order to achieve sustainable economic growth and facilitate the role of FDI in transferring advanced technologies to industrial sectors could have an important effect on reducing the level of pollution that accompanies the production process in pollutant industries, as well as increase the level of value added and desirable economic growth.

2.7.4 Sustainable economic growth and the environment:

It is well-known that all economic activities depend on the environment as a basic source of production input, and, in turn, the pollution resulting from the production process, which exploits these sources directly affects the environment (Kevin et al. 2003). This fact strongly confirms the close linkage between economic growth and the environment. However, because of this important relationship, a number of agreements have emerged calling for the implementation of specific standards on goods production and the circulation thereof in the world markets (ESCWA, 2005). Hence, we see that the foreign trade of developing countries could be affected by the environmental regulations across the world, particularly, the manufacturing of these economies. Therefore, existing strict environmental regulations will force developing countries to improve the level of the technologies used in order to produce and export according to the acceptable standards of developed countries. In this context, these economies experience a major challenge, which is concentrated in moving advanced technologies and management methods from developed countries, in that this progress positively affects sustainable economic growth, foreign direct investment and trade.

From the above, we find that the linkage between the environment and economic growth is still an ongoing debate. However, since the early 1990s, some environmental studies have emerged based on the environmental Kuznets curve (EKC). The relationship between economic growth and the environment is mostly positive through the role of economic growth in providing the economy the necessary capabilities to improve the environment according to the procedures and policies followed by the government in order to reduce the level of pollution against increasing the level of economic growth (Lee, 2005). The basic notion of the EKC is that the increased production will lead to an increase in the level of GDP and per capita income, where there is a rise in the level of pollution in the first stage. However, after achieving a suitable level of growth the pollution level will reduce gradually as a result of the improved level of the environment arising from the availability of the required financial resources that help in adopting important plans to maintain the environment. In addition, the ability of using advanced technologies in the production process is also considered a key factor of EKC, in that the pollution curve takes an inverted U shape, which eventually reflects the positive relationship between economic growth and the environment. However, the EKC assumptions are generally based on two impacts, which are the scale of the economic activity the “Scale effect” and the pollution abatement efforts “Abatement effect” (Wen Chen, 2007). However, the general reasons for these effects relies on the idea that considers that the countries will pollute the environment in order to maximize income growth, and transfer advanced technologies that will be available and affordable, and then will cause a drop in emissions with a high level of economic growth. Therefore, the economy grows larger than the pollution, in which the larger economy can achieve high benefits at a cheaper rate compared to a smaller economy. Accordingly, we can say that the influence of economic growth, foreign trade and FDI could be decomposed into the above two effects and their reasons.

The linkage between economic growth and the environment could take two directions in terms of its negative or positive impact, in that it is related to the economic policies of the country. However, the environmental policy of the country should continue to pay more attention to the level of economic activities in order to reduce the environmental pollution resulting from the increasing level of economic growth. Hence, the real situation shows that the level of economic growth was more than the level of pollution in general, which is more realistic than the negative aspect. For example, China has achieved rapid economic growth over the past three decades, and yet there is a positive impact on the environment (World Bank, 2007) due to the efficient use of energy, as well as through the use of advanced industrial technology, which supports a reduced level of environmental pollution.

As a result, we see that increasing the level of per capita GDP growth is a good indicator that shows a positive relationship between economic growth and the environment. However, it should be conditional on the decreasing level of pollution. This issue depends on the role of the government in exploiting the achieved growth and its advantages in maintaining the environment in order to maximize the level of economic growth. However, the impact of foreign trade and FDI could be considered as a relative issue, in that it depends on the type of investment, as well as the technology used by foreign investors, as these are major factors that affect the environment.

Finally, the environmental legislation applied in a country are considered to be significantly good determinants for reducing the level of pollution, and, finally, the environmental impact of FDI and trade are directly related to the role of the different policies of the country.

CHAPTER THREE

ECONOMIC OPENNESS AND TRADE IN GCC COUNTRIES

3.1 Introduction:

As known, the Gulf Cooperation Council countries are classified as developing countries, where there is an imbalance of production structures and a high reliance on crude oil export revenues. The contribution from crude oil export revenues ranged, on average, from 26 per cent in Bahrain to 61.7 per cent in Qatar, for the period 1998-2008 (League of Arab States, 2009), while the other sectors, such as the manufacturing sector amounted to 5.6 per cent in Kuwait and 13.8 per cent in Bahrain in 2008 (Ibid, 2009).

In spite of the relative abundance of financial resources, the GCC countries suffer from a shortage of the national workforce. In addition, the adoption of the economic development programmes in these countries has led to a dependency on foreign labour where, in 2007, in the United Arab Emirates it reached 91 per cent of the total workforce, 58 per cent in Bahrain, 51 per cent in Saudi Arabia, 72 per cent in Oman, and 92 per cent and 84 per cent in Qatar and Kuwait, respectively (GCC, 2008). Moreover, these countries suffer from the problem of a narrow local market, which is one of the main obstacles that discourage more local and foreign investment for achieving economies of scale.

In addition, the emergence of regional economic blocs has imposed several forms of protection against foreign products and setting their own policies towards common economic relationships with other countries. In this respect other countries like the GCC countries face a weak negotiating power, which limiting their potential in terms of economic activities in general, and reflects negatively on the level of trade and investment. This means a failure of the level of development in the GCC countries without cooperation among them. All these conditions have encouraged the GCC to arrange their economic policies in common towards the creation of a production base and economic diversification, where the oil and gas resources are the key resources to achieve that. Therefore, the economic policies adopted by the GCC countries have been designed to encourage more foreign direct investment as an important attempt to increase the level of non-oil exports for achieving sustained economic growth. The GCC attempts to achieve two major objectives: enhancing the level of the intra-trade through unifying their economic policies in all six GCC countries against other countries, and improving the industrial and agriculture sectors by encouraging joint investment ventures (GCC, 2001).

In addition, moving from a high reliance on the oil sector is one of the GCC's aims towards diversifying their economies and to gradually reduce the oil share of the GDP. This common economic goal is represented by the following of a unified economic agreement since 1981, and, based on that agreement, in 1983, the GCC countries established a free trade zone between the six member countries. Accordingly, these countries have cancelled tariffs on agricultural products, animals, industrial products and natural resources (Obeid, 1996). These steps were the first initiative for unifying the economic policies according to the abovementioned agreement. However, in order to achieve these targets, the GCC countries have focused on the significant priorities as a key means to enhance the level of integration between the member countries. These priorities are represented by the approval of the customs union and unifying of the customs tariffs with other countries in 2003.

The study found that the unified customs tariffs to the rest of the world enhance the negotiating capacity of the GCC countries with other economic blocs, so that a unified customs tariff will also increase the intra-trade volume among the GCC countries. This means that it will enhance the role of foreign trade for reaching a sustained economic growth in the long-term. In addition, the GCC countries have made significant achievements towards economic integration, by establishing the GCC common market which is supported by the Unified Economic Agreement, free movement of goods, removing restrictions on the movement of production factors and unifying of economic and financial policies, such as the common agricultural policy and strategy for industrial development in the GCC countries.

Finally, it has already been noted that the main purpose of the Cooperation Council is to achieve economic integration and facilitate trade and investment between the member countries. Moreover, the policy to unify their economic policies against other countries has had a positive affect the movement of goods and other production factors. Hence, we found that the establishment of the Gulf Cooperation Council is a reflection of the negative conditions of these countries in the period before 1981, particularly the decline in the terms of trade in the 1970s. Therefore, the GCC bloc has emerged in order to improve the negotiating position and attempt to increase the foreign trade level by investing the raw material and oil export revenues to develop their economic capacity. Accordingly, we see that the GCC's policies focus on enhancing foreign and intra-trade, as well as encouraging and attracting more foreign direct investment.

3.2 The economic openness and Intra-regional trade in GCC countries:

3.2.1 The main reasons of economic openness in GCC countries:

Oil export revenues:

The crude oil exports of the GCC countries constitute a high proportion of the GDP, where oil production forms the main component of fiscal revenue, as well as the funding of other economic activities. However, the ratio of the average contribution of oil revenue in the GDP ranged between 28.1 per cent and 38.5 per cent during the period 1998-2008[(*)]. Also, the rate of oil export growth of GCC countries rose due to high prices of oil exports in the world markets, where the growth rates amounted to between 17 per cent and 20 per cent. Table (3-1) shows the oil export revenue, and its growth level over the period 1998-2008, where the average of these revenues reached USD105,416 million in Saudi Arabia, the largest producer of crude oil of the GCC, and the Arab region in general. The impact of the role of oil exports in the GCC countries is clear due to the increased level of GDP and the level of growth during the same period, where the GDP growth rate ranged between 11 per cent and 23 per cent during the period 1998-2008.

Table (3-1)

Revenue of oil exports in the GCC 1998-2008 (million USD)

Year	UAE	Bahrain	KSA	Oman	Qatar	Kuwait
1998	10260	800	31980	3860	3110	8471
1999	15021	1706	44934	5685	4775	11029
2000	26148	2589	70960	8800	7834	18183
2001	22414	2054	59868	7697	6964	14976
2002	17300	1806	63900	7969	6885	14057
2003	22054	2631	70642	8290	7500	19002
2004	29624	3450	92856	9079	11694	16517
2005	43502	5066	137050	13189	13774	28234
2006	54140	5923	162002	14378	17274	36642
2007	58991	6184	178284	16523	19022	38488
2008	80653	5895	247097	23296	27428	57690
Average,98-2008 (*)	**34555**	**4,364**	**105416**	**10,797**	**11478**	**23935**
Growth rate,98-2008 (**)	**20%**	**19%**	**20%**	**17%**	**22%**	**19%**

Source: Organization of the Petroleum Exporting Countries (OPEC) (2008), Annual statistical bulletin, p31. Note: Bahrain and Oman are not members of OPEC; therefore the researcher depends on other official sources, as follows:

The year 1998: League of Arab States, (2003) Joint Arab Economic Report, P32.

The Years 1999-2003: League of Arab States, (2004) Joint Arab Economic Report, P23.

The Year 2003: League of Arab States (2008), Joint Arab Economic Report, P338.

The Years 2004-2008: League of Arab States, (2009) Joint Arab Economic Report, P328.

(*) (*), (**) Calculated by the author.

[(*)] Look at table (3-3).p.115

However, we note that the growth rate of oil export revenue was higher than the rate of GDP growth in general, which can be explained by the significant role of the oil sector in the GCC countries. In other words, oil exports are considered an important factor in achieving an acceptable growth level for the GCC economies, as illustrated in the table above.

Table (3-2)

Level of GDP by income in GCC over the period 1998-2008, (million USD)

Year	UAE	Bahrain	KSA	Oman	Qatar	Kuwait
1998	48500	6184	145967	14086	10255	25941
1999	55193	6621	160957	15710	12393	30126
2000	69979	8028	188442	19450	17760	37714
2001	68909	7971	183012	19399	17538	34906
2002	73635	8491	188551	20048	19364	38129
2003	86686	9747	214573	21543	23534	47869
2004	104180	11235	250339	24674	31734	59439
2005	138331	13459	315337	30905	42463	80799
2006	168384	15852	356155	36804	56770	101549
2007	196643	18447	383871	41639	71041	114585
2008	250517	24338	468800	59945	102303	148165
Average, 98-2008 (*)	**114,632**	**11,852**	**259,636**	**27,654**	**36,832**	**65,383**
Growth rate, 98-2008 (**)	**16%**	**13%**	**11%**	**14%**	**23%**	**17%**

Source: League of Arab States, (2004), (in Arabic) Joint Arab Economic Report, Abu Dhabi, annex 2 / 2. Years 2000-2008: League of Arab States, (2009), (in Arabic), Joint Arab Economic Report, Abu Dhabi p266.

(*), (**) Calculated by the author.

Table (3-2) shows that the level of GDP growth during the period 1998-2008 is positive, especially in Qatar and Kuwait, which achieved high growth levels of 23 per cent and 17 per cent, respectively. This reflects the role of increasing oil export prices influencing the GDP growth rate for each of them. We can also see the validity of this analysis by going back to table (2-1), where Qatar and Kuwait achieved high growth rates, 22 per cent and 19 per cent, respectively, which confirms the crucial impact of oil exports on the level of GDP. The oil sector of GCC countries confirms its importance through the continuous role of oil export revenue of these countries, especially in cases of rising oil export prices. The following table shows the contribution of oil export revenue in the GDP of the GCC countries.

Table (3-3)

Share of oil exports in GDP during the period 1998-2008 (percentage)

Year	UAE	Bahrain	KSA	Oman	Qatar	Kuwait
1998	21.1	13.0	21.9	27.4	30.3	32.6
1999	27.2	25.7	27.9	36.1	38.5	36.6
2000	37.4	32.2	37.6	45.2	44.1	48.2
2001	32.5	25.7	32.7	39.7	39.7	43.0
2002	23.5	21.2	33.9	39.7	35.5	36.8
2003	25.4	27.0	33.0	38.5	31.8	39.7
2004	28.4	30.7	37.1	36.8	36.8	27.8
2005	31.4	37.6	43.5	42.7	32.4	34.9
2006	32.1	37.3	45.5	39.0	30.4	36.1
2007	30.0	33.5	46.4	39.7	26.7	33.6
2008	32.2	24.2	52.7	38.8	26.8	38.9
Average 1998-2008	29.2	28.1	38.2	38.5	34.0	37.1
Growth rate, 98-2008 (%)	4%	6%	8%	3%	-1%	2%

Source: Calculated by the author based on tables (4-1) and (4-2).

In table (3-3), we find that the oil exports have a major role in the economic integration between GCC countries and the economic world. On average, the export of oil contributes 38.5 per cent in Oman for the entire period 1998-2008, followed by Saudi Arabia, Kuwait and Qatar 38.2 per cent, 37.1 per cent, 34 per cent, respectively, during the said period. Oman and Bahrain occupied the last two ranks 29.2 per cent, 28.1 per cent, respectively. These percentages are not inconsequential if we take into account that the rest of these ratios are linked to crude oil products, since it is well known that most of the investment in the GCC countries is concentrated in manufacturing industries, such as petrochemical, aluminium and plastic (Saif, 2008), which are mainly based on oil production, particularly in Saudi Arabia, which represents the largest proportion in the production of petrochemical industries. Accordingly, we can explain why the GCC countries have a similar pattern of production, in other words, the industries in the GCC are competing industries and non-integrated between these countries. In table (3-3) we also note that the GCC countries have achieved a relative increase in the level of oil exports in GDP, especially during the period 2003 to 2008. However, the high oil prices have led to an increasing level of public revenue as a result, where the growth rates of relative contribution of oil exports ranged between 1 per cent, and 8 per cent over the period 1998-2008.

The important issue that we should note is that the other economic activities in the GCC countries have been affected by the positive changes of oil revenues due to the membership of these countries in OPEC, except Oman and Bahrain. This means that a large proportion of oil production is determined by factors outside its control, which reflects on the economic situation in the GCC countries in general. Therefore, we can say that the investment plans will be in a linkage with the changes that occur in the oil revenue, which reflects a positive or negative effect on other economic activities according to the volatility of prices of the global oil market.

Imbalance of the expenditure on GDP:

The level of consumption expenditure to total revenue in the GCC countries is characterized as high level, where increasing the final consumption expenditure, public and private, is more than the investment spending rates. Meaning that, there is a negative impact on the growth rates of GDP resulting from the low level of local capacity, which can lead to maximize the deficit of public budgets in the GCC countries in general. The following table shows the average of expenditure on GDP during the period 1998-2008.

Table (3-4)

Expenditure on GDP, at constant prices (2000) – Average for 1998 (million USD)

Particulars	UAE	Bahrain	KSA	Oman	Qatar	Kuwait
Gov. final consumption expenditure	43419	1935	68953	6396	3477	10327
Private final consumption expenditure	69193	5116	105688	10930	6970	23583
Change in stocks	4080	24	6485	-801	700	812
Gross fixed capital formation	44769	3301	62767	8190	12227	11528
Exports of goods and services	56990	11874	94898	10921	17425	28297
Less: Imports of goods and services	82770	10659	108963	11168	14154	20372
GDP	135681	11591	229828	24468	26645	54175

Source: Calculated by the author based on the following:

ESCWA (2009), National account studies of the ESCWA region, bulletin No.29 pp 74-80

ESCWA (2004), National account studies of the ESCWA region, bulletin No.24 pp 58 - 63.

United Arab Emirates, Ministry of Economy, statistics reports: www.economy.aeeconomy.ae

For further explanation, we can convert the above table to the following:

Table (3-5)

Expenditure on GDP, Average for years 1998-2008 (percentage)

Particulars	UAE	Bahrain	KSA	Oman	Qatar	Kuwait
Gov. final consumption expenditure	32	17	30	26	13	19
Private final consumption expenditure	51	44	46	45	26	44
Change in stocks	3	0	3	-3	3	1
Gross fixed capital formation	33	28	27	33	46	21
Exports of goods and services	42	102	41	44	65	52
Less: Imports of goods and services	61	91	47	45	53	37
GDP	100	100	100	100	100	100

Source: Calculated by the author based on table (4-4).

Table (3-5) above indicates the high level of consumption expenditure for public and private sectors in the GCC during the period 1998-2008. The private consumption expenditure represents a big ratio, which ranged between 26 per cent and 51 per cent on average, while the government consumption expenditure ranged between 13 per cent and 32 per cent during the mentioned period. In this respect, we can say that the private sector was more important than the economic activity of the public sector, and according to the other data, we note that the private sector contributes 71 per cent (Tahir, 2007) of the expenditure level for manufacturing and other commercial activities, such as wholesale, retail trade, mediation activity in real estate and finance (Ibid). This means that this sector can demonstrate a clear role through the establishment of several investment projects, in which the private sector investment rate contributes 38 per cent of the total investment, which are concentrated in the non-oil sector (Ibid). During the period 1998-2001, the investment in this sector amounted to 39.7 per cent of the total investment, and during the period 2001-2005 private investment reached 53.9 per cent (GCC, 2006). This confirms the crucial economic role of the private sector in economic activities towards diversifying the GCC economies and reducing the share of crude oil of the GDP. Moreover, it is noted in table (4-5) that the percentage of fixed capital formation is low, especially in Kuwait, compared to the levels of expenditure on imports, which indicates the imbalance of GDP, as well as the increasing level of consumption in these economies in general, which is considered an important reason for that. The following figures show these facts.

Table (3-6)

Total expenditure to the total revenue of the GCC countries 1998-2008 (percentage)

Year	UAE	Bahrain	KSA	Oman	Qatar	Kuwait
1998	1.67	1.21	1.34	1.20	1.12	1.10
1999	1.66	1.19	1.24	1.26	1.15	1.44
2000	1.13	0.93	0.91	1.14	0.96	0.76
2001	1.36	1.03	1.12	1.10	0.98	0.64
2002	1.56	0.98	1.09	0.87	0.76	0.90
2003	1.18	1.02	0.85	0.96	0.76	0.79
2004	1.01	1.02	0.72	0.94	0.64	0.79
2005	0.72	0.93	0.61	0.93	0.78	0.70
2006	0.63	1.00	0.58	0.99	0.85	0.50
2007	0.70	0.91	0.72	0.99	0.72	0.66
2008	0.77	0.76	0.47	0.99	0.71	0.51
Average (%)	**1.12**	**1.00**	**0.88**	**1.03**	**0.86**	**0.80**

Source: Calculated by the author based on League of Arab states, Joint Arab Economic Report, different issues (2004-2009).

Table (3-6) shows the increased level of public expenditure, which indicates that its level is less than the total revenue in the UAE and Oman, which amounted to 1.12% and 1.03 per cent, respectively .This confirms the case of deficit due to the increased levels of consumption expenditure resulting from the structural imbalances of GDP in these economies. The above table reflects that the proportion of the expenditure to revenue has been declining, starting in 2002, as confirmed by the impact of the rising oil export prices on the increasing level of revenue and reduction in the deficit. Therefore, if we remove the revenue from the oil exports, we will find a large deficit in the total revenue. In this regard, the economic policy in the GCC countries is supposed to make optimum use of the oil revenue through funding and guiding the capital and domestic investments that have a comparative advantage to enhance and increase the level of production in the non-oil sector, which contributes to reducing imports of similar goods in order to reduce the cost of imports and engage the trade surplus to improve the balance of payments and finance the deficit in other sectors. Consequently, we can say that the period 1998-2008 witnessed a sharp decline in the productivity trends of the investment policy against the emergence of consumption trends, where the governmental and private investment expenditure shows a high reliance on the oil export revenues over the study period.

The low level of agricultural production:

The GCC countries suffer from the low level of the agricultural sector, which ranges between 0.6 per cent and 4.4 per cent of the gross domestic product in Bahrain and Saudi Arabia, respectively. Also, on average, the other GCC countries were between these percentages during the period 1998-2008. This confirms a significant decrease of self-sufficiency against the high level of food imports. In this respect, the import of food is expected to continue to increase according to the weak contribution of the agricultural sector compared with the high population growth rates, which ranged between 2.04 per cent and 6.65 per cent (United Nations, 2005). Therefore, there is no doubt that this issue will lead to an increase in the food gap in the coming years, which implies that the rising food gap will reflect negatively on the increase in the level of expenditure of the GCC countries in general. In table (3-7), we found a low average contribution of the agricultural sector to the GDP, especially for the years 2003-2008. The main reason for this decline is due to the higher crude oil prices, and the rising oil export revenue and its relative contribution to the gross domestic product. Also, we can explain the low level of production, productivity and investment in the agricultural sector, therefore in light of this low agricultural level with expectations of increasing population. However, the certain issue is that the demand for agricultural commodities and food products will increase in the future and this means a reduction in the self-sufficiency rate.

Table (3-7)

The contribution of the agricultural sector to the GDP during the period 1998-2008 (percentage)

Year	UAE	Bahrain	KSA	Oman	Qatar	Kuwait
1998	3.6	0.9	7.0	2.8	0.7	0.5
1999	3.4	0.9	6.6	2.6	0.6	0.4
2000	3.5	0.8	4.9	2.0	0.4	0.4
2001	3.5	0.7	5.2	2.1	0.4	0.5
2002	3.5	0.7	5.1	2.1	0.3	0.6
2003	3.2	0.6	4.5	2.0	0.3	0.5
2004	2.6	0.6	4.5	1.7	0.2	0.4
2005	2.2	0.4	3.2	1.6	0.1	0.3
2006	2.0	0.3	3.0	1.4	0.1	0.2
2007	1.8	0.3	2.8	1.3	0.1	0.2
2008	1.4	0.3	2.3	1.0	0.1	0.1
98-2008	**2.8**	**0.6**	**4.4**	**2.0**	**0.3**	**0.4**

Source: Calculated by the author based on the following:

League of Arab States (2000), Joint Arab Economic Report, Abu Dhabi, Annex 3 / 1.

League of Arab States (2004), Joint Arab Economic Report, Abu Dhabi, P.263

League of Arab States (2005), Joint Arab Economic Report, Abu Dhabi, Annex 3 / 1.

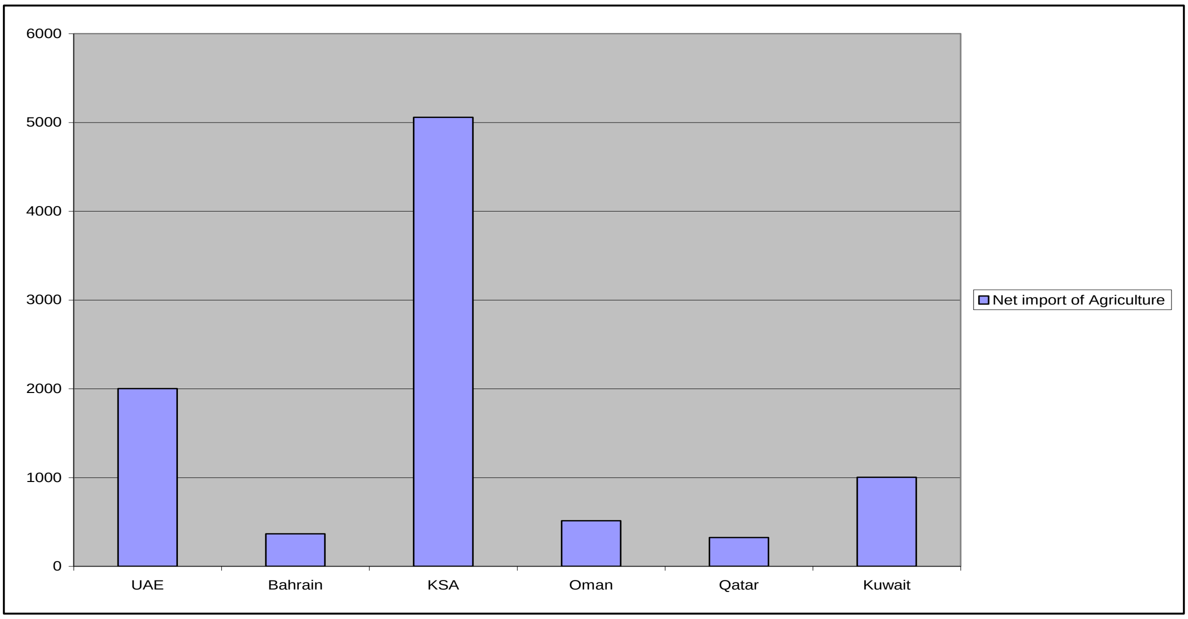
League of Arab States (2008), Joint Arab Economic Report, Abu Dhabi, P.295

League of Arab States (2009), Joint Arab Economic Report, Abu Dhabi, P287.

Therefore, the consumption expenditure will be raised due to the increase in the imported food, which leads to a bigger trade deficit, particularly in the case of the low oil prices. Table (3-7) confirms the depth of the agricultural trade balance deficit and continued dependence on the world market to meet the food needs, where the average of net agricultural imports was estimated to be USD5.58 billion in Saudi Arabia for the period 1998-2008. This represents the largest share of the average value of food imports compared with other GCC countries, where the imports of net agriculture in the United Arab Emirates and Kuwait amounted to about USD2.02 billion and UDS1.2 billion, respectively. In addition, in Bahrain, Oman and Qatar it was USD365, 514, and 324 million, respectively, as shown in the following figure:

Figure (3-1)

Average of net agricultural imports of the GCC, 1998-2008 (million USD)



Source: By the author based on: League of Arab States (2008) Joint Arab Economic Report, Abu Dhabi.

League of Arab States (2009), Joint Arab Economic Report, Abu Dhabi.

The figure above shows the high level of agriculture imports, which confirms the low level of self-sufficiency during the period 1998-2008, as explained by the increasing problem of the food gap. Moreover, the most important factor for increasing the agriculture imports is the increased investment in the food industry despite the lack of improvement in agricultural production. This means a substantial increase in the imports of agricultural raw materials for these industries, where the Saudi investment in food factories is about USD3.3 billion, which represents 62 per cent of total investments of the food industry in the GCC countries (Al-Qahtani, 2003). Therefore, with the increased imports of agricultural commodities, we can say that most of the food industry, especially in Saudi Arabia is based on imported agricultural raw materials. These imports represent the third issue of importance in respect of the total imported commodities (GCC, 2005). In this context, the importance of increasing the level of agricultural production emerges to increase the level of value added, as well as to create interdependence between the two sectors – agricultural and industrial.

In addition to the above, the most important factor in increasing agriculture imports is the increase of the level of investment in the food factories of the GCC countries, with a value of USD5.3 billion, where the share of Saudi Arabia is about 62 per cent followed by Kuwait 6.14 per cent, United Arab Emirates 9.1 per cent, while Oman, Qatar, and Bahrain are 6.4 per cent, 5.3 per cent 4.3 per cent, respectively (Al-Qahtani, 2003).

However, the modest level of agriculture sector is considered to be one aspect of economic openness in the GCC countries in general, which leads to considerable pressure in terms of increasing expenditure, where there is a high demand for imported food, rather than investing the value of these imports in the areas of productivity to achieve new value added, and to meet the needs of other sectors, which could be influenced by enhancing the level of trade balance and reducing the deficit case in GCC economies, especially when oil prices drop from time to time.

Finally, we find that there is a significant weakness in the level of agriculture, including a scarcity of agricultural resources, and that most of the food industry in these countries depend on imported raw materials, which increases the level of imports of agriculture for the purposes of consumption and investment in the food industry. Consequently, we can say that the GCC countries are importers of food, in general, and that the increased number of food factories does not reduce the food gap in GCC countries, where the food imports ranked in the third level in terms of importance, which amounts to 11 per cent (Arab League, 2006). Therefore we can conclude the necessity of investing in agriculture, because of its real impact to activate the food industry in a proper way, as well as creating a new job opportunities and enhancing the non-oil industrial sector.

3.2.2 Economic openness in the GCC countries:

The level of economic openness increased during the period 1998-2008, especially in the United Arab Emirates and Bahrain, as the data shows in the following table:

Table (3-8)

The level of economic openness (*) of the GCC countries, 1998-2008 (percentage)

Year	UAE	Bahrain	KSA	Oman	Qatar	Kuwait
1998	153	136	27	90	70	87
1999	120	102	43	72	68	61
2000	87	107	42	61	55	52
2001	111	139	59	85	85	76
2002	106	117	53	84	75	63
2003	103	112	49	80	64	51
2004	108	110	52	74	58	55
2005	111	105	55	71	58	53
2006	113	115	67	75	63	62
2007	117	115	73	78	56	65
2008	120	104	69	63	57	59
Average	**113%**	**115%**	**53%**	**76%**	**64%**	**62%**

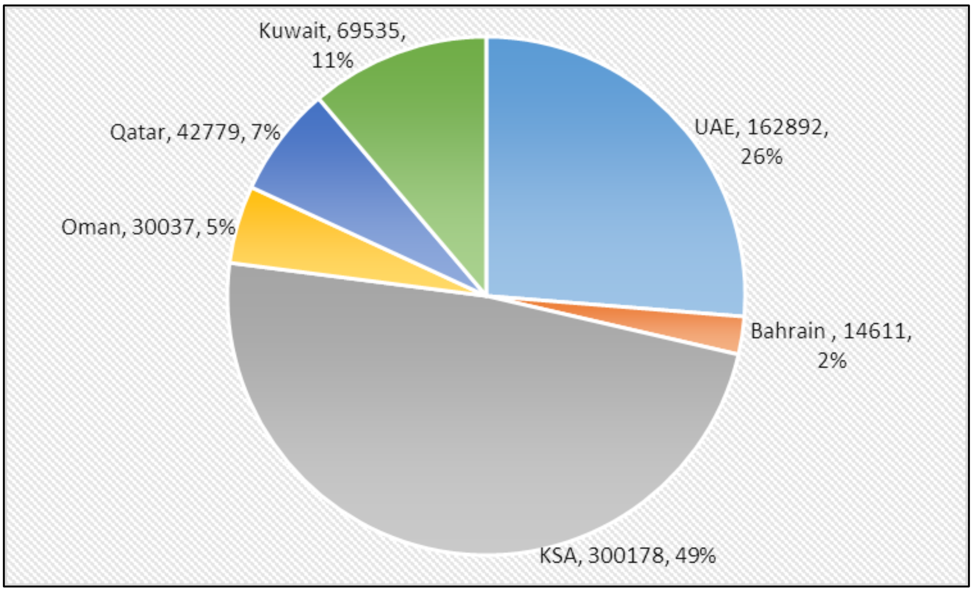
Source: Calculated by the author based on League of Arab States, (2004, 2006, and 2009) Joint Arab Economic Report, Abu Dhabi, different tables and pages.

(*) Economic openness = (Exports + Imports) / GDP

In table (3-8) we can see the degree of economic openness in the GCC countries, on average, in which Bahrain and the UAE represent the largest proportion in this regard, which confirms the high reliance of these economies on the foreign markets. However, it shows the significant role of foreign trade to meet the needs of the GCC economies in terms of consumption and investment. Oman, Qatar and Kuwait represent ratios of 76 per cent, 64 per cent and 62 per cent, respectively, whereas Saudi Arabia represents the lowest rate during the said period, which amounted to 53 per cent, because of its high level petroleum production compared with the Gulf region and oil countries in the Middle East in general. However, we note that the average GDP was estimated to be USD159,636 million during the study period, and that the United Arab Emirates represents USD 114,632, Kuwait and Oman USD 65,383 and 27,654 million respectively, as well as, Qatar USD36,832 million and Bahrain USD11,852 million.

Figure (3-2)

Average of real GDP (USD million) and its relative importance, (%) 1998-2008



Source: By the author based on: League of Arab States, Joint Arab Economic Report, different issues, 2004-2009.

Figure (3-2) clearly shows that Saudi Arabia is the main economy in terms of size of real GDP, which effects in reducing the degree of economic openness in comparison to other GCC countries, where the average of economic openness is about 53 per cent; as noted in table (3-8). In the UAE, despite its economy being ranked in the second level after Saudi Arabia, we note that it has achieved a high rate of economic openness, 113 per cent, as well as achieving a significant growth of GDP, which amounted to about 16 per cent, thereby reflecting the development of the level of foreign trade in the UAE. In this respect, we can consider the UAE as a better economy compared with the rest of the Gulf Cooperation Council, except for Saudi Arabia.

Moreover, we note that Bahrain represents the highest level of economic openness, which reached 115 per cent; also the growth rate of GDP in this economy achieved a high level, which amounted to 13 per cent, despite the fact that oil exports represent the less relative contribution in comparison with the other GCC countries. In this regard, we can conclude that the growth rate in Bahrain attributes to the significant role of the manufacturing sector, where it was about 9.6 per cent of GDP on average over the period 1998-2008, as well as the high level of foreign trade sector in Bahrain due to the local market narrowness and small gross domestic product. In addition, Oman and Qatar represent 76 per cent 64 per cent, respectively, in terms of economic openness, which explains the impact of narrow domestic market in these countries, where the openness reflects the inverse relationship between it and the GDP. Also, Kuwait comes in the third level in terms of the gross domestic product, which achieved a growth rate that represents 17 per cent on average, during the period 1998-2008.

Through the above, we see that the cause of the high average of economic openness is attributed to the low level of value added to the total of GDP in GCC countries, and with high oil prices, where increasing the degree of economic openness. Hence, we found that when Saudi Arabia achieved an increase in the level of GDP and value added, which means it achieved a lower degree of economic openness, due to its a big GDP compared to the rest of the GCC countries. This also implies that Saudi Arabia is still dominated by high production capacity, which means it reacts less to international crises, which are the main reason for the necessity of diversification in the GCC economies.

Finally, it is more obvious, that the increase in the degree of economic openness of the GCC countries is due to the increased oil export revenue, which has a positive effect on increasing the high level of imports. This confirms the case of a structural production imbalance, where there is a heavy reliance on the crude oil exports. For this reason, the role of foreign trade addresses the existing gap, in other words, there is a close relationship between the production structure imbalance and increasing levels of oil revenue from oil exports, due to the increase in economic openness in GCC countries, which reflects the negative effect of continued reliance on oil export revenues with the weakness in domestic production. In this regard the researcher sees the importance of attracting and encouraging increasing investment to reduce the level of dependence on imports and increase the level of value added; this will be achieved through the investment in order to diversify the production structure and to enhance the level of economic growth of these sectors.

3.2.3 The Intra-regional trade in GCC countries:

The average of intra-trade in GCC countries ranges between 6 per cent and 14.6 per cent for the total foreign trade over the period 1998-2008. These modest proportions are attributed to the similarity of production patterns in these countries, which makes its trade a limited activity in general.

During the period 1998-2008, the average of intra-trade was about USD 29,473.6 million. This represents 8.6 per cent of the average total of non-oil foreign commodities, which amounted to USD 344,239.21 million, where the value of imports is about USD 154,175.58 million, and the value of exports is USD 190,063.63 million. Consequently, it is clear that the commodity imports represent 45 per cent of the average total foreign trade, and commodity exports represent 55 per cent. While the total intra-imports of commodity intra-trade was 38 per cent of the total intra-trade during the period 1998-2008, and the rest of the percentage, 62 per cent represents the average of intra-exports. In table (3-9) it is noted that both Saudi Arabia and the United Arab Emirates have the biggest share of the average of total intra-exports, which amounted to USD 9,454.97 million and USD 5,556.78 million, respectively.

The proportion of intra- exports was estimated to be 52 per cent and 30 per cent, respectively, during the period 1998-2008. The other GCC countries ranged between USD 1,051.74 million in Qatar, and USD 489.04 million in Kuwait, where Oman and Bahrain represent 6 per cent and 5 per cent, then Qatar and Kuwait at 4 per cent and 3 per cent, respectively. The most important exported commodities are industrial products, and natural resources. The industrial exports are estimated to be 63 per cent, followed by natural resource products, 29 per cent, and the remaining percentage 8 per cent, represent agricultural and animal products (GCC, 2009). According to the above, we see that the increase in the level of intra-exports is related to the level of investment of the non-oil sector in increasing non-oil commodities and then enhancing the intra-trade. This means that these economies must exert considerable effort to encourage the investors to increase the level of the non-oil industries. However, we note that the foreign direct investment is a good way within this framework in order to achieve rapid economic growth. Also, the low level of intra- exports in GCC countries refers to the weakness of diversification. This could be enhanced through using the high level of oil revenue to increase the non-oil industries and decrease the leakage of a large part of the income of these countries. Therefore, the important issue is investing the oil revenue in non-oil projects, where it will significantly contribute to increasing the level of value added and diversifying the production structure in order to meet the local needs. In addition, there is the possibility of exporting the surplus commodities to other GCC countries, which helps to increase the level of total intra-exports.

Table (3-9)

Direction of Intra- Export in GCC countries (*) Average for period 1998-2008 (Million USD)

To: / Exporting country	UAE	Bahrain	KSA	Oman	Qatar	Kuwait	Total	Share in total GCC (%)
UAE		411.10	580.47	3402.3	673.05	489.86	5556.78	30
Bahrain	172.88		477.65	58.07	90.71	73.59	872.9	5
KSA	2888.03	2625.7		2502.9	585.66	852.5	9454.79	52
Oman	513.71	17.36	129.78		56.60	33.14	750.59	4
Qatar	752.0	44.64	200.2	23.61		31.29	1051.74	6
Kuwait	189.42	32.54	185.08	25.08	56.92		489.04	3
Total GCC	----	----	----	----	----	----	18175.84	100%

Source: Calculated by the author based on the following:

GCC, Secretariat General (2001), Statistical bulletin, volume (11).

GCC, Secretariat General, (2003), Statistical bulletin, volume (12).

GCC, Secretariat General, (2004) Statistical bulletin, volume (13).

GCC, Secretariat General, (2007) Statistical bulletin, volume (16).

League of Arab States and others (2009), (In Arabic) Joint Arab Economic Report, Abu Dhabi, p353.

League of Arab States and others (2001), (In Arabic) Joint Arab Economic Report, Abu Dhabi, p266.

League of Arab States and others (2002), (In Arabic) Joint Arab Economic Report, Abu Dhabi, p139.

United Nations, ESCWA (2009) External trade bulletin of the ESCWA region, Eighteen issue, New York, pp44-46.

(*) Excluding crude oil.

Moreover, we see in table (3-9) that Saudi Arabia reached the first rank in terms of intra-export, which amounted to USD 9,454.79 million, and represents 52 per cent of the total GCC intra-exports, where chemical products are the most important commodity imported by the UAE from Saudi Arabia, which accounted for 20 per cent of the total intra-imports of GCC countries, on average, for the period 1998-2008. Also, both Qatar and Bahrain represent 6 per cent and 5 per cent, respectively, followed by Oman and Kuwait in proportions 4 per cent and 3 per cent, respectively.

Table (3-10)

Direction of Intra-Imports in GCC countries (*), Average of period 1998-2008 (million USD)

From: / Importing Country	UAE	Bahrain	KSA	Oman	Qatar	Kuwait	Total	Share in total GCC (%)
UAE		325.38	2156.35	158.75	242.46	263.41	3146.35	28
Bahrain	210.33		777.28	24.15	27.16	34.96	1073.88	9.5
KSA	1264.6	473.34		189.0	146.0	169.3	2242.24	20
Oman	1366.8	75.91	254.09		15.36	27.53	1739.69	15
Qatar	711.36	116.61	599.93	91.56		53.96	1573.42	14
Kuwait	488.08	75.75	892.19	48.82	17.34		1522.18	13.5
Total GCC	---	---	---	---	---	---	11297.76	100%

Source: Calculated by the author based on the following:

GCC, Secretariat General (2001), Statistical bulletin, volume (11).

GCC, Secretariat General, (2003), Statistical bulletin, volume (12).

GCC, Secretariat General, (2004) Statistical bulletin, volume (13).

GCC, Secretariat General, (2007) Statistical bulletin, volume (16).

League of Arab States and others (2009), (In Arabic) Joint Arab Economic Report, Abu Dhabi, p353.

League of Arab States and others (2001), (In Arabic) Joint Arab Economic Report, Abu Dhabi, p266.

United Nations, ESCWA (2009) External trade bulletin of the ESCWA region, eighteen issue, New York, pp41-43.

(*) Excluding crude oil.

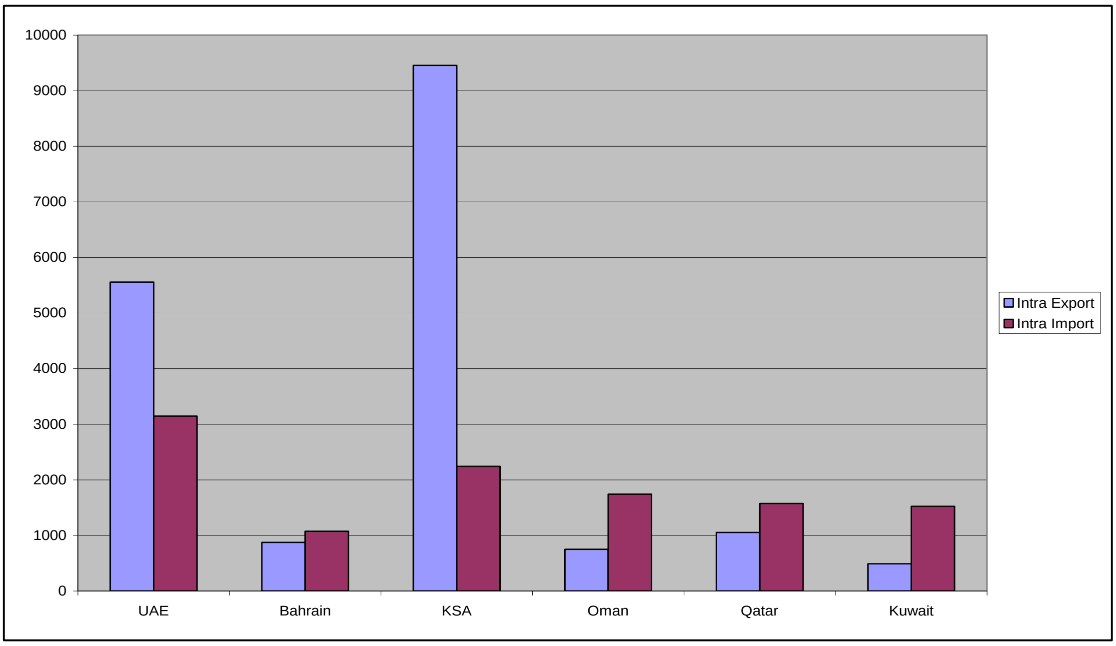
Table (3-10) above also shows that both Oman and Qatar make a major relative contribution in terms of intra-imports, and we see that the United Arab Emirates is the first commercial partner of Oman. Oman's imports reached USD1,366.8 million dollars, on average, for the period 1998-2008, which represents 78 per cent(*) of the total imports for the other GCC countries. This confirms the significant trade relations between the UAE and Oman.

Similarly, Qatar imports most of its needs from the United Arab Emirates and Saudi Arabia, where the rate of intra-imports ranges between 45 per cent and 38 per cent, respectively, while the other ratios are distributed among the other GCC countries. Moreover, Kuwait is the first trade partner of Saudi Arabia. Furthermore, the rate of intra-import is estimated to be 59 per cent of the total Kuwaiti intra-imports from other GCC countries during the period 1998-2008. In addition, the UAE is the second trade partner of Kuwait, where its import ratio from the UAE amounted to 32 per cent of the average of total imports from the other GCC countries. However, the industrial products represent the largest share in total intra-imports, where it is about 67 per cent of the total intra-imports for the period 1998-2008, followed by the natural resources at 19 per cent, and agricultural products and animal products at 11 per cent (GCC, 2009). Finally, we find that the UAE and Saudi Arabia are the main trading partners compared with the other GCC countries in terms of the two sides, imports and exports, as shown in figure (3-3).

(*) Calculated based on the table (3-11), 13366.8 / 1739.69 = 78%.

Figure (3-3)

Average of Intra-Exports and Imports of the GCC countries, 1998-2008 (million USD)



Source: based on data of tables (3-9) and (3-10).

Figure (3-3) clearly confirms that both Saudi Arabia and the United Arab Emirates represent the main market for intra-trade of the GCC countries for the period 1998-2008, where Oman is the first trade partner of each.

It was also noted previously that intra-trade remained at a low level during the period 1998-2008. This fact is clearer when we compare the GCC's intra-trade with their foreign trade commodity during the said period, where the average for intra-trade represents 8.6 per cent of the total foreign trade during the period 1998-2008, which shows a modest level of intra-trade commodities for these countries, as shown by the following table.

Table (3-11)

Average of Foreign trade and Intra-trade in the GCC countries 2008-1998 (*) (million USD)

Column No.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
			(1+2)			(4+5)	(6) /(3)
Country	Export	Import	Foreign Trade	Intra-Export	Intra-Import	Intra-Trade	Share of Intra trade in Foreign trade (%)
UAE	75812.11	66443.17	142255.28	5556.78	3146.35	8703.13	6
Bahrain	9441.13	5288.56	14729.69	872.9	1073.88	1946.78	13
KSA	49180.86	51459.78	100640.64	9454.79	2242.24	11697.03	11.6
Oman	8244	8798.72	17042.72	750.59	1739.69	2490.28	14.6
Qatar	14639.96	8984.35	23624.31	1051.74	1573.42	2625.16	11
Kuwait	32745.57	13201.0	45946.57	489.04	1522.18	2011.22	4
Total GCC	190063.63	154175.58	344239.21	18175.84	11297.76	29473.6	8.6

Source: prepared by author based on the following:

Arab Monetary Fund (AMF), (2009), Statistics of foreign trade, AMF, Kuwait. www.amf.org.ae

SESRIC, (2009), Annual Economic Report on the OIC countries, Ankara, pp71-72.

The columns (4), (5) based on previous tables.

The columns No. (3), (6) and (7) calculated by the author.

(*) Excluding crude oil.

Table (3-11) represents the share of the GCC countries in its contribution to the total intra-trade as a percentage of total foreign trade. The high ratio in Oman, 14.6 per cent, is because the Oman’s economy has a high trade level with the other GCC countries, particularly Saudi Arabia and the UAE, which means that there are strong commercial relationships between Oman and these countries.

Besides, Bahrain ranks in the second level, which amounted to 13 per cent, while Saudi Arabia and Qatar dominated on 11.6 per cent and 11 per cent, respectively. However, we note that both the United Arab Emirates and Kuwait represent the lowest level in the total contribution of intra-trade 6 per cent and 4 per cent, respectively, as a percentage of the average total foreign trade. Furthermore, this issue implies that the UAE economy has a high dependence on foreign trade, which represents 41 per cent of the total average of foreign trade of the GCC countries for the period 1998-2008. Also, we see that the average of intra-trade for the UAE amounted to 29.5 per cent over the period of study. Therefore, the UAE is considered a vital economy in terms of its relations with the GCC and non-GCC countries. In other words, the UAE economy is a more open economy towards the world markets in comparison with the other GCC countries.

In addition, table (3-11) illustrates that Saudi Arabia is ranked on the third level in terms of intra-trade as a proportion of foreign trade, which represented 11.6 per cent, while foreign trade represents 29 per cent of the total foreign trade volume of the GCC countries, and intra-trade amounted to 39.6 per cent of the total trade volume between the GCC countries. Oman and Bahrain represent the lowest rate, 5 per cent and 4 per cent, respectively, of the total volume of foreign trade, for which they depend on other GCC countries to meet their commodity needs. In respect of Qatar and Kuwait, the foreign trade commodity represents 7 per cent and 13 per cent, respectively, while the intra-trade amounted to 9 per cent, and 7 per cent of the total trade volume between the GCC countries. Therefore, we can say that Qatar has more reliance on intra-trade compared to Kuwait. In other words, Kuwait depends on other countries outside of the GCC to meet its commodity needs. Also, the UAE and Saudi Arabia are the major economies of the GCC, in general, and control the largest share in terms of the level of foreign trade and intra-trade. Furthermore, the table above confirms that the United Arab Emirates and Saudi Arabia represent the largest economic power in the Gulf Cooperation Council, in both, foreign trade and intra-trade. The main issue that must be emphasised is that the intra-trade in this study only includes domestically produced goods and does not include transit goods. The researcher has excluded the transit trade and crude oil to show the real situation of intra-trade. In addition, table (3-11) verifies that Bahrain and Oman have the lowest foreign trade level, and that Kuwait has heavy reliance on foreign trade compared with its small intra-trade. Also, the situation is similar in Qatar, in which its intra-trade level is better than Kuwait.

According to the analysis of intra-regional trade, and to determine its intensity in the GCC countries during the period 1998 – 2008, we will use the following formula (ESCWA, 2005):

$$Ci = \{[X\ GCC - M\ GCC] / [X\ total + M\ total]\} - \{[X\ GCC + M\ GCC] / [X\ total + M\ total] * [X\ total - M\ total] / [X\ total + M\ total]\}$$

Where:

Ci: Intensity of intra-trade of the country (i) with other GCC countries in the net total export. (*Percentages*)

$X\ GCC$: Intra-exports from country (i) to other GCC countries.

$M\ GCC$: Intra-imports from country (i) to other GCC countries.

$X\ total$: Total exports of the country (i) to the other countries, *excluding GCC*.

$M\ total$: Total imports of the country (i) from the other countries, *excluding GCC.*

If the value is positive, this means that country (i) has a density in the export within the intra-trade than trade, and vice versa when the value is negative. This means that country (i) has an intensity in imports in intra and foreign trade. We will use the above formula based on data in table (3-12), which was prepared by the researcher for this purpose. As follows:

UAE:

$Ci = [2410.43 / 142255.28] - ([8703.13 / 142255.28] * [9368.94 / 142255.28])$

$Ci = [0.0169] - ([0.0611] * [0.0658])$

$\boldsymbol{Ci = 0.0129}$

The above result indicates that the UAE has intensity in its intra-export commodity, which implies that the UAE economy has achieved a surplus in the commodity production during the period 1998-2008. It increased the growth level of intra-trade over the same period; in other words, the UAE economy achieved a competitive advantage in its intra-exports more than its intra-imports.

Bahrain: By using the same previous formulation, we got the following result:

$Ci = [-200.98 / 14729.69] - ([1946.78 / 14729.69] * [4152.57 / 14729.69])$

$Ci = [-0.0136] - ([0.1321] * [0.2819])$

$\boldsymbol{Ci = - 0.0508}$

The negative result above shows that Bahrain has an intensity in its intra-imports, which confirms its increased reliance on the other GCC countries for obtaining its commodity needs.

Saudi Arabia

$Ci = [7212.55 / 100640.64]- ([11697.03 / 100,640.64] * [- 2278.92 / 100,640.64])$

$Ci = [0.0716] - ([0.1162] * [- 0.0226])$

$\boldsymbol{Ci = 0.0742}$

The positive result above confirms that Saudi Arabia has a large concentration in intra-export and is superior to the United Arab Emirates, which can largely be attributed to its substantial GDP, which helped it to increase the level of intra-export during the period 1998-2008.

Oman:

$Ci = [-989.1 / 17042.72] – ([2490.28 / 17042.72] * [- 554.72 / 17042.72])$

$Ci = [- 0.0580] – ([0.1461] * [- 0.0325])$

$\boldsymbol{Ci = - 0.0533}$

The negative result above indicates that Oman has intensity in its intra-import with the rest of the GCC countries. This result is consistent with the data and analysis of table (3-10), where we noted that the average of the total intra-import of Oman is about USD1,739.69 Million, while its intra-export amounted to less than one million, USD 750.59.

Qatar:

$Ci = [-521.68 / 23624.31] - ([2625.16 / 23624.31] * [5655.61 / 23624.31])$

$Ci = [- 0.0220] - ([0.1111] * [0.2393])$

$\boldsymbol{Ci = - 0.0485}$

As we noted in the cases of Oman and Bahrain, the negative ratio above shows that Qatar has intensity in its intra-regional imports. And if we go back to table (3-10) we will note that the level of its intra-regional imports is about USD1,573.42 million, and its intra-regional export is only USD1,051.74 million. This means that Qatar has a significant relation in terms of its intra-regional trade, where it imported most of its needs from Saudi Arabia and the UAE.

Kuwait:

$Ci = [-1033.14 / 45946.57] - ([2011.22 / 45946.57] * [19544.57 / 45946.57])$

$Ci = [- 0.0224] - ([0.0437] * [0.4253])$

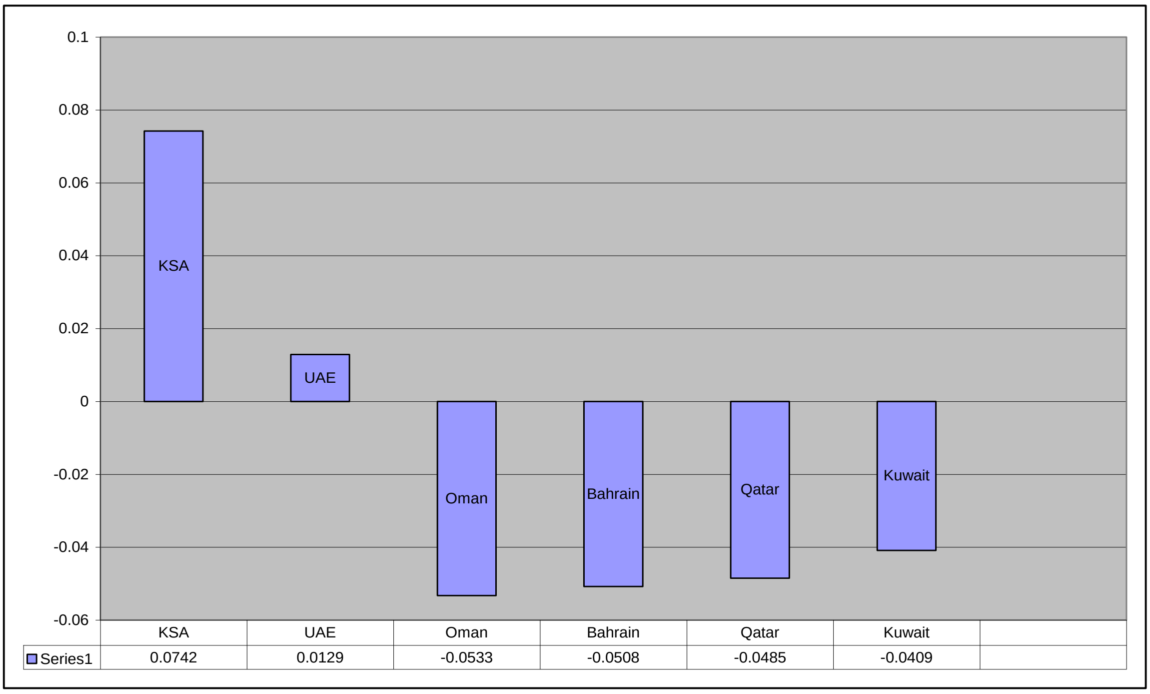
$\boldsymbol{Ci = - 0.0409}$

The result above shows that Kuwait achieved a negative ratio in terms of its intra-regional imports, which means that this country has imported from other GCC countries more than its exports. This result was proved previously, where we noted that the average of Kuwait's imports is about USD1522.18 million, while its intra-regional exports amounted to only USD489.04 thousand on average for the period of study.

However, figure (3-4) and its indicators show the level of intra-trade intensity in the GCC countries during the period 1998-2008. It shows that Saudi Arabia is a major economy in terms of intra-trade intensity. The rest of the GCC states, except the UAE, have obtained negative signals, which confirms their intra-import intensity. In this respect Oman comes in the first level, then Bahrain, Qatar and Kuwait, which indicates that this negative group is reliant on Saudi Arabia as a main partner, as well as world markets to meet its various commodity needs.

Figure (3-4)

Intensity of Intra-trade in the GCC – Average for period 1998-2008 (percentages)



Source: By the author based on the result of the intensity of the intra-regional trade.

According to the above, we can say that Saudi Arabia has had a positive impact on the intra-trade, which means that the commodity products of this country have a competitive position among the GCC countries that import these products. However, according to the positive signals of the intensity index, we see that Saudi Arabia and the UAE have a positive role in their non-oil sector during the period 1998-2008.

In respect of the negative group (Oman, Qatar, Kuwait and Oman) we can say that these countries have not achieved a competitive advantage in their non-oil sector. Therefore, these countries are still suffering from weakness in the level of non-oil industries and mainly depend on the oil sector, except Bahrain. In other words, the efforts of economic diversification in these countries are not reaching their objectives in this respect.

Besides, it was noted that the continued weakness of intra-trade in the GCC countries and the high level of oil share in GDP over a period 1998-2008 are the main reasons that led to an increased level of integration with the global economy, more than between GCC countries. Meaning that, the efforts of GCC countries to diversify the production structure have not achieved their aims except for Saudi Arabia and the UAE, the economies of which still depend on the oil sector, which helped to increase the level of economic openness. However, it did not increase the level of intra-trade even though it was an important target of the unified economic policy of the GCC bloc since 2003.

However, based on the previous analysis, we can say that the economic openness in the GCC countries and their high dependence on commodity imports over a period 1998-2008 obviously shows that the fluctuations of trade balance are related to export values more than the fluctuations that occur in import values because of the significant role of the oil exports and other industries that rely on them. However, the ratio of intra-regional trade amounted to 8.6 per cent on average for all GCC countries. This ratio reflects that more than 90 per cent of GCC trade is related to non-GCC countries, which also implies a high level of economic openness, especially for the UAE 113 per cent, and Bahrain 115 per cent. However, the major reason for that is the high reliance on oil exports in these economies, particularly in Saudi Arabia 38.2 per cent, Oman 38.5 per cent, and Qatar 34 per cent, on average, for the period of study.

Moreover, there is no link between the food industries and agriculture sector in the GCC countries, where there is an increasing number of food factories with declining agricultural production. This case confirms that there is no real growth in the agriculture sector. In other words, these factories depend on imported agricultural material, where it had an insignificant role in terms of enhancing the intra-regional trade in the GCC countries during the period 1998-2008. However, this finding reveals that the GCC countries will suffer from the increase of exported food, where the agriculture sector contributions ranged from 0.6 per cent to 4.4 per cent, on average, while the level of population growth was between 2.06 per cent and 6.65 per cent, on average, during the period 1998-2008. Accordingly, these facts confirm that the agriculture sector will still not meet the increased level of food demand. This means a rising level of imports and agricultural materials. In addition, the weakness of intra-regional trade in GCC countries, especially in Kuwait (4%), indicates the insignificant role of non-oil industries, where a high reliance on the oil sector and some related industries led to a similarity of the production pattern. These industries became very competitive towards other non-GCC countries. Therefore, non-oil industries in GCC countries have not had a positive effect on improving the level of intra-regional trade during the period of study.

Finally, the low level of intra-regional trade implies that the intra-investments in GCC countries have not an important role in enhancing level of industries of these countries which could be affecting in improving level of their intra trade. In addition, it refers to the lack of coordination in investment policies, which reflects the failure of the unified economic policy that was adopted by the GCC bloc in 1981. Moreover, Saudi Arabia is considered a hub market of the GCC countries according to its a positive intra-trade intensity. The indicator amounted to 0.0742 during the period 1998-2008. This result ensures the significant role of size of GDP in enhancing the level of intra-regional trade. However, we will consider it as a main economy in the gravity model in order to test Saudi's trade with the rest of the GCC countries, as well as other selected non-GCC countries. According to the analysis above, we have found that the economic openness in GCC countries during the period 1998-2008 reflects a weakness in the share of non-oil sectors in GDP, whereas the regional intra-trade is still linked to the condition of the global market and its fluctuations.

3.3 The foreign trade commodity of GCC countries:
3.3.1 The commodity export and its direction:

There is no doubt that crude oil exports are the main source of the economic development process in GCC countries, because the revenue has a big role in covering the disruption of other sectors, where increasing oil export revenues lead to an increase in the level of imports, as well as to meet the local demand for various capital and consumption goods. However, the crude oil exports represent the key to success of development efforts, which aim to diversify the production structure and create new labour opportunities, reforming the deficit of the trade balance and attracting foreign direct investment (FDI).

In addition, commodity export values rose during the period 1998-2008 due to the increase in demand and the price of crude oil, especially during the last five years of study, 2004 to 2008. The following table shows the values and growth rates of commodity exports in GCC countries during the period 1998-2008.

Table (3-12)

The commodity export for GCC countries – 1998-2008 (million USD)

Year	UAE	Bahrain	KSA	Oman	Qatar	Kuwait
1998	40408.40	4383.01	60572.50	7656.70	3856.10	14280.20
1999	33835.01	3270.21	38724.40	5521.51	5030.50	9616.40
2000	36470.80	4362.79	50756.00	7237.97	7213.73	12165.11
2001	49834.24	6242.55	77584.00	11315.05	11593.96	19476.04
2002	48413.90	5657.18	67973.20	11070.78	10871.16	16244.90
2003	51774.00	5887.87	72464.30	11172.95	10978.02	15363.77
2004	66755.62	6720.81	93243.50	11669.70	13382.14	21791.95
2005	90948.94	7650.70	125665.33	13381.01	18684.62	30089.24
2006	117287.95	10348.63	180086.93	18691.81	25761.81	46970.55
2007	145587.47	12339.89	210458.67	21586.48	26980.49	58633.00
2008	180898.57	13790.16	233418.40	25602.00	37796.00	63666.10
Average 1998-2008	**78383.17**	**7332.16**	**110086.11**	**13173.26**	**15649.86**	**28027.02**
Growth rate 98-2008	**14%**	**11%**	**13%**	**11%**	**23%**	**14%**

Source: Arab Monetary Fund (AMF), bulletin of foreign trade, different tables.

League of Arab states (general secretary) Joint Arab economic report (2006), P. 153.

Table (3-12) shows the commodity exports of the GCC countries, in which the value increased gradually during the study period, 1998-2008. This issue could be analysed through the new changes of economic policies of the GCC countries, which led to the relative diversification of certain products, such as new chemical products that led to an increase in the value added in Saudi Arabia, which accounts for 7 per cent of the global supply of basic petrochemical products (Arab League, 2009). Moreover, the policies aimed to encourage exports, where these countries achieved positive growth rates during the period 1998-2008. Because of its oil export growth, Qatar was at the first level, which amounted to 23 per cent. In addition, this country is characterized in a high growth level in terms of natural gas exports.

Furthermore, we note that the total average exports of UAE and Saudi Arabia form 75 per cent[(*)] of the total exports of the GCC, where these exports go to the developing and developed countries.

However, we note that Saudi Arabia and the UAE are the main exporters in comparison with the other GCC countries, where the growth rate of commodity exports represents 13 per cent and 14 per cent, respectively, as shown in table (3-12). The high level of these two countries reflects their size of GDP as major economies of the GCC over the period of study.

The most important issue that we should report in respect of the GCC commodity exports is that the attempts to increase the size of exports remained constrained by the similarity of the production pattern that is controlled by the crude oil exports, which represents the largest share in total export revenue over the study period. However, this is the main factor for the modest level of intra-regional trade, as we have discussed previously. Moreover, the small size of GCC economies – except Saudi Arabia and the UAE – is also the second reason that hinders an increase in the level of trade, regionally

[(*)] Calculated by the author based on table (3-13), p.143.

and internationally, and, accordingly, we can justify the low level of trade in Bahrain, Oman, Qatar and Kuwait over the period 1998-2008.

In addition, the high reliance on crude oil exports as a main commodity has limited the direction of the GCC foreign trade towards the developed countries more than the Arab and developing countries because of the high demand for crude oil in developed countries to meet their needs for oil, as shown in the following table:

Table (3-13)

The main direction of commodity export to GCC countries – the average period 1998-2008 (percentage)

Country	Developing countries	Arab countries	Developed countries	The rest countries	Total ratios
UAE	28	8	42	22	**100%**
Bahrain	9	11	17	63	**100%**
KSA	23	15	41	21	**100%**
Oman	43	17	29	11	**100%**
Qatar	37	6	50	7	**100%**
Kuwait	29	4	44	23	**100%**
Average ratios	**28.1%**	**10.2%**	**37.2%**	**24.5%**	___

Source: Based on bulletin of foreign trade, AMF, Arab Monetary Fund, Kuwait, different tables.

In table (3-13), the researcher noted that most of the commodity exports of the GCC countries go to the developed countries, which is about 37.2 per cent, on average, of the total GCC exports, where Qatar represents the first level in this respect; around 50 per cent of total commodity exports to the other countries. Kuwait comes in the second level, with 44 per cent, and then the UAE represents 42 per cent. According to these percentages, we see that the high ratio of GCC exports is oriented to developed countries, where the crude oil represents high ratios, which is justifying the increased level of GCC exports to the developed countries.

In this context, Saudi Arabia represents 45 per cent, on average of the total exports of the GCC countries in general (Arab League,2009), because of its high level of oil production, as well as the growth of its petrochemical industry. The UAE comes in the second level, which represents 34 per cent, and then Qatar, Kuwait, Oman and Bahrain have ratios of 8 per cent, 5.5 per cent, 4 per cent, 3.5 per cent, respectively. If we again note table (3-3), it can be seen that the crude oil is the main commodity exported to developed countries, which confirms the significant role of oil exports to determine the direction of foreign trade with developed countries compared with other areas.

However, it is clear that the developed countries are the first partners of GCC countries over the period 1998-2008, where Saudi Arabia, UAE and Qatar dominate the main ratios in this regard.

In respect of developing countries, the table above confirms that these countries are considered as second partners of GCC countries, where it represents 28.1 per cent of the average total commodity exports of the GCC countries during the study period.

The main non-oil commodity export of the GCC countries:

The increased growth rate of total commodity exports in the GCC countries shows the positive effect of the commercial economic policy in the GCC countries during the period 1998-2008. There is no doubt that the structure of foreign trade is determined according to the economic structure. However, the crude oil and some manufactured goods form the main commodity exports for GCC countries, the problem is that these exports still depend too much on crude oil exports, which reflects the insignificant role of non-oil industries. Therefore, the achieved growth rate in GCC countries during the period 1998-2008 is still related to the oil sector, where the increase in oil exports contributes to the total export revenues. The following table shows the role of the non-oil sector of GCC countries:

Table (3-14)

The main non-oil commodity exports of the GCC countries, on average 1998-2008 (percentage) (*)

Country	Food and beverages	Machinery and transport equipment	Manufactured goods	Chemicals	Mineral Fuels	Crude material
UAE	5%	7%	36%	-	39%	5%
Bahrain	-	-	17%	2%	70%	3%
Saudi Arabia	9%	12%	`21%	19%	34%	_
Oman	-	-	-	1%	81%	_
Qatar	-	-	-	9%	87%	_
Kuwait	-	-	1%	4%	93%	_
Average -GCC	**2.3%**	**3.1%**	**12.5%**	**5.8%**	**67.3%**	**1.3%**

Source: Based on data of foreign trade, Arab Monetary Fund, AMF, Kuwait, different tables.
(*) the percentages are rounded to the nearest decimal rank.
The mark (-) means that the ratio is less than (0.5%).

Table (3-14) shows that both the UAE and Saudi Arabia have the best contribution in terms of their non-oil sector compared with other GCC countries, which indicates the success of the economic policy of the UAE and Saudi Arabia in achieving acceptable economic growth with a reducing share of the oil sector. In addition, the same table confirms the low level of these sectors in other GCC countries.

In addition, we note that the relative contribution of the manufacturing industry of the UAE represents 36 per cent of the average total commodity exports, and contributes by 22 per cent in Saudi Arabia despite the significant size of the Saudi economy. However, we can say that the main reason that leads to the important contributions of the UAE manufacturing industry is attributed to the role of the large facilities introduced by the UAE to do business, where the UAE is considered one of the top ten economies, which is distinguished by facilitating the requirements of trade activities (Kota, 2010).

Moreover, and if we revert to the level of growth rates of the commodity exports, as mentioned previously, the researcher sees that there is a positive relationship between the growth rates and the percentages of table (3-14). In table (3-12), the UAE and Saudi Arabia represent 14 per cent, and 13 per cent, respectively, and in table (3-14) we see that the same two countries (the UAE and Saudi Arabia) have achieved a significant contribution in terms of diversifying of the GDP structure compared with other GCC countries. This issue obviously confirms the importance of the non-oil sector in these two countries in supporting commodity growth, which has a subsequent effect on the GDP growth rate, and enhances foreign trade and economic growth in general. In other words, the non-oil sector has a positive effect in improving the value of commodity exports in the UAE, Saudi Arabia, and, somewhat, in Bahrain, while in Oman, Qatar and Kuwait their commodity export growth is attributed to the increase in oil export prices.

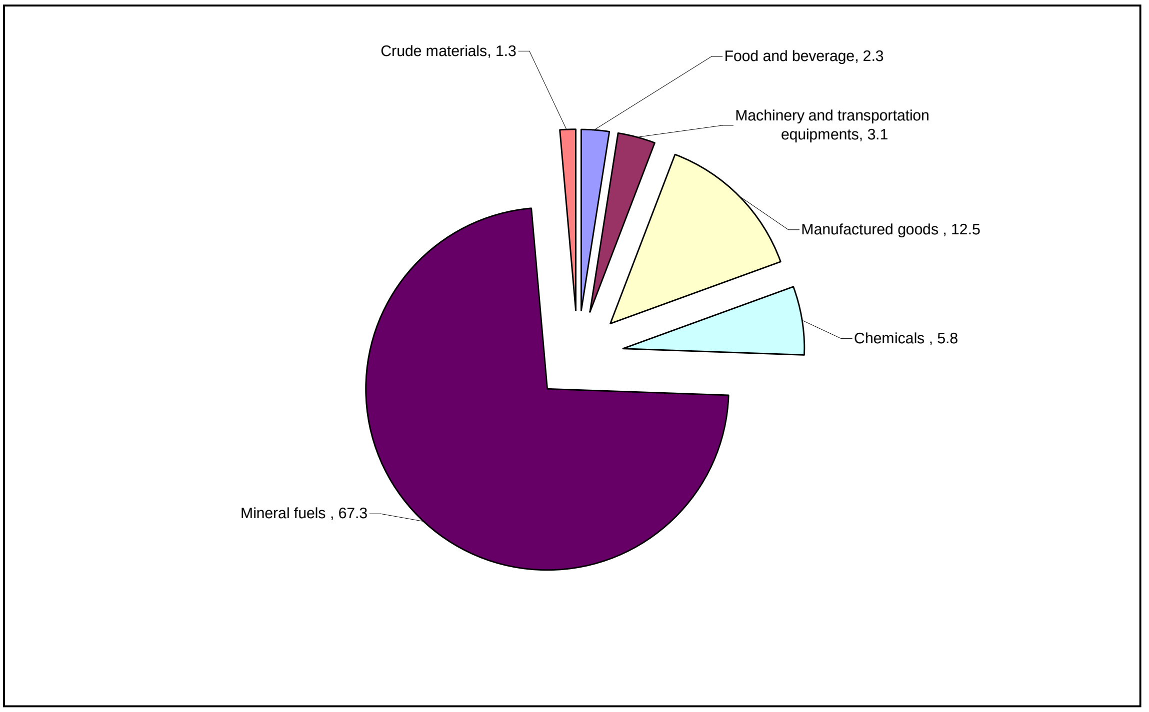
Furthermore, the high prices of oil exports have enhanced the export values, which reached a high level in 2008. In addition, the role of export strategy in GCC countries worked to remove the export barriers, exempting export approvals for national export.

However, the researcher sees the necessity for adopting a strategy to engage the high oil revenues in diversifying the non-oil sector and varying the production structure, which is considered an attempt towards enhancing the commodity exports and reducing the economic fluctuations, which result from the high reliance on crude oil revenue as a main source of income.

In conclusion, we can say that the industrial development strategy in the GCC countries, which aims to encourage the export development policy, has not achieved its objectives through varying production and creating export surpluses despite the availability of appropriate investment conditions, and that the GCC countries are still depending on oil export revenues. Furthermore, the positive growth rate that was achieved over the period 1998-2008 does not reflect the success of the economic policies, which aim to diversify the production and develop the non-oil industrial sectors, as much as it reflects the increase in oil export revenues in GCC countries. The mineral fuels remain the major non-oil commodity exports of the GCC countries over the period of study, as shown by the following figure:

Figure (3-5)

The main non-oil commodity exports of GCC countries (percentage)



Source: By the author, based on data of foreign trade, Arab Monetary Fund, AMF, Kuwait, different tables. From: www.amf.org.ae

Figure (3-5) illustrates the significant contribution of mineral fuels to the total of non-oil commodity exports of GCC countries, on average, for the period 1998-2008. It represents 67.3 per cent, and table (3-14) confirms that Kuwait is the main contributor, at 93 per cent of its total non-oil commodity exports during the said period. Qatar, Oman, Bahrain have high shares (87%), (81%) and (70%), respectively, while Saudi Arabia and UAE represent low relative contribution (34%) and (39%), respectively.

According to the percentages above, we can say that Kuwait, Qatar and Oman have high reliance on the extracting sectors, which means that their efforts to increase their share of the manufacturing industry and other non-oil sectors, except mineral fuels, have not achieved their targets compared with Saudi Arabia and the UAE. Four members of the GCC countries have not reached an important level in terms of economic diversification and increasing their share of non-oil commodity exports. However, this analysis explains the weakness of the relative contributions of manufactured goods, and machinery and transportation equipment due to the high dependency on the export of chemicals and mineral fuels. While in Saudi Arabia, the UAE and Bahrain we note that the manufactured goods have a significant relative share, particularly in Bahrain, which represents 21 per cent of its total commodity exports over the period 1998-2008.

Relative importance of direction of the GCC exports:

The commodity exports:

Under the high reliance on the oil sector as a main income resource in the GCC countries, it is a natural issue that the direction of their exports will be directed towards the developed countries, which are dominated by the crude oil exports of GCC countries. In contrast, GCC countries import most of their commodity needs from the developed countries, where Saudi Arabia and the UAE have high export ratios compared to the other GCC countries over the period of study, as shown in the following table:

Table (3-15)

The relative importance of export directions, on average 1998-2008 (percentage) (*)

Country	Developing countries	Arab countries	Developed countries	The rest countries
UAE	30	20	29	28
Bahrain	3	4	2	10
Saudi Arabia	40	61	45	45
Oman	7	6	2	2
Qatar	12	5	10	3
Kuwait	8	4	12	12
Total GCC	**100%**	**100%**	**100%**	**100%**

Source: Based on data of foreign trade, Arab Monetary Fund, AMF, Kuwait, different tables.

(*) the percentages are rounded to the nearest decimal rank

Table (3-15) shows the export direction of the GCC countries and the contribution of each country in total exports during the period 1998-2008. In this respect, the researcher sees that Saudi Arabia makes a significant contribution, 45 per cent of the total GCC exports to developed countries, with the UAE in the second level, 29 per cent. However, it was noted that Saudi Arabia dominates the highest ratio of total exports of the GCC countries to other group countries, except for its exports to Eastern Europe.

In general, the Eastern European countries still represent low ratios in terms of GCC exports, except Saudi Arabia and the UAE. This means that the GCC countries do not constitute a significant partner to Eastern European countries, due to the weak commercial relationships between the two groups, which is attributed to the EU decision in 1983 (Mana, 2007), which imposed high tariffs on GCC petrochemical exports. This was still active until 1997, before the EU countries approved a reduction in tariffs from 14 per cent to 6.5 per cent, according to the WTO negotiations. However, despite that, the GCC exports to EU countries did not achieve a significant impact during the period 1998-2008. Also, the economic policy in EU countries adopted several objectives to reduce the oil consumption, as well as import their oil needs from Russia, Iran, Libya and Algeria (Ibid).

In respect of GCC exports to developing countries, we note that Saudi Arabia and the UAE dominate the major relative importance, 40 per cent and 30 per cent, respectively. Qatar comes in the third level, which is explained due to the increased exports of crude oil to developing countries, especially Asian countries. In respect of GCC countries, we can say that the main reason for the weak intra-trade is the similarity of product pattern, as we note when we address the trade between GCC countries and the weakness of the manufacturing and agricultural sectors.

3.3.2 The commodity imports.

The commodity imports reflect the real objectives of the economic development strategy of the GCC countries; also, these imports are affected by many factors, such as commercial policy and the level of global prices. However, the imports of GCC countries could be classified into the following main groups:

a. Food and beverages
b. Machinery and transport equipment
c. Manufactured goods

The relative importance of produced goods varies in GCC countries due to the role of commercial policy in these countries (GCC, 2009), where the development plans aim to reduce the consumption and luxury goods and focus on capital goods like machinery and transport equipment. The following table shows the imported goods, on average for the period 1998-2008:

Table (3-16)

Average of non-oil commodity imports in GCC countries – 1998-2008 (percentages)[(*)]

Country	Foods and Beverages	Machinery and transport equipment	Manufactured goods
UAE	9	23	31
Bahrain	7	28	15
Saudi Arabia	17	49	20
Oman	15	41	24
Qatar	15	28	24
Kuwait	34	40	13
Average of GCC	**16.1**	**34.8**	**21.6**

Source: Based on data of foreign trade of GCC countries, Arab Monetary Fund, AMF, Kuwait, different tables.

(*) The ratios are rounded to the nearest decimal rank. It refers to the average ratio of the ten years of the study.

In table (3-16) it is clear that the machinery and transport equipment dominate with high ratios, which amounted to 34.8 per cent, while manufactured goods, food and beverages represent 21.6 per cent, and 16.1 per cent, respectively, on average, of total commodity imports over the period 1998-2008. In this respect, we can explain that the increased level of capital goods is a result of the economic openness policy, which it started in the early nineties, as well as the legislation and investment laws, that encouraged an increase in the capital imports ratio in comparison with other commodities.

In addition, we note that there is a positive relationship linking to the value of crude oil exports, on the one hand, and the total imports, on the other. This confirms that the GCC economies still depend too much on their oil revenue. In other words, GCC countries depend too much on their oil export revenue to meet the high demand for imports.

During the period 1998-2008, the commodity imports of the GCC countries increased rapidly, where the growth rate of these imports ranged between 8 per cent in Oman and 18 per cent in Qatar, as shown in the following table:

Table (3-17)

The commodity imports in GCC countries, 1998-2008 (million USD)

Year	UAE	Bahrain	KSA	Oman	Qatar	Kuwait
1998	34093.96	4025.53	28743.12	5026.06	3321.84	8214.41
1999	32587.92	3477.66	30012.55	5825.72	3356.79	8617.03
2000	24972.18	4272.90	28032.00	4674.33	2499.56	7616.39
2001	26717.03	4832.98	30197.35	5130.79	3252.20	7156.13
2002	30076.02	4305.41	31181.55	5796.17	3724.29	7872.58
2003	37533.02	5012.36	32290.13	6005.20	4052.03	9000.01
2004	45824.37	5657.24	36916.00	6572.17	4897.34	10985.15
2005	63430.91	6484.49	47375.73	8615.60	6004.45	12630.57
2006	74494.21	7946.25	59462.67	8827.05	10060.71	15801.03
2007	86118.45	8943.62	69707.10	10897.53	12614.01	15951.70
2008	12110.00	11515.20	90156.80	12112.20	20934.53	23587.70
Average 1998-2008	**52449.82**	**6043.05**	**44006.81**	**7225.71**	**6792.52**	**11584.79**
Growth rate 98-2008 (%)	**12 %**	**10%**	**11%**	**8%**	**18%**	**10%**

Source: Based on data of foreign trade of GCC countries, Arab monetary fund, AMF, Kuwait.
League of Arab states, (2006) Joint Arab economic report, (AMF, Abu Dhabi), p 153.

In table (3-17), the researcher sees that the commodity import values are less than the value of exports during the same period. In terms of growth rate, Qatar represents the significant ratios, which amounted to 18 per cent. The UAE and Saudi Arabia came in the second and third level, 12 per cent and 11 per cent, respectively, and then Bahrain and Kuwait both represent 10 per cent. Oman comes in the last level, 8 per cent. In terms of size of commodity imports, we note that the UAE and Saudi Arabia have achieved significant values, where the UAE dominated on the first level in this respect. However, the average of commodity imports amounted to USD 52,449.32 million, while in Saudi Arabia it amounted to USD 44,006.81 million.

However, this progress is attributed to the role of the economic policy of the UAE, which confirms that foreign trade plays an essential role in improving the economic growth of the UAE, which follows a free trade policy. In addition, it provides distinct facilities for doing business and other associated transactions. These combined factors have significantly contributed to increasing the level of commodity foreign trade flows in the UAE. Nevertheless, recently, the UAE has followed a long-term trade policy, in an attempt to sustain its economic stability by developing free trade talks, in order to hold expanded trade partnerships with Singapore, China, India, Pakistan, Turkey, Australia and New Zealand (Kota, 2010), where the UAE is seeking to enhance the future trade partnership with these countries. Moreover, there are discussions concerning a free trade zone with Iran and South Korea in order to facilitate more foreign trade. Therefore, we can say that the level of foreign trade flows, particularly the commodity imports between the UAE and its main partners, had a positive impact in promoting the level of economic growth for the UAE during the period of this study, 1998-2008.

According to the above, we see the importance of the GCC countries entering free trade agreements with other countries, which is considered a major shift to enhance the level of foreign trade, especially in Bahrain, Oman, Qatar and Kuwait, where this progress will have a positive impact on improving the level of economic growth.

In addition, we have noted that Saudi Arabia is the second country in terms of commodity imports, while the other GCC countries are still in their known levels, especially in Bahrain. In conclusion, we can say that the trade partnerships with other non-GCC countries are one of the important factors to stimulate and increase the foreign trade level in future, where Saudi Arabia and the UAE are classified among the 30 largest importers and exporters in the World Trade Organization, WTO. (Kota, 2010).

In addition, we note that the growth of commodity exports was bigger than the growth rate of imports. This fact confirms the significant reduction in value of commodity imports compared with the exports in GCC countries over the period 1998-2008, which has a positive effect on the trade balance and reduces the problem of payments balance deficit that the GCC countries are suffering from. In this context, and if we go back to table (3-8), we will consider the importance of foreign trade to the GCC countries, where increasing percentages confirm the high reliance on global markets, by exporting surplus goods, such as crude oil, and importing in return various consumption and capital goods.

As a result, the foreign trade of GCC countries has a big role in meeting the increased demand of local consumption and capital needs, where the importance of imports emerges, especially in those countries that are suffering an imbalance in structural production with a high reliance on the oil sector like Kuwait, Qatar and Oman. Hence, the foreign trade in the GCC countries is an engine for economic growth through its effects in organizing exploitation of the natural resources and to exchange the produced goods with other countries, which means expanding their regional markets.

Finally, while foreign trade has a positive effect in terms of capital formation and investment through importing the capital goods that contribute to technology transfer, the commodity exports have an important role in meeting the cost of capital imports. This leads to the achievement of economic growth, which emerges through the positive relationship between exports and economic growth, and then their effect in supporting the level of economic welfare in general.

Finally, we can conclude that the developed countries are the main direction of the commodity exports of the GCC countries, which represented 37.2 per cent of the total exports. Furthermore, the developing and Arab countries come in the second and third levels, 28.1 per cent and 18.8 per cent, respectively. This finding reflects that the high reliance on crude oil exports has linked the fluctuations of trade balance to the volatility of oil export prices more than with import value, due to the significant share of oil exports in the total GDP of the GCC countries, except Bahrain. Moreover, the GCC countries achieved a positive growth rate over the period of study. Qatar, the UAE and Kuwait occupied high ratios, 23 per cent, 14 per cent, and 14 per cent respectively, however, this growth does not reflect the success of the economic diversification policy as much as it indicates the high prices of crude oil exports for the period 1998-2008.

Furthermore, the non-oil commodity exports have a significant role in Saudi Arabia, the UAE, and somewhat in Bahrain compared with the other GCC countries, where manufactured goods have achieved a high ratio amounting to about 36 per cent, 21 per cent, 17 per cent in the UAE, Saudi Arabia, and Bahrain, respectively. Machinery and transport equipment are the main imports of the GCC countries, which amounted to 34.8 per cent, on average, over the period of study. However, Saudi Arabia and Kuwait represent a high ratio in this respect, 49 per cent and 40 per cent, respectively. Manufactured goods come in the second level, 21.6 per cent for all GCC countries, where the UAE, Oman and Qatar dominated the significant levels compared with the other GCC countries. Lastly, food and beverages represent only 16.1 per cent. However, these ratios confirm that these countries still depend too much on other countries, particularly developed countries to meet their need for various goods, meaning that the GCC countries and their unified economic policy have not achieved the major target, which focuses on the increase of the manufactured goods and reducing the level of oil share to total GDP.

3.4 The Model:

3.4.1 Introduction:

Foreign trade is one of the most important factors for economic growth in the GCC countries, especially Saudi Arabia as a main producer and exporter of crude oil. In contrast, the GCC countries have high reliance on other countries by importing most of their capital and consumable goods. Moreover, the unified economic policy in the GCC countries has encouraged an increase in foreign trade, which is considered the main target, as we have discussed previously.

Using gravity models has become a common method to explain various kinds of flow, such as migration, transport, tourism, maritime transport, and bilateral trade flows. In particular, logarithmic linear equations can be used to interpret foreign trade flows from point (A) to point (B) by the economic factors related to these points and other factors that stimulate or hinder the trade flows between the two points (Pergstrand, 1985).

In respect of bilateral trade flows among countries, a gravity model explains the trade flows between two countries by the positive proportion of their GDP, and, inversely, with the distance between them. The gravity model derived its name from a similar relationship in physics that explains gravity (Rose, 2000). The distance between countries is the main factor that affects foreign trade flows, and is included in most studies that use the gravity model as a proxy for the cost of transport for trade flows.

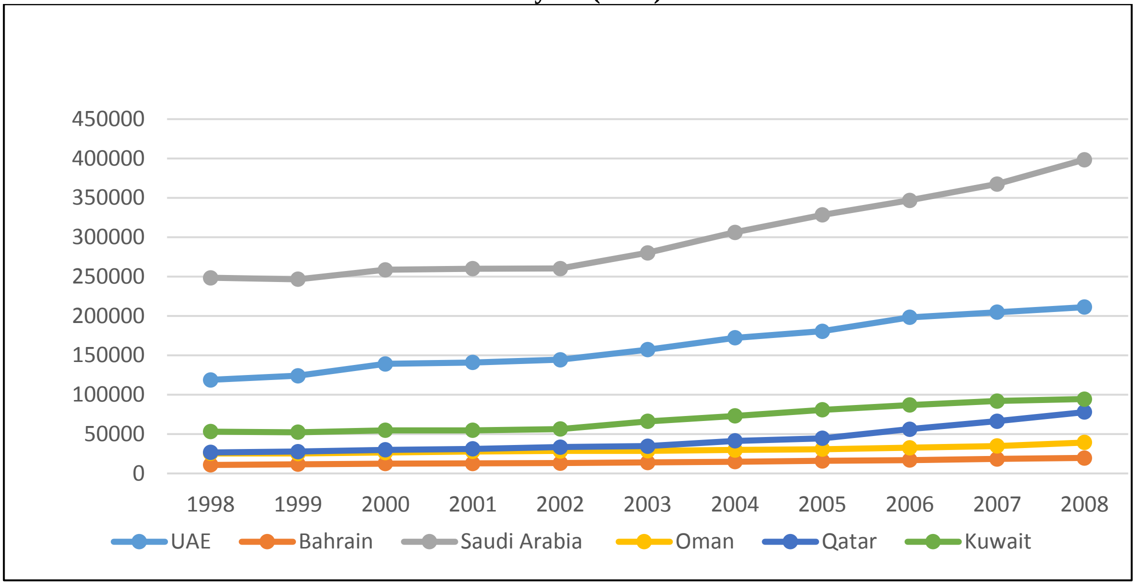
The use of the gravity model is because of its ability in explaining practical issues, such as trade between developed countries and intra-trade between sectors, which cannot be interpreted by the classical theories of foreign trade (Deardorff, 1984). In this respect, we will try to apply the gravity model of Saudi Arabia's foreign trade flows to GCC countries during the period 1998-2008. We attempt to analyse the gravity model practically. However, for obtaining accurate results, we have added some distant countries, namely, Turkey, Iran, the United Kingdom, Australia, Brazil and Malaysia. However these countries are selected as major foreign partners of GCC countries particularly Saudi Arabia, and for analysing the role of GDP and distance as two essential independent variables of the model that we will adopt. Therefore, Saudi Arabia will be the hub economy in this model to analyse its foreign trade with the other GCC countries, as well as selected non-GCC countries, which, as mentioned above, are for comparing the trade flows and importance of GDP and distance for each country by using the logarithmic linear model.

3.4.2 Model variables and data:

Real GDP variable:

Saudi Arabia has been selected as the main economy in the GCC countries according to its real GDP, as well as level of intra- regional trade intensity index, which was at the highest level during the period of study, 1998-2008. By using a gravity model, we will analyse the importance of Saudi Arabia's foreign trade with the other GCC countries, as well as with selected non-GCC countries. Therefore, it is necessary to present an analysis of the model variables for a clear picture of the specific gravity model of Saudi Arabia with selected countries. Figure (3-6) infers that Saudi Arabia has a significant real GDP compared with other GCC countries during the period 1998-2008; consequently, we selected it as the major economy for analysing the gravity model. In addition, the figure below reflects the role of this variable as a key factor that determines the size of intra-regional trade of GCC countries. As noted before, the trade intensity index was positive in Saudi Arabia and negative on the other GCC countries (Except for the UAE) where most of the GCC countries import more from Saudi Arabia than they export. In other words, the economy of Saudi Arabia is considered as a hub economy in the GCC countries.

Figure (3-6)
Real GDP of Saudi Arabia compared with the other GCC countries, 1998-2008, (million USD)
Base year (2005)



Source: By the author based on: League of Arab States, Joint Arab Economic Report, Abu Dhabi, different issues (2004-2010)

Now, let us note the size of Saudi Arabia's real GDP compared with the selected non-GCC countries, as shown in the following table:

Table (3-18)
Size of Saudi Arabia's real GDP compared with non-GCC countries, 1998-2008 (million USD)(*)

Years	Saudi Arabia	Malaysia	Turkey	Iran	UK	Aus.	Brazil
1998	248474	98553	374666	144672	2275250	695060	885574
1999	246614	104603	362057	150450	2277106	700971	881721
2000	258611	113869	386584	155414	2273201	694871	883153
2001	260027	114459	364559	159621	2262909	691687	878701
2002	260359	120629	387029	172273	2270501	696910	884598
2003	280301	127612	407408	185867	2269280	699207	876934
2004	306240	136268	445552	195324	2270608	699177	885013
2005	328461	143534	482986	205587	2280114	696034	882185
2006	346779	151551	516280	218136	2279835	693811	885298
2007	367558	161096	540383	236180	2275642	696598	881279
2008	398533	168880	543944	240243	2275770	697593	880604

Source: Database of World Bank: http://www.worldbank.org.
SESRIC, database of Statistical, Economics, and Social Research and Training for OIC countries.
www.sesric.org/baseined-step3.php
(*) Real GDP of the UK, Australia and Brazil calculated by the author based on year 2005.

Table (3-18) above represents that the non-GCC countries are distinguished by a high level of real GDP compared with Saudi Arabia –except Iran and Malaysia. Furthermore, these countries are characterized by diversification of their GDP structure, where the oil exports are not the main source of income. Therefore, the researcher expects that the real GDP variable of these countries will have a significant effect that leads to an increase in the size of foreign trade with Saudi Arabia.

Transportation cost variable:

This variable is a major determinant of the movement of foreign trade flows between countries, and is used as an independent variable in the gravity model instead of the distance variable. The economic literature often refers to foreign trade flows being larger between nearby countries or geographically close.

By using the data for Saudi Arabia's foreign trade, we note that the main non-GCC trade partners of Saudi Arabia over the period 1998-2008 are the United Kingdom, Australia, Iran, Turkey, Brazil and Malaysia. In addition, we have selected these countries because they are located in different geographical areas of varying distance. The following table shows the distance between Saudi Arabia and other countries, which will be used to account for the rate of transportation cost for the gravity model of this study.

Table (3-19)

The Distance between Saudi Arabia and selected countries (kilometres) (*)

UAE	775	Bahrain	426
Oman	1213	Qatar	453
Kuwait	537	UK	5272.5
Australia	11005.3	Brazil	11352.9
Malaysia	6472.8	Turkey	1918.0
Iran	1271	-----	----

Source: www.geobytes.com

(*) Calculated based on the distance between the capital city of Saudi Arabia and the capital cities of the other countries.

The table above shows the distance between Saudi Arabia and other countries, where the GCC countries are the nearest countries to Saudi Arabia, while for the foreign countries, Iran comes as the closest foreign country to Saudi Arabia, followed by Turkey, the United Kingdom, Malaysia, Australia and Brazil, respectively.

In this study, the researcher has substituted the distance variable as a constant variable with the measurable quantitative variable represented by the rate of transportation cost.

The distance between countries does not change over time, so by using the rate of transportation cost we can examine it over the study period, whereas the cost of the rate for the countries that use land transport is about USD3.450 dollar per one kilometre (Limao, 1999) and about USD4.620 dollar per one kilometre for the cost of sea transport (Ibid). Moreover, other studies report that the transportation costs are changing at a rate 0.0094 per year (Aljubory 2008). Therefore, we will use different values on our study for the period 1998-2008. We have calculated the cost of transport by using the following method.

Cost of *land* transport = 3.450 USD per kilometre. (Saudi Arabia to GCC countries and Turkey)

Cost of *sea* transport = 4.620 USD per kilometre. (Saudi Arabia to select non-GCC countries). However, cost of transportation between Saudi Arabia to GCC countries, and Turkey will be as follows:

*Transportation cost rate (at the first year) = Distance * 3.450 = cost of transport*

(First year "1998") after that we will multiply it by 0.0094 for obtaining the transport cost of the second year (1999), and so on.

In respect of the transportation cost between Saudi Arabia and non-GCC countries, except Turkey, it has been calculated as follows:

*Transportation cost rate (at the first year) = Distance * 4.620 = cost of transport*

(first year "1998"), thereafter we will use the previous method, where we will multiply the cost of transport rate for 1998 by 0.0094 to obtain the cost of transport for the year 1999 and so on.

By using the formulations above, we have obtained the transportation cost rate for the period 1998-2008, as shown in table (3-20).

Table (3-20)

Transportation Cost rate between Saudi Arabia and other countries (thousand USD)

Years	UAE	Bahrain	Oman	Qatar	Kuwait	Iran
1998	2674	1470	4185	1563	1853	5872
1999	2699	1484	4224	1578	1870	5927
2000	2724	1498	4264	1593	1888	5983
2001	2750	1512	4304	1608	1906	6039
2002	2776	1526	4344	1623	1924	6096
2003	2802	1540	4385	1638	1942	6153
2004	2828	1554	4426	1653	1960	6211
2005	2855	1569	4468	1668	1978	6269
2006	2882	1583	4510	1684	1997	6328
2007	2909	1598	4552	1700	2016	6387
2008	2936	1613	4595	1716	2035	6447
Years	**UK**	**Brazil**	**Aus.**	**Turkey**	**Malaysia**	
1998	24359	52450	50845	6617	29904	
1999	24588	52943	51323	6679	30185	
2000	24819	53441	51805	6742	30467	
2001	25052	53943	52292	6805	30753	
2002	25287	54450	52783	6869	31042	
2003	25525	54962	53279	6933	31333	
2004	25765	55479	53780	6998	31627	
2005	26007	56000	54285	7064	31924	
2006	26251	56526	54795	7130	32224	
2007	26498	57057	55310	7197	32527	
2008	26747	57593	55830	7264	32833	

Source: Accounted by the researcher.

Foreign trade variable:

The importance of foreign trade comes from its role in enhancing the economic relationships between countries, which shows the outcome of various economic activities. The following table presents the reality of intra-regional trade of Saudi Arabia with the other GCC countries for the period 1998-2008:

Table (3-21)
Saudi Arabia's trade with the other GCC countries (million USD)

Year	UAE	Bahrain	Oman	Qatar	Kuwait
	Total trade	Total trade	Total trade	Total trade	Total trade
1998	1745.43	1405.65	214.55	228.41	563.36
1999	1783.53	1669.21	233.73	240.54	552.34
2000	2654	18744.1	316.4	398.2	893.4
2001	2556	2069.5	308.0	390.9	848.3
2002	2880.9	2119.3	303.99	256.55	780.3
2003	2616.33	2088.51	309.93	352.17	761.3
2004	3023.43	2974.18	318.9	428.85	1017.39
2005	4573.5	4712.34	508.29	617.81	1114.07
2006	8710.6	6748.2	633.7	1282.2	1524.1
2007	9581.2	7360.2	727.0	1406.7	1626.6
2008	11656.9	10618.1	1168	1783.1	1812.5
Average 98-2008	**4707.43**	**5500.84**	**458.40**	**671.40**	**1044.80**

Source: Database of Arab Monetary Fund (AMF): http:// www.amf.org.ae

In respect of foreign trade of Saudi Arabia with non-GCC countries, we can see it in the following table:

Table (3-22)
Saudi Arabia's foreign trade with selected trade partners countries, 1998-2008 (million USD)

Year	Iran	Turkey	Brazil	Australia	UK	Malaysia
	Total trade	Total trade	Total trade	Total trade	Total trade	Total trade
1998	195.09	1256.56	1612.99	1017.7	3545.22	438.94
1999	135.65	971.08	1032.69	867.57	2882	358.12
2000	75.5	789.61	1055.99	1029.96	3544.95	498.91
2001	67.7	1102.03	1447.61	1639.57	3569.35	883.31
2002	201.4	1184.66	1398.27	1310.82	2870.43	933.98
2003	304.34	1267.28	1262.37	1457.21	2662.54	739.28
2004	338.63	1442.19	1488.87	1640.65	3851.95	839.44
2005	695.13	1809.46	2112.19	2103.66	4736.53	1414.17
2006	982.34	2578.77	2736.1	2750.48	6001.26	1990.37
2007	1202.7	3128.75	3263.62	2818.38	5614.58	2701.33
2008	1418.74	2363.72	3334.73	2646.95	5556.51	2584.52
Average 98-2008	**510.65**	**1626.73**	**1885.94**	**1752.99**	**4075.93**	**1216.579**

Source: Database of World Bank: http://www.worldbank.org.

The table above shows the increased level of Saudi Arabia's foreign trade commodity during the study years, especially with Iran, Brazil, Australia and the UK. We have previously seen the significant level of intra-regional trade between Saudi Arabia, the UAE, and Bahrain in comparison with the other the GCC countries.

3.4.3 Model Description:

This model tries to empirically test the reality of intra-regional trade of GCC countries. It is an attempt for proving the analytical approach in this respect. Our contribution for this model is measuring and using the cost of transport variable rather than a distance variable as a dummy variable for a gravity model. The main purpose for this, is to analyse the role of transportation cost as a measurable variable over the period of the study, 1998-2008. However, in order to compare the real impact of the two independent variables of this model, we added six foreign countries as a major non-oil trade partners of the GCC countries. The key target for this is only to state which independent variable has more influence on trade of the GCC countries? This result will reveal via comparing the impact of GDP and cost of transport for both GCC and non-GCC countries in this model.

The dependent variable in this model is the logarithm of foreign trade ($Trade_{ijt}$) (import plus export) of Saudi Arabia with all selected countries over the period 1998-2008, in millions USD, where the researcher will examine Saudi Arabia's foreign trade with the other GCC countries, and selected non-GCC countries. Also, the (GDP_{ijt}) and ($Cost_{ijt}$) as independent variables denotes the logarithm of gross domestic production and cost of transportation, respectively in millions USD.

3.4.4 Model specification:

We will use the linear logarithmic formulation for the period 1998-2008, by using the OLS and panel data technique. The model is shown in the following formula:

$$Log\ Trade_{ijt} = a + B1\ Log\ (GDP_j) + B_2\ Log\ (cost_{ij}) + u_i$$

Where:

a: intercept.

$Trade_{ijt}$: Foreign trade between country (*i*), (*Saudi Arabia*) and country (*j*) over the period (*t*).

GDP_j : Real gross domestic product of country (j).

$Cost_{ijt}$: Transportation cost between country i and country (*j*) over the period (*t*).

ui: Error term.

Expected signals of independent variables:

Based on the theoretical hypothesis of the gravity model, the signals of estimated coefficients of real GDP must be positive to show the positive effect of increasing this variable in raising the foreign trade level between the countries of study. In contrast, the estimated coefficients of transportation cost rate must be negative signals to reflect the inverse role of distance that increases the cost of transport, which reduces the size of trade flows between countries, as shown in the following table:

Table (3-23)

Expected signals of independent variables of a gravity model

Country	Independent Variable	Expected signal
UAE	GDP.UAE Cost.UAE	+ -
Bahrain	GDP.BH Cost.BH	+ -
Oman	GDP.O Cost.O	+ -
Qatar	GDP.Q Cost.Q	+ -
Kuwait	GDP.Kw. Cost.Kw	+ -
Malaysia	GDP.My Cost.My	+ -
Turkey	GDP.Ty Cost.Ty	+ -
Iran	GDP.Ir Cost.Ir	+ _
United Kingdom	GDP.Uk Cost.Uk	+ -
Australia	GDP.Aus. Cost.Aus.	+ -
Brazil	GDP.Brz Cost.Brz	+ -

Source: By the author based on assumptions of the gravity theory.

3.4.5 The Model estimation:

Prior to running the regression, the Augmented Dickey-Fuller test (ADF) is an essential manner for testing the stationary of panel data series (Lall, 1998). However, the obtained results confirm that the regression output of this study is not spurious. We found that the variables were stationary at both 1 percent and 5 percent significant levels. This implies that the variables of study could be estimated by the model adopted. Also, a test of stability is conducted, it shows that the dependant variable is located within redlines at 5 per cent level (*Appendix "C" p.356*).

In addition, to indicate an ideal choice between fixed effect and random effect estimators in panel data context, the Hausman test is used (Arellano 1993; Skrabic and Tomic-Plazibat). However, we have found that the probability is more than 0.05 (Prob.> 0.05). Therefore, random effect regression is preferred. Based on that, the model is regressed from the trade to the real Gross Domestic Product (*GDP*) and cost of transport, as shown in table (3-24).

From the model below, it can be seen that all the real GDP coefficients are statistically significant at the 0.01, 0.05 and 0.10 levels except for Bahrain, the coefficients of which are statistically insignificant. This result confirms the effectiveness of the model variables to influence the foreign trade between Saudi Arabia and other countries. In other words, the confidence interval represents the economic relations in this model is about 0.99, 0.95 and 0.90. Moreover, the (F) value is statistically significant at the 0.01 level, which is about 58.36051, and the DW value is about 1.91 confirming that the estimated model is located in the accepted statistics area. Meaning that, this model has been estimated without an autocorrelation problem; therefore, we can depend on it economically for analysing the foreign trade commodity flows between Saudi Arabia and eleven other countries over the period 1998-2008.

3.4.6 Results Analysis:

UAE: The signs of the independent variables of the gravity model between Saudi Arabia and the UAE are consistent with our expectations, as shown in table (3-24). The study found that the gravity model between the said countries are significant, where increasing the real GDP by one time leads to an increase in foreign trade commodity of about 10.23 time. Saudi Arabia's exports to the UAE amounted to about USD 3,709.3 million (AMF, 2009), on average, for the study period, which represents 79 per cent of the average of total trade between the two countries.

Table (3-24)
Regression results for the gravity model – random effects

Dependent Variable: TRADE
Method: Panel EGLS (Cross-section random effects)
Date: 01/26/14   Time: 10:54
Sample: 1998 2008
Periods included: 11
Cross-sections included: 11
Total panel (balanced) observations: 121
Wallace and Hussain estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDP_{UAE}	10.23679	2.406125	4.254470	0.0000 (*)
$Cost\_{UAE}$	-8.320541	5.533540	-1.503656	0.1359
$GDP\_{Bahrain}$	8.578679	2.585985	3.317374	0.0013 (*)
$Cost\_{Bahrain}$	-6.596203	5.794292	-1.138397	0.2577
GDP_{Oman}	13.14260	3.505699	3.748924	0.0003 (*)
$Cost\_{Oman}$	-8.803081	5.524344	-1.593507	0.1143
GDP_{Qatar}	5.438147	1.183584	4.594645	0.0000 (*)
$Cost\_{Qatar}$	-5.376274	5.110306	-1.052045	0.2954
GDP_{Kuwait}	5.085126	1.958222	2.596807	0.0109 (*)
$Cost\_{Kuwait}$	-5.111425	5.448538	-0.938128	0.3505
$GDP\_{Malaysia}$	11.20981	2.260090	4.959893	0.0000 (*)
$Cost\_{Malaysia}$	-6.899065	4.087271	-1.687940	0.0946 (***)
GDP_{Turkey}	8.697775	2.800888	3.105363	0.0025 (*)
$Cost\_{Turkey}$	-7.092110	5.216001	-1.359683	0.1771
GDP_{Iran}	17.43914	2.530485	6.891620	0.0000 (*)
$Cost\_{Iran}$	-12.27517	5.084629	-2.414172	0.0176 (**)
GDP_{UK}	13.36537	7.358549	1.816305	0.0724 (***)
$Cost\_{UK}$	-7.117470	3.193937	-2.228431	0.0281 (**)
$GDP\_{AUS.}$	26.66212	8.142001	3.274639	0.0015 (*)
$Cost\_{AUS.}$	-13.06269	3.141582	-4.157997	0.0001 (*)
GDP_{Brazil}	22.75770	7.917896	2.874210	0.0050 (*)
$Cost\_{Brazil}$	-11.15546	3.101938	-3.596287	0.0005 (*)
C	21.01023	33.29604	0.631013	0.5295

Effects Specification

	S.D.	Rho
Cross-section random	0.010170	0.0011
Idiosyncratic random	0.308814	0.9989

Weighted Statistics

R-squared	0.929085	Mean dependent var	7.110948
Adjusted R-squared	0.913165	S.D. dependent var	1.047972
S.E. of regression	0.308814	Sum squared resid	9.345885
F-statistic	58.36051	Durbin-Watson stat	1.913404
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.929644	Mean dependent var	7.153235
Sum squared resid	9.345885	Durbin-Watson stat	1.913404

Source: By using Eviews software and Panel Data technique.
(*) (**) (***) Indicates statistically significant at the (1%), (5%) and (10%) levels, respectively.

In this respect, we can state that Saudi Arabia's exports have a significant role in enhancing the intra-regional trade towards UAE, which is attributed to the important role of commercial relationship between both countries over the study period.

In respect of the cost of transportation rate, we note from the obtained results that increasing the cost of rate of transport by one time leads to a decrease in the foreign trade between the two countries of 8.32 times. This result is compatible with the theoretical hypotheses of a gravity model, in which the negative relationship between transport cost rate and foreign trade flows reflect the inverse relationship between size of trade and distance between countries.

In addition, and in this context, it should be noted again, that the volume of intra-regional trade was significant between Saudi Arabia and the UAE over the same period of study. This fact is clear if we go back to what was discussed previously by using the trade intensity index, where we noted that both Saudi Arabia and the UAE have obtained positive signals. Using the gravity model reflects the same finding in terms of its content, and confirms the deep economic relationships between the two countries, in which the impact of real GDP is considered as a major determinant in increasing the level of foreign trade. In contrast, the increasing cost of transportation rate has a significant role in reducing the trade level.

Bahrain: The estimated model shows that real GDP in Bahrain is statistically insignificant. This result could be attributed to the small size of GDP of Bahrain in compassion to Saudi, where Bahraini economy constitutes only 2 percent of the total GDP of GCC countries.

The coefficient of transportation cost rate is a negative value, which confirms that increasing the transportation cost rate by one time leads to a drop in the value of foreign trade of about 6.59 times. However, with the consideration of the modest trade between both countries, we can say that cost of transport is a key factor that determines the trade between the two partners.

Oman: The estimated model indicates that the increase of Oman’s real GDP by one time leads to an increase of foreign trade between two countries of about 13.14 times, which confirms an important economic relationship. In this context and to enhance the result of the gravity model, we note from table (3-12) that the ratio of intra-regional trade of Oman is dominant with 14.6 per cent on average, of the total of foreign trade of Oman with the world, and that this ratio represents a significant percentage compared with other GCC countries. In addition, the percentage of intra-regional imports of Oman was about 15 per cent of the total intra-regional trade in the GCC countries for the period 1998-2008, as shown in table (3-11). These facts strongly agree with the estimated model, where there is an increase in the intra-regional trade level from Saudi Arabia to Oman over the study period.

The model also confirms the inverse relation between the transportation cost rate and the level of Oman’s foreign trade, where increasing the cost rate by one time leads to a reduction in the level of trade of about 8.80 times.

Qatar: The gravity model results indicate that Qatar is ranked in the fourth level in terms of its gravity foreign trade with Saudi Arabia, where increasing the GDP of Qatar by one time leads to an increase in the intra-regional trade of about 5.43 times. This result reflects the weakness of trade relationship between the two countries compared with the other GCC countries mentioned previously (the UAE, Bahrain and Oman). The main reason for this weakness is attributed to the oil and gas exports of Qatar, which constitute a large ratio of Qatar’s GDP. In other words, there is a similarity in the pattern of production structure, which leads to a low level of intra-regional trade between Qatar and Saudi Arabia. Moreover, the second reason, as we have noted previously, is that Qatar depended too much on its intra-regional trade with the UAE during the period 1998-2008. This can be seen in table (3-12), which indicates that the average of Qatar's exports to the UAE amounted to USD 752.0 million per year, while its exports to Saudi Arabia was about USD 200.2 million. In addition, and in regard of Qatar's imports, we note that the average of its imports from Saudi Arabia was about USD 599.93 million while the average of Qatar's imports from the UAE was about USD 711.36 million, which means that Qatar has insignificant trade relations with Saudi Arabia as well as the UAE. In this respect, we can explain that the main reason is that the UAE is the closest neighbour. The distance between Qatar and the UAE is about 338 kilometres, while the distance between Qatar and Saudi Arabia is about 453 kilometres. The variable of transport cost rate indicates that increasing it by one time leads to a decrease of foreign trade of about 5.37 times, which assures that there is an inverse relationship between cost of transport and foreign trade flows between the said countries.

Kuwait: The gravity model shows the low level of intra-regional trade with Saudi Arabia, where increasing Kuwait's real GDP by one time leads to an increase in the trade flows with Saudi Arabia of about 5.08 times, which reflects the insignificant role of foreign trade between them compared with other members of the GCC. This fact will be evident if we go back to the trade intensity index of Kuwait for which the index value was -0.0409. The gravity model confirms this fact, with similar results in terms of content. In addition, the data in table (3-12) show this issue clearly, where the ratio of intra-regional trade was only 4 per cent in total for intra-regional trade in GCC countries for the period 1998-2008.

In addition, the variable of transportation cost rate indicates its inverse relationship with the foreign trade commodity. The low level of trade between Saudi Arabia and Kuwait indicates that this trade is characterized by the increased transport cost per one unit. Because an increase in the rate of transportation cost by one time leads to a reduction in the foreign trade of about 5.11 times; this confirms the rising rate of cost compared to the foreign trade flows between Saudi Arabia and Kuwait.

Malaysia: The estimated model reflects that the foreign trade commodity between Saudi Arabia and Malaysia has a significant role, where the model indicates that an increase of Malaysian real GDP by one time leads to an increase in the foreign trade flows of about 11.20 times between the mentioned countries despite the geographical distance and consequent rising cost of transportation. This result confirms that the size of GDP represents the high importance compared with cost of transport between countries. In other words, this result reflects the level of economic diversification, and thus, a possibility for more foreign trade. This fact agrees with the result that we reached previously, which confirms that the weakness of intra-regional trade between the GCC countries is because the pattern of their trade is competitive with each other.

Moreover, the variable of transportation cost rate indicates the inverse relations with the size of foreign trade commodity, which is compatible with the economic logic, where increasing the cost rate by one time leads to a drop in the size of foreign trade commodity of about 6.89 times. The transport cost rate has a significant role that hinders the foreign trade between Saudi Arabia and Malaysia.

Turkey: The result that we obtained by using this model shows that the increasing level of real GDP of Turkey by one time leads to an increase in the foreign trade level with Saudi Arabia of about 8.69 times, which reflects a modest trade relationship between the two countries compared with Saudi Arabia's foreign trade with Malaysia.

The variable of transportation cost rate shows an inverse relationship with foreign trade, where increasing the cost of transportation by one time leads to a drop of foreign trade of about 7.09 times.

Iran: In the case of Iran, the estimated model confirms the positive role of real GDP to enhance the foreign trade level with Saudi Arabia. The result of the model confirms the importance of trade relationships between the two countries, and that it is more significant than its trade relation with Turkey. The model indicates that increasing the real GDP in Iran by one time leads to an increase of its foreign trade with Saudi Arabia of about 17.43 times.

In respect of the transportation cost rate variable, the model shows that increasing it by one time will lead to a reduced level of foreign trade between Saudi Arabia and Iran of about 12.27 times, which confirms that the cost of transport has a significant negative effect on the level of foreign trade between the two countries.

United Kingdom: In respect of the UK, the gravity model shows that there is an increase in the foreign trade flows by 13.36 times could be achieved in contrast of one time increase in the level of the UK's real GDP. While the coefficient of transportation cost indicates that increasing it by one time leads to a drop of foreign trade between Saudi Arabia and the UK by about 7.11 times.

Australia: The estimated model indicates that increasing the real GDP of Australia by one time will lead to an increase in the level of foreign trade by 26.66 times with Saudi Arabia, which means that the role of GDP does affect the size of foreign trade between the two countries. Moreover, the transportation cost rate shows its negative relation with foreign trade flows, where the gravity model shows an increase in the cost rate by one time leads to a decline in foreign trade between the two partners of about 13.06 times. This result reflects that the role of transportation cost is not a major determinant and not negatively affects the foreign trade flows between the two partners.

Brazil: The estimated model confirms that there is an association between the increase of level of real GDP in Brazil and the size of foreign trade commodity flows with Saudi Arabia. However, a rising of level of Brazilian real GDP by one time is affecting in the increase of level of foreign trade between both partners by 22.75 times.

Moreover, the coefficient of transportation cost rate indicates that increasing it by one time will induce a drop in foreign trade level between Saudi Arabia and Brazil of about 11.15 times.

3.4.7 Potential of Saudi Arabia's foreign trade:

Based on the coefficients of the gravity model, we estimated Saudi Arabia's trade potential with the rest of GCC and selected non-GCC countries; the foreign trade potential (P), as predicted by the model and actual trade (A) by using the average of logarithmic values for the study period, 1998-2008. If the value of (P/A) exceeds one, (Pradhan, 2006) this implies that there is a potential for expansion of foreign trade with the countries in the model. The following table shows Saudi Arabia's estimated foreign trade potential with other countries:

Table (3-25)
Saudi Arabia's trade potential with GCC and non-GCC countries, Average 1998-2008

GCC	Actual trade (A)	Potential trade (P)	P/A
UAE	8.232971	8.233009	1.000009
Bahrain (*)	8.262903	8.262707	0.999976
Oman	5.987600	5.987690	1.000010
Qatar (*)	6.254885	6.254832	0.999992
Kuwait	6.876873	6.877006	1.000019
Non-GCC	**Actual trade (A)**	**Potential trade (P)**	**P/A**
Malaysia	6.882597	6.882643	1.000006
Turkey	7.305450	7.305530	1.000011
Iran	5.760640	5.760640	1.000000
UK (*)	8.274217	8.274209	0.999999
Australia(*)	7.390236	7.390184	0.999992
Brazil	7.457085	7.457121	1.000004

Source: based on data of the study and the gravity model: Potential trade = intercept + Coef.i *(GDP) – Coefi *(costi) / 11 years.
(*) A country is over traded and has no trade potential.

The table above shows that the actual foreign trade of Saudi Arabia is significant with Bahrain, followed by Qatar, the UK, and Australia. In addition, the gravity model shows that there is a trade potential with the UAE, Oman, Kuwait, Malaysia, Turkey and Iran, meaning that, currently, Saudi Arabia is over traded with the said countries that have no potential, as they are the largest trading partners of Saudi Arabia.

3.4.8 Findings:

The actual foreign trade commodity between Saudi Arabia, Bahrain and Qatar, the UK and Australia were less than Saudi Arabia's potential trade. We see that Bahrain and Qatar witnessed a slight decrease compared with their potential trade. However, the actual trade amounted to be 8.262903 and 6.254885 in logarithmic, respectively. In addition, their potential trade is about 8.262707 and 6.254832 in logarithmic, respectively. While Saudi Arabia's actual trade with UAE, Oman and Kuwait was more than expected, it was noted that the actual trade amounted to 8.232971, 5.987600 and 6.876873, respectively. Therefore, they have high actual foreign trade compared with their potential. In respect of Qatar and Oman, we can say that these economies are smaller than the other GCC economies except Bahrain, which depends too much on its trade with Saudi Arabia in terms of intra-regional trade. It is geographically closer to Saudi Arabia in comparison with the other GCC countries.

In addition, Saudi Arabia's actual foreign trade with the United Kingdom, and Australia is more than expected, where the actual trade amounted to 8.274217 and 7.390236 in logarithmic, respectively. Hence, we can say that the cost of transport between Saudi Arabia and the countries mentioned above has an insignificant role in determining the foreign trade flows, where the size of GDP is the main factor that determines the direction of the trade between trade partners, while their potential is characterized by a modest decrease over the period of study. However, Saudi Arabia tends to trade more with large economies. Therefore, the study again confirms that cost of transport is not an important factor in the case of Saudi Arabia and the other GCC countries, where Iran is the closest foreign country to Saudi Arabia, while Australia and the UK are further geographically. However, the actual foreign trade commodity of Saudi Arabia with the mentioned countries is larger than Iran. In this context, we note the size of GDP of the two countries, Australia, the UK and Iran; real GDP levels of Australia and the UK are more significant than the Iranian GDP, which justifies the important role of foreign trade between Saudi Arabia and Brazil.

Besides, there is a significant linkage between Saudi Arabia’s foreign trade and the size of GDP of the non-GCC countries, which reflects the main reason for the increase in foreign trade flows among them. This result confirms that the size of GDP has a more significant role as a major determinant of foreign trade flows. Finally, the GDP coefficients are considered more important than the transportation cost rate between Saudi Arabia, and the other GCC countries, which is constrained by problems of similar comparative advantages, where we have found that Saudi Arabia’s trade flows with distant countries like the UK, Turkey and Brazil were more than nearby countries like Oman and Qatar.

CHAPTER FOUR

THE IMPACT OF FOREIGN TRADE AND FDI ON ECONOMIC GROWTH IN GCC COUNTRIES

4.1 Introduction

This chapter addresses the analysis of the key criteria of economic growth in GCC countries, which reflect the economic activities during the period 1998-2008. We will analyse the size of the economy represented by GDP, also per capita GDP, which shows the power demand and strength of GDP, as well as share of exports to GDP. Subsequently, the researcher will analyse the FDI flows and their relative importance in the GCC economies by using two important indicators – FDI as a percentage of gross fixed capital formation, and FDI as a percentage of GDP – to explain the role of these investments during the period 1998-2008. In addition, we will analyse the role of these investments in small economies that suffer narrowness of the local market, especially Bahrain and Qatar.

This chapter aims to measure empirically the effect of foreign trade, foreign direct investment and their effect on real GDP, where a positive value will reflect their role in enhancing GDP growth rates. In other words, it reflects the growth of per capita GDP and increasing the ratio of exports to GDP. We will use three independent variables related to foreign trade, namely, oil exports and non-oil commodity exports. In respect of FDI, the researcher will explore it from two sides – FDI inflows and FDI outflows – to show the real impact of each of the two variables during the period 1998-2008. The chapter ends with findings that corroborate the subject under study.

4.2 The Key criteria of economic growth in the GCC countries:

4.2.1 The local market:

The local market represents the size of the host country, which it can measure by GDP and its growth in GCC countries, where it is a significant indicator in the view of foreign investors. In other words, GDP has an important role in encouraging and attracting more foreign direct investment (FDI) to countries that have positive growth rates, and, in this respect, we can say that the increased FDI will come to the big local markets, where there is a positive relation between FDI and size of GDP (Dritsaki, 2004).

According to the above idea, and data of study we noted that the continued growth of the GCC economies started in 2000, where the total GDP reached USD 34,1373 million, which is attributed to the high level of the oil sector and manufacturing industries in general (GCC, 2009). However, it dropped again in 2001 due to the weakness of world economic growth, which affected the oil prices of the GCC countries (Al-Rawi, 2003), where it reduced the growth rates in developed countries from 4.6 per cent in 2000 to 2.5 per cent in 2001. In addition, the growth rates in developing countries dropped from 5.8 per cent to 4.2 per cent for the mentioned years (Arab League, 2005), which are effect in reducing in oil prices. In other words, the GCC economies gained a negative effect because of the high reliance of the oil sector and its fluctuations with the global economy. We note that in the UAE, the GDP dropped as a result of the drop in crude oil export revenue, as well as in the other GCC countries, especially in Saudi Arabia, Qatar and Kuwait. However, in Oman the researcher notes a small drop in its GDP due to the significant role of the gas industry and other associated sectors (lbid), where increasing its added value contributes to a reduction in the negative impact of global fluctuations on crude oil demand.

During the years 2002-2008, GCC countries achieved an increased level of GDP, which can be attributed to many reasons, the first is the increase of oil revenue, especially 2004, which amounted to 40 per cent in Kuwait, 29.7 per cent in Qatar, and 35.8 per cent in the UAE (OPEC, 2008). This helped to increase the investment expenditure, as well as achieving the economic reform programme and the significant role of the private sector that led to enhancing the economic performance in GCC countries, which means their ability to achieve high growth rates.

In addition, we can link the positive growth of the GDP of the GCC countries with the increased growth rates in developed countries, which rose by a ratio of 4.7 per cent, 6.4 per cent and 5.1 per cent in the years 2002, 2003, 2004, respectively, as well as in developing countries which amounted to 4.7 per cent, 6.4 per cent and 7.2 per cent, respectively (Arab League, 2008), where the increase in the global growth led to an increased level of demand for crude oil, which positively affected the economic growth of the GCC countries.

Finally, we note that the main factor that stimulates the GCC countries in attracting FDI is the positive growth of these economies, which ranged between 23 per cent in Qatar and 11 per cent in Saudi Arabia over the period 1998-2008. In this regard, we can say that the size of GDP of the GCC countries is a positive criterion in attracting more foreign direct investment.

4.2.2 Per capita real GDP

Per capita GDP shows the power of local demand, as well as being a significant indicator to measure the wage rates and consumption level. The per capita GDP in the GCC countries increased during the period 1998-2008 due to a superior growth rate of GDP compared to the population growth rates during the same period (Arab League, 2009).

In table (4-1) we see that both the UAE and Qatar have a notable progress in terms of their per capita GDP compared to rest of GCC countries, this increase are mainly attributed to the high level of gas industry in Qatar, as well as, the big role of trade sector in the UAE which led to maximizing its contribution to GDP over the period 1998-2008. In other words, Qatar and the UAE increased the local demand, which is considered a good indicator for attracting foreign direct investment during the period of study.

Table (4-1)

Per capita real GDP in the GCC countries 1998- 2008(*), constant prices 2005 (US dollars)

Year	UAE	Bahrain	KSA	Oman	Qatar	Kuwait
1998	33566	15094	13607	12202	48173	27866
1999	33692	15191	13703	12351	47533	28421
2000	33862	15159	13736	12268	47973	28211
2001	33473	15211	13640	12233	47410	28294
2002	33826	15222	13706	12342	48124	28308
2003	33905	15190	13722	12269	47502	28340
2004	33784	15150	13697	12304	47700	28090
2005	33690	15140	13640	12318	47818	28182
2006	33742	15148	13673	12312	37837	28197
2007	33703	15174	13694	12341	47904	28222
2008	33701	15152	13662	12293	47737	28134
Average 98-2008	**33722**	**15166**	**13680**	**12293**	**46883**	**28206**

Source: Calculated by the author based on joint Arab Economic Report, Abu Dhabi, different issues.
SESRIC, (2007) statistical year book, Statistical, Economics and Social Research and Training Centre for OIC countries, Turkey.

However, the data of the study indicate that Qatar falls in the first level in terms of per capita real GDP over the period of study. It reflects a high economic performance that attracts foreign direct investment to the commodity sector, particularly the mining sector and other industries associated with oil. The UAE comes in the second level, but what distinguishes the UAE economy is the dependence on the oil sector in which its revenue is less than that of Qatar, This fact could be confirmed via table (4-3). It indicates that the share of the extractive industry in Qatar is about 61.7 per cent, on average, of GDP over the study period, 1998-2008, while its contribution in the UAE is 38.2 per cent. Therefore, we can say that the economic growth in the UAE is better than Qatar in terms of its stability, by reducing the effect of fluctuations of global oil prices. In other words, any world crisis in the oil market will affect the Qatar economy more than the UAE, which, in general, is considered more stable compared to the other GCC countries.

In addition, the per capita GDP of Kuwait is reached USD 28206 dollars per year, on average, and the oil sector constitutes a high ratio of real GDP. Also, Bahrain, Saudi

Arabia, and Oman represent a lower share in this regard in comparison with other GCC countries, where their per capita real GDP which amounted to USD 15166, 12293 and 13680, respectively.

From the above, it is worthy mentioned that Bahrain has a common problem represented by the narrowness of its local market resulting from the small size of its GDP despite the low level of population, but has achieved a high level of per capita real GDP compared to Saudi Arabia. Thus, in this context, we note the importance of enhancing the level of economic growth by encouraging foreign investors and FDI, which is considered a good policy for expanding the local markets and creating new economic outlets that stimulate economic growth, as well as investing the oil revenue surplus in non-oil industries to reduce the impact of world fluctuations on these economies caused by the global oil markets, which have a negative effect on economic growth. This policy could be a good motivation to reinforcement level of per capita GDP of Oman which depicts the lowest level in comparison with other GCC countries.

In addition, the researcher notes that the per capita real GDP in the GCC countries is still significantly linked to oil export revenue, which means that the global fluctuations resulting from oil prices have a direct impact on these economies. Furthermore, we can say that there is an indirect positive relationship between the economic growth in developed countries and the average of per capita GDP in the GCC countries according to the relation between the oil global demand and increasing crude oil exports, which causes an increase in the total oil revenue and per capita GDP. Therefore, this issue will reflect the developmental impact by investing the achievable surplus in various projects that increase the level of value added.

In conclusion, and according to the high levels of per capita real GDP in the GCC countries during the period 1998-2008, we can say that the level of aggregate demand in the GCC countries is high, which forms a positive factor in encouraging foreign companies. This factor is considered a good catalyser for increasing the level of FDI, and creating a new market outlet, which has a positive effect on achieving surplus production for the GCC countries.

4.2.3 Export ratio to GDP:

The export ratio of GDP is an important indicator for attracting foreign direct investment, where it shows the level of economic openness with global markets and competitive ability. In addition, it is a criterion of economic efficiency, where increasing export ratios is good evidence of a trade surplus. The following table shows the export share in GDP during the period 1998-2008.

Table (4-2)

The export share of GDP in the GCC countries 1998-2008 (percentage)

Year	UAE	Bahrain	KSA	Oman	Qatar	Kuwait
1998	83.3	71.0	41.5	54.3	37.6	55.0
1999	61.3	49.3	42.7	72.1	40.6	60.6
2000	52.1	54.2	41.7	61.2	54.7	60.2
2001	72.3	78.2	42.4	58.3	66.1	49.3
2002	65.7	66.4	36.1	55.2	56.1	50.8
2003	59.6	60.4	34.0	51.9	46.6	50.7
2004	64.0	59.8	37.2	55.4	42.1	30.9
2005	65.7	56.8	47.4	43.7	44.0	37.2
2006	69.6	65.3	50.6	50.7	45.4	46.3
2007	74.0	66.9	54.8	51.9	37.9	51.2
2008	72.5	56.6	53.2	42.6	36.9	42.9
Average 98-2008	**67.3**	**62.2**	**43.8**	**54.3**	**46.1**	**48.6**

Source: Arab League (2009) (*in Arabic*) Joint Arab economic report, Abu Dhabi, pp 266-328
Arab League (2008) (*in Arabic*) Joint Arab Economic Report, Abu Dhabi, p 338.
Arab League (2005) (*in Arabic*) Joint Arab Economic Report, Abu Dhabi, Annex 5/5
Arab League (2003) (*in Arabic*) Joint Arab Economic Report, Abu Dhabi, Annex 5/5
Arab League (2004) *(in Arabic*) Joint Arab Economic Report, Abu Dhabi, Annex 2/2

The table above shows that the average export ratios of GDP range between 43.8 per cent in Saudi Arabia and 67.3 per cent in the UAE for the period 1998-2008, which confirms the role of exports for all GCC countries. It is clear that fluctuations in the oil markets will directly affect the economic performance in these economies, especially the global fluctuations of oil prices. Nevertheless, the GCC exports contribute to achieving high oil revenues, which enhance the economic growth with a significant increase in the GDP.

However, based on table (4-2), we note that the commodity exports represent high ratios in the UAE and Bahrain, about 67.3 per cent, and 62.2 per cent, respectively, as a share of GDP, as well as the other GCC countries, where these percentages confirm the role of oil exports in the GCC economies, particularly in Saudi Arabia as a main producer and exporter of oil.

If we focus on table (4-3) we note that the extractive industry sector in the GCC countries has high value added compared with the manufacturing industries over the period of study, where the achieved value added is attributed to the revenue from the oil sector in general. Therefore, the GCC policy still targets to improve the reality of the industrial sector by the establishment of many industrial projects, in an attempt to enhance the investment climate, encourage the role of the private sector, and diversify the non-oil products to increase the export revenue of manufactured goods (Arab League, 2008). This has a positive effect on increasing the contributions of the industrial sector to GDP, where increasing the produced goods has a significant role in enhancing the foreign trade and gaining high revenue to invest in other projects that lead to achieve high value added, as well as reducing the imported goods. In other words, reinforcement of the trade balance to maximize economic growth.

In addition, table (4-3) shows that the manufacturing industry has achieved high value added in both UAE and Saudi Arabia in comparison with the other GCC countries, where their contribution amounted to USD148,511.8, and 43,789.4 million, respectively. The other GCC countries suffered from the continuous weakness of the manufacturing industry over the same period, where the extractive industry sector still represents the main source of income for the GCC countries.

Table (4-3)

The value added of the GCC countries and its share in GDP, on average 1998-2008

Country	Extractive Industry		Manufacturing		Total industrial sector	
______	V. added (Million USD)	Share in GDP (%)	V. added (Million USD)	Share in GDP (%)	V. added (Million USD)	Share in GDP (%)
UAE	43789.4	**38.2**	14443.6	**12.6**	58228.4	**50.8**
Bahrain	3081.5	**26**	1635.5	**13.8**	4717.0	**39.8**
KSA	148511.8	**57.2**	21549.7	**8.3**	146434.7	**56.4**
Oman	14214.1	**51.4**	2820.7	**10.2**	17062.5	**61.7**
Qatar	22725.3	**61.7**	2504.5	**6.8**	25229.9	**68.5**
Kuwait	38902.8	**59.5**	3661.4	**5.6**	42498.9	**65**

Source: League of Arab States, (2000.2009) Joint Arab Economic Report, Abu Dhabi, different pages.

Furthermore, it shows the important role of the extractive sector in the GCC countries, in which Qatar represents a significant ratio that amounted to 61.7 per cent of its total GDP, on average, during the period 1998-2008. In terms of the manufacturing industry the researcher sees that the UAE and Bahrain have the highest ratios, which amounted to 13.8 per cent and 12.6 per cent, respectively, which confirms the role of the manufacturing sector in these economies, as well as the success of the diversification efforts compared with other GCC countries for the same period. However, we note that Bahrain focused on increasing its share of the manufacturing sector to increase the level of its commodity exports where it suffers a weakness of crude oil exports compared with other GCC countries, and, thus, increasing the role of the manufacturing sector is considered a suitable strategy for increasing the level of value added.

In Kuwait, we see the opposite case to Bahrain, where the increase in the level of the extracting industry sector has a high ratio, which represents 59.5 per cent, and its contribution reached USD 38,902.8 million, while its manufacturing sector only achieved USD 3,661.4 million, on average, of value added for the period 1998-2008. However, we can analyse this modest contribution as being because of the inability of the economic policy of Kuwait to increase the contribution of the manufacturing industry. It still continued to rely too much on the oil sector during the study period.

However, the average of added value of the industrial sector in the GCC countries over the period 1998-2008.

From the above, we can say that reinforcement of the contribution of the non-oil industrial sector has a positive impact on achieving an increase in the value added, which will lead to a reduction in the import level and enhance the level of trade balance. Therefore, we see that attracting foreign direct investment to the industrial sector in the GCC countries could positively affect achieving more value added, when these investments help to allocate advanced technologies with an increasing level of productivity, whereby the host country will be able to increase the local production and enhance the foreign trade commodity gradually; therefore, we can say that FDI is a significant way to finance and achieve the economic reform programme in the GCC countries.

In addition, foreign direct investments can lead to maximizing the industrial growth in GCC countries by creating a linkage between local and foreign companies, and the possibility of encouraging the local investors to produce some inputs that are exploited by foreign investors. In other words, FDI is a good way to expand the local economy towards the regional and global markets after enhancing the production capacity of the non-oil industrial sector in the GCC countries.

As a result, the size of the economy is more important than the level of growth in terms of its effect in attracting FDI flows. This finding is obvious in both Saudi Arabia and the UAE, where the growth level of these two countries is about 11 per cent and 16 per cent, respectively. However, it was noted that Saudi Arabia attracted more FDI compared to the UAE, (USD8,571.54 million for Saudi Arabia, and USD 6,101.51 million for the UAE). Therefore, attracting FDI to both the said countries is due to the level of GDP, which reflects the size of the local market. However, the GDP of Saudi

Arabia amounted to USD 259,363 million, on average, for the study period, 1998-2008, while in the UAE it was about USD 114,632 million for the said duration.

In addition, the economic growth level in the GCC countries was linked to the obtained changes in the developing and developed countries during the period 1998-2008, because of the significant role of oil exports towards these countries, where the GDP growth in GCC is basically linked to the global growth and its effect on oil prices. This fact can be confirmed if we go back to the theoretical framework of this study, where we note that the year 2001 witnessed a sharp decrease in economic growth in both developed and developing countries[*]. Moreover, the effect of this turndown is reflected on the GDP growth of the GCC countries. In addition, the achieved high global growth over the period 2004-2007 has a positive impact on the level of economic growth of the GCC countries for the said period. However, the GDP value increased from USD104,180 million in 2004 to USD196,643 million in 2007. Furthermore, the major factor of this growth is the increase in the level of oil prices, which led to more economic growth in the GCC countries due to the significant role of oil exports.

However, the positive growth rate of per capita GDP of GCC countries does not reflect the potential to attract more foreign direct investment as an important indicator for measuring the power demand of these countries during the period 1998-2008. We noted that Saudi Arabia attained a low level of economic growth, 3.1 per cent, while Kuwait and Qatar achieved 12.8 per cent and 13 per cent, respectively. However, we found that Saudi Arabia received huge amounts of FDI compared to the other GCC countries. In addition, the manufacturing industry has achieved a big role in Bahrain and the UAE, where its share amounted to 13.8 per cent and 12.6 per cent, respectively. This finding reflects the success of the industrial policy of these two countries compared with the other GCC countries that still depend too much on oil export revenue.

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[*] See table (2-1) p.91.

Finally, although the key criteria of economic growth in the GCC countries proved that there was a significant growth rate during the period 1998-2008, this growth was reliant on the oil sector, as well as the effect of non-oil industries, which was obvious in the UAE and Bahrain. Therefore, we can say that all of these factors are good motivations for attracting FDI to the GCC countries; especially the size of GDP is a major factor for encouraging foreign investors.

4.3 FDI in the GCC countries:

4.3.1 FDI inflows:

FDI flows to the GCC countries are characterized by their fluctuations. During the period 1998-2008, Saudi Arabia was the main host country, which dominated on 44 per cent of the total foreign direct investment of the GCC countries during the same period, while the lowest ratio was for Kuwait (less than 0.5%). The UAE represents the second level, which amounted to 39.6 per cent of the total FDI to the GCC countries.

In respect of Saudi Arabia and the UAE, we note that eliminating investment barriers since 1999 is the key reason for attracting more foreign direct investment, where the main investors are France, Germany, India, Japan, the UK and USA (ESCWA, 2005), and that most of the investment is concentrated in the manufacturing sector. Similarly, Bahrain achieved an acceptable situation in this regard. However, table (4-4) below shows that Saudi Arabia represents the first level in terms of attracting the FDI during the period 1998-2008, especially the years 2005-2008 (UNCTAD, 2010), which is attributed to the following reasons (Alhasham, 2009).

1. Establishment of important projects to face local demand and support the projects that aim to increase the export level.
2. Focusing on industries that depend on the available crude material, especially crude oil, gas and mineral fuels.
3. Encouraging increasing the companies that have advanced technology through the partnership relations with foreign companies or by getting the property rights.
4. Easing restriction on foreign ownership (Al-Nakib, 2010).

Table (4-4)

FDI inflows to the GCC countries 1998-2008 (million USD)

Year	UAE	Bahrain	KSA	Oman	Qatar	Kuwait	Total average
1998	257.66	179.52	94.00	101.44	347.30	59.06	__
1999	-985.34	453.72	123.00	39.01	113.25	72.28	__
2000	-506.33	363.56	183.00	83.20	251.60	16.30	__
2001	1183.84	80.40	504.00	5.20	295.52	-175.00	__
2002	1314.27	217.02	453.00	122.24	623.92	3.62	__
2003	4255.96	516.70	778.46	26.01	624.92	-68.00	__
2004	10004.08	865.31	1942.00	111.05	1198.97	23.75	__
2005	10899.93	1048.67	12097.00	1538.36	2500.00	234.00	__
2006	12805.99	2914.89	17140.00	1596.88	3500.00	122.00	__
2007	14186.52	1756.11	22821.07	3331.60	4700.00	116.00	__
2008	13700.00	1793.88	38151.47	2358.91	4107.00	-51.00	__
Average 98-2008	**6101.51**	**926.34**	**8571.54**	**846.72**	**1660.22**	**32.09**	**18138.42**
Share in total average (%)	**33.6**	**5.1**	**47.3**	**4.7**	**9.1**	**0.2**	**100%**
Share in average GDP	**5.3**	**7.8**	**3.3**	**3.0**	**4.5**	**0.0**	__

Source: UNCTAD, Database of FDI.
AIECGC, (2010), Statistics of Arab Investment and Export Credit Guarantee Corporation.
SESRIC, Database of Statistical, Economics and Social Research and Training.

The UAE and Qatar are in the second and third level, respectively, where the FDI amounted to 33.6 per cent in the UAE and 9.1 per cent in Qatar, as a percentage of average total FDI flows to GCC countries during the period 1998-2008. While the other GCC countries – Bahrain, Oman and Kuwait – have a weak contribution, which amounted to 5.1 per cent, 4.7 per cent, and 0.2 per cent, respectively, in total of the FDI of GCC countries.

However, Table (4-4) confirms the low level of foreign direct investment flows to Kuwait, as well as Bahrain and Oman. Therefore, the economic policy of these countries should make a real attempt to attract FDI flows, particularly in sectors that have a low contribution to GDP in order to enhance economic growth and diversify the production structure. However, we note that the role of FDI is not only to increase the production, but is also a good way to overcome the problem of the narrow local market in these economies and enhance the partnership between local and foreign investors to exploit the competitive advantage of the GCC countries, which have abundant labour and cheap energy resources.

In addition to the government budget, the FDI inflows are considered a significant factor in funding many economic enterprises, as well as for creating new job opportunities and expanding the local market of the host economies. However, the common economic policy of GCC countries should attempt to increase the level of FDI inflows, especially in Kuwait.

In conclusion, FDI has a significant role in these economies because of their small GDP size, which explains the big role of FDI in these economies despite their low level of FDI compared with Saudi Arabia and UAE. In other words, FDI has a good role in small economies, such as Oman and Bahrain. In this respect, if we revert to figure (3-6) we will note that Bahrain, Oman, Qatar and Kuwait all have a small real GDP compared with Saudi Arabia and the UAE. However, FDI has a positive effect on the economies that suffer a narrow local market, therefore the inflow of investments to these economies contribute to the increase in economic growth of GDP.

4.3.2 FDI outflows:

The UAE and Saudi Arabia dominated the major ratio of total FDI outflow of the GCC countries for the period 1998-2008, where the UAE represents 38.5 per cent, as a percentage of average total FDI outflows, which is considered the first investor in this regard. Accordingly, we can say that the main reason for a high level of outflows is attributed to the role of the Emirate companies, such as International Petroleum Investment Company (IPIC), Abu Dhabi Future company, and Abu Dhabi Investment Authority (ADIA), where the FDI outflow of the UAE has increased since 2002 (Ministry of Economy, 2008).

Saudi Arabia is the second investor, with its contribution amounting to about 23.7 per cent, as a percentage of average of FDI outflows over the said period, which amounted to USD 2,780.55 million as shown by the following table:

Table (4-5)
FDI outflows in the GCC countries – 1998-2008 (million USD)

Year	UAE	Bahrain	KSA	Oman	Qatar	Kuwait
1998	127.30	180.80	140.65	- 4.73	21.43	- 1866.86
1999	317.11	163.40	97.38	3.39	7.20	23.00
2000	423.67	9.57	1550.00	- 2.00	17.75	- 303.14
2001	213.70	215.96	45.63	54.99	17.21	- 242.00
2002	441.12	190.16	2020.03	0.03	- 21.04	- 78.00
2003	991.15	741.35	473.00	88.43	88.17	- 5016.00
2004	2208.30	1035.64	78.74	41.61	437.92	2581.00
2005	3749.49	1135.37	6602.86	233.55	351.91	5142.10
2006	10891.76	980.05	5397.57	274.64	127.43	8240.00
2007	14567.73	1669.14	12729.91	- 36.41	5160.25	10156.00
2008	15800.00	1620.47	1450.33	585.18	6028.68	8858.00
Average 98-2008(*)	**4521.03**	**721.99**	**2780.55**	**112.60**	**1112.44**	**2499.95**
Share in total (%)(**)	38.5	6.1	23.7	0.9	9.5	21.3
Share in Average GDP (***)	3.9	6.0	1.1	0.4	3.0	3.8

Source: AIECGC, Arab Investment and export credit guarantee corporation, statistics.
UNCTAD, world investment report, 2009, p260.
SESRIC, Database of statistical, economics and social research and training.
(*) (**)(***) Calculated by the researcher.

In table (4-5) we note that the Kuwait FDI outflows started to increase rapidly since 2004, where it increased from USD 2,581 million in 2004 to USD 8,858 million in 2008, where Kuwait represents 21.3 per cent of the total of average FDI outflow of GCC countries over the period 1998-2008. It is considered the third GCC investor, particularly for the years 2004-2008 (AL-Nakib, 2010), where Kuwait is characterized by its high level in terms of FDI outflows compared with FDI inflows. In this respect, we can also mention that the high level of Kuwait's FDI outflows is attributed to the increase of oil export revenue, which encourage more FDI outflows, in order to meet the noted weakness of FDI inflows of Kuwait, which exploits its oil export surplus abroad.

Over the period 1998-2008, foreign direct investment outflows from Qatar, Bahrain and Oman represent insignificant ratios for the same mentioned period in which its average amounted to about 6.1 per cent, 9.5 per cent, and 0.9, respectively. In respect of these countries, we see that the small size of GDP is the main reason for the low level of FDI outflows, which explains the positive relation between FDI and the size of the economy, as represented by the size of GDP.

Moreover, the table above illustrates the high relative contribution of FDI outflows of Saudi Arabia, and Kuwait and the significant issue in this regard that FDI outflows show the importance of funding new investments outside the country, which expresses the role of the economic policy for expanding income resources and gaining more non-oil revenue. In addition, FDI outflows could be considered a good catalyser for doing business and enhancing the economic relations with countries that host the GCC's investments, by exploiting the surplus oil export revenue in many projects that lead to achieving more value added and then reinforcing the economic growth, particularly in Oman, Bahrain and Qatar in order to reduce the high share of extractive industry to GDP, as well as increase the level of foreign investment. However, the FDI, inflows and outflows is still the main target of the GCC economies and an important means to diversify the production structure.

However, tables (4-4) and (4-5) confirm that both Saudi Arabia and the UAE dominate a significant share of FDI flows, on average, during the period 1998-2008, where the other GCC countries come in at low levels, especially Kuwait.

In addition, in terms of FDI outflows, it can be seen that the UAE and Saudi Arabia are the main contributors, while Kuwaiti FDI outflows have emerged as a significant ratio during the period 1998-2008. Oman, Qatar and Bahrain showed a low level in this respect, as mentioned before.

Finally, we conclude that there is a positive relation between FDI and the size of GCC economies measured by GDP. This issue is confirmed clearly in Saudi Arabia and the UAE as the major economies in the GCC. This analysis is consistent with our previous analysis discussed in section (4-2-1) of this study, which confirms that the size of GDP is a good motivation for attracting more foreign direct investment, as well as the legislation associated with it, where its emergence is necessary in this regard, and by it we can determine the reason for decreasing the foreign direct investment inflows to Kuwait.

4.4: The relative importance of FDI in the GCC countries:

The relative importance of FDI and its role can be measured by two indicators, FDI as a percentage of fixed capital formation and FDI as a percentage of GDP as follows:

4.4.1 Ratio of FDI to gross fixed capital formation (GFCF):

The general average of FDI in the GCC countries ranged between 0.5 per cent in Kuwait, and 41.3 per cent in Bahrain over the period 1998-2008. Table (5-6) shows the contribution of FDI as a percentage of fixed capital formation in GCC countries, where Bahrain represents the significant ratio of FDI compared with other GCC countries, which is attributed to the role of economic reformation policies and legislation associated with FDI (ESCWA, 2008), which facilitates attracting foreign direct investment to this country.

The UAE is in the second level in terms of its importance in FDI, where these investments are concentrated in construction and sectors related to energy like iron and aluminium. Oman and Saudi Arabia dominate the third and fourth level, respectively.

Table (4-6)

FDI as a percentage of gross fixed capital formation 1998-2008 (percentage)

Year	UAE	Bahrain	KSA	Oman	Qatar	Kuwait
1998	2.6	24.5	0.7	2.0	11.2	2.0
1999	7.8	50.5	2.5	1.7	5	1.6
2000	3.9	33.8	5.7	0.7	7.3	0.6
2001	9.1	7.7	0.1	3.3	7.6	-5.0
2002	6.5	23.0	1.9	0.9	19.7	0.2
2003	3.7	50.4	0.6	5.5	11.4	2.2
2004	4.6	41.1	4.3	-0.5	13.4	-0.5
2005	38.6	39.8	23.2	30.2	9.1	1.7
2006	30.4	92.2	29.7	30.4	1.0	0.8
2007	26.7	44.7	30.1	39.7	5.4	0.8
2008	55.0	46.9	45.6	28.5	26.3	1.2
98-2008	**17.2**	**41.3**	**13.2**	**12.9**	**10.6**	**0.5**

Source: UNCTAD, World Investment Report, 2004, p394.
UNCTAD, World Investment Report, 2005, pp 320-321.
UNCTAD, World Investment Report, 2006, pp313-314
UNCTAD, World Investment Report, 2008, pp267-268
SESRIC, Database of Statistical, Economics and Social Research and Training.
AIECGC, Arab Investment and Export Credit Guarantee Corporation, statistics.

The table above shows the role of FDI flows as a ratio of gross fixed capital formation (GFCF), where its significant contribution in Bahrain is evident, which amounts to (41.3%), on average, over the period 1998-2008. It has a major role in increasing the level of value added, especially in the Bahrain economy, which is not reliant on the oil sector as the main source of income, which confirms the importance of FDI flows in Bahrain. Accordingly, we can say that the economic growth achieved in Bahrain during the period of study is significantly associated with the FDI flows, which stimulate economic activities, especially in the non-oil sector.

In Kuwait, we note that FDI represents a modest ratio, 0.5 per cent, which proves that it has an insignificant impact on the Kuwaiti economy because of its low level during the said period.

From the above, we note there is an important issue, which is concentrated in the negative relation between size of FDI flows and gross fixed capital formation, which is basically linked to the size of the economy. Accordingly, we see that these investments achieve a clear contribution to the small economies of the GCC – Bahrain, Oman, and Qatar – but, in general, the role of FDI in the GCC countries reflects the efficiency of foreign companies, as well as the pattern of these investments in regard to the achievable value.

4.4.2 Ratio of FDI to GDP:

The FDI as a percentage of GDP is characterized in its fluctuations during the period 1998-2008. The main reason for that is the different sizes of GDP in the GCC countries, as well as the different law frameworks that help to attract foreign direct investment and the quality of foreign companies for achieving a high added value. The following table shows the foreign direct investment flows as a percentage of GDP during the period 1998-2008. Table (4-7) shows the state of fluctuations of FDI flows to GCC countries as a percentage of GDP, which ranged between 0.5 per cent on average in Kuwait and 45.1 per cent in Bahrain. The main feature of Bahrain's economy is the economic freedom, which dominates on the first level in the Arab homeland and ninth global level among 155 countries according to the Heritage index for economic freedom in 2001, (Hussein, 2007).

Moreover, Bahrain has applied the free trade agreement with the United States of America since August 2006, where the USA is the main exporter of FDI, which amounted to 30 per cent of the total world investment (Ibid). Therefore, the researcher sees that the American investment prefers to invest in Bahrain according to this agreement. In addition, we note a big drop in the FDI flows to Kuwait compared with the other GCC countries, where Bahrain, Saudi Arabia and Qatar represent a significant relative importance in terms of average FDI as a percentage of GDP during the period 1998-2008. Bahrain dominates on the big ratio, which amounted to 45.1 per cent, then Saudi Arabia comes in at second level 0.3 per cent, and Qatar was in the third level, which represents 9.5 per cent.

Table (4-7)

FDI flows as a percentage of GDP 1998-2008(*) (percentage)

Year	UAE	Bahrain	KSA	Oman	Qatar	Kuwait
1998	1.0	5.8	0.2	0.7	3.6	- 6.9
1999	-1.5	9.3	0.1	0.3	1.0	0.3
2000	1.5	74.1	13.8	12.5	10.8	1.6
2001	2.0	60.2	0.3	0.6	2.0	- 1.2
2002	4.3	73.7	13.5	12.9	16.3	1.3
2003	4.4	72.4	12.1	12.6	16.0	1.2
2004	4.6	70.5	8.2	14.0	14.6	0.7
2005	21.1	11.9	8.5	13.3	16.2	0.9
2006	23.3	38.9	28.7	14.0	13.5	0.8
2007	25.2	65.9	20.2	14.7	10.7	0.8
2008	11.7	14.0	8.4	5.0	10.0	5.9
Average 98-2008(**)	8.9	45.1	10.3	9.1	9.5	0.5

Source: UNCTAD, World Investment Report, 2004, pp 406-407
UNCTAD, World Investment Report, 2005, pp 320-321.
UNCTAD, World Investment Report, 2006, pp313-314
UNCTAD, World Investment Report, 2008, pp267-268
(*) The years (1998, 1999, 2001, 2008) calculated by the researcher depending on:
SESRIC, Database of Statistical, Economics and Social Research and Training.
AIECGC, Arab Investment and Export Credit Guarantee Corporation, statistics.
(**) Calculated by the researcher.
(-) The slowdown of assets level compared to previous year.

However, it was noted that the FDI flows as a ratio of GDP achieved a significant contribution in Bahrain, which represents 45.1 per cent because of its small size of GDP, while the FDI contribution in the other GCC countries ranged between 0.5 per cent in Kuwait, and 10.3 per cent in Saudi Arabia.

From the above, we see that the Bahrain economy is more integrated with the world economy via FDIs, where the economic policy of this country has targeted to attract more foreign investment to overcome its economic problems in terms of the small size of GDP. Therefore, in this case, the FDI could lead to an increase in the level of economic growth. Moreover, we see that this high reliance on FDI in Bahrain could be affected negatively in the case of the flight of these investments in an economic crisis that occurs regionally or globally where the host country will be effected and lead to a case of non-economic stability, and then a reduction in the level of economic growth.

In Kuwait, the FDI plays an obvious role, while in Saudi Arabia and the UAE, we can say that these investments could be affected positively if they lead to an increase in the level of value added and enhance the growth of GDP, and vice versa if they fail to achieve high value added, where it may have a negative effect on the GDP of the host economy and its growth. In Oman and Qatar, we see that FDI achieved a close relative contribution compared to Saudi Arabia and the UAE.

However, we can say that increasing the FDI ratio in GDP contributes to a reduction in the fluctuations that affect the industrial sector, especially the extracting industry sector due to oil export fluctuations, which have a negative effect on the local economy in the GCC countries. Therefore, the role of FDI should concentrate on improving the non-oil sector and achieve stable economic growth. However, FDI significantly contributes to enhancing economic activities and reducing the fluctuations resulting from the high reliance on crude oil export revenues.

Finally, the role of foreign direct investment is specific to the country; therefore, we will examine that role empirically in the next article by adding FDI, inflows and outflows as independent variables to determine the real impact of foreign investment in GCC countries over the period 1998-2008.

According to our previous analysis, we found that the FDI flows achieved obvious relative importance in Bahrain, Oman and Qatar, which amounted to 45.4 per cent, 9.4 per cent and 9.5 per cent, respectively, despite the low level of FDI inflows, where it had a positive effect due to their local market narrowness and small size of GDP. Accordingly, we can say that the FDI inflows to GCC countries lead to stable economic growth by reducing the level of public expenditure. In addition, these flows enhance and encourage local capital in various productive activities associated with foreign companies. Furthermore, the fluctuations of FDI flows to GCC countries are related to the investment climate in GCC countries during the period 1998-2008, due to the global level of economic growth, where we found that the FDI flows to the UAE increased from 4.4 per cent in 2004 to 25.2 per cent in 2007 as a ratio of total GDP. In contrast, we can also note that the global economic growth increased significantly for the said period, which confirms the high reaction of GCC economies to the progress of the global economy. In addition, Saudi Arabia and the UAE attracted a significant share of foreign direct investment, which amounted to 33.6 per cent, 47.3 per cent, respectively, as a ratio of the total FDI inflows of the GCC countries. However, these ratios reflect the important contribution of these two countries as the main contributors compared to the other GCC countries during the period 1998-2008, which confirms the role of size of GDP and local market in attracting foreign companies to invest in various activities.

4.5 The Model:

4.5.1 Introduction:

Foreign direct investment is considered one of the most important integration indicators in a global economy because of its significant role in the host economies, where FDI usually enhances the GDP and increases the economic activities that lead to exploiting the available resources that have a positive effect in developing the productivity.

In addition, foreign trade has an active role in increasing the economic growth level where it is considered one of the key criteria for attracting more foreign direct investment. Therefore, GCC countries have aimed to attract FDI and increasing foreign trade to improve the GDP growth while reducing the share of crude oil exports in total GDP since 1981, when the GCC countries agreed to unify their economic policy in this respect.

However, the commodity exports are the main factor for economic growth and a key activity that stimulates the economic development in the GCC countries, where it reflects the GDP growth in the various commodity sectors over the period 1998-2008.

This part of the study will focus on the FDI inflows and outflows as the main reason for economic growth in the GCC countries over the period 1998-2008. In addition to tackling the major criteria of economic growth, it will consider the relative importance of foreign trade commodity and its effect on GDP, where the researcher aims through that to analyse both the FDI and foreign trade in the GCC countries that suffer a problem of local market narrowness, namely, Bahrain, Oman, and Qatar. Our analysis includes using the OLS method with the panel data technique to measure the impact of FDI and foreign trade empirically.

4.5.2 Model Description:

This model focuses on analysing foreign trade and FDI in GCC countries over the period 1998-2008. It aims to test the impact of foreign trade and foreign direct investment on GDP, where a positive value will reflect their role in enhancing level of growth rates. In other words, it reflects the growth of per capita GDP and the increasing ratio of exports to GDP. Therefore, it will examine five independent variables: oil export, non-oil export, imports, FDI flows, and FDI outflows.

The FDI flows are considered an important indicator for integration with the world economy, where it usually enhances the level of GDP, and increases other economic activities that lead to exploiting the available resources. Furthermore, foreign trade has a significant role in supporting economic growth as a key criterion in the view of foreign investors, where it leads to attract more foreign direct investments. However, GCC countries seek to attract more FDI in order to improve the level of growth, as well as, to reduce the share of oil export in the total GDP since 1981 when these countries unified their economic policy in this respect. Accordingly, the specific model combines the foreign trade commodity and foreign direct investment over the period 1998-2008. To examine the role of FDI in the GCC countries, the model will include foreign direct inflows (*FDin*), and foreign direct investment outflows (*FDout*) as a ratio of GDP over the period 1998-2008.

In respect of foreign trade, we will use three independent variables – non-oil commodity export (*noilx*), oil export (*oilx*), and commodity imports (*M*). All the mentioned variables are independent, and the gross domestic product (*GDP*) will be our dependent variable.

4.5.3 Model specification:

Based on the above, we have formulated the specific model as follows:

$$Log\ GDP = a + B1\ (FDin) + B2\ (FDout) + B3\ Log\ (Oilx) + B4\ Log\ (Noilx) + B5\ Log\ (M) + ui$$

Where:

a: intercept.

GDP = Real gross domestic product of GCC countries (million USD).
FDin = foreign direct investment inflows in GCC countries (percentages).
FDout = foreign direct investment outflows of GCC countries (percentages).
Oilx = Oil export revenues of GCC countries (million USD).
Noilx = non-oil commodity export revenues (million USD).
M = Value of commodity imports (million USD).
ui= error term.

The variables above have been chosen based on the main aims of the unified economic policy in the GCC countries that attempt to diversify the non-oil sector to reduce the share of oil export revenue in GDP over the period 1998-2008, as well as to attract more foreign direct investment. Therefore the researcher tries to examine the effect of these variables on GDP to determine whether these targets have been achieved practically or not, where achieving it means the full success of the unified economic policy and its targets, and, moreover, the importance of the GCC as a regional economic bloc in the Arab homeland.

4.5.4 Dataset:

The study data were collected from different official sources. The data for GDP were obtained from various issues of the Joint Arab Economic Report, which is issued by the League of Arab States. We collected the foreign trade data from the database of the Arab Monetary Fund (AMF), and Statistical, Economic and Social Research Centre (SESR), as well as the United Nations Conference for Trade and Development (UNCTAD) and the Arab Investment and Export Credit Guarantee Corporation Institution (AIECGC).

4.5.5 Model estimation:

The model has been estimated by using the ordinary least squares (OLS) with panel data technique. The gross domestic product (GDP) is the dependent variable, while the independent variables are: FDI inflows, FDI outflows, Oil exports, non-oil commodity exports, commodity imports. Unit root test is conducted for the series data of this study, the null hypothesis assumes that there is a unit root process. According to the result obtained, we found that this test is statistically significant at the 1 and 5 percent levels. We therefore reject the null hypothesis and accept the alternative one. This means there is no unit root and the data are stationary. Furthermore, the stability test is regressed and presents that the dependant variable is stabled within the red lines (*Appendix "C"*) Hence, we can rely on this model for analysing the empirical results of this study. In addition, the probability of the Huasman test results was more than 0.05 (P-value > 0.05). Therefore, random effect regression is running by using Eviews software. However, in the model below, the estimated values show that this model is statistically significant at the level of 0.01, in addition the (F) value amounted to 68.718, and the adjusted R^2 is about 0.96, which means a significant relation between the independent variables and dependent variable. The importance of using this model is to analyse the effect of FDI and foreign trade on real GDP. Moreover, the (DW) value is about 1.96, which confirms that there is no autocorrelation, where this value is located in the acceptable area. Based on that, we can use the estimated model to analyse the impact of the independent variables on the real GDP and economic growth in the GCC countries over the period 1998-2008.

4.5.6 Results analysis:

Most of the estimated variables were statistically significant at the 0.01 level; however, the impact of each variable on real GDP has a different influence in the GCC countries, as we will note in the following specific analyses:

UAE: There were three significant coefficients, FDI inflows (*FDIN*), oil exports (*OILX*) and non-oil export (*NOILX*). In respect of oil export the (t) test refers to the strength of the relationship and significant effect of this variable compared with FDI inflows and non-oil export.

Table (4-8): Regression result for the model 2 of the study – random effects

Dependent Variable: Real GDP
Method: Panel EGLS (Cross-section random effects)
Date: 01/25/14 Time: 09:19
Sample: 1998 2008
Periods included: 11
Cross-sections included: 6
Total panel (balanced) observations: 66
Wallace and Hussain estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
$OILX_{\_UAE}$	0.959872	0.136081	7.053689	0.0000 (*)
$OILX_{\_Qatar}$	0.092406	0.020372	4.536020	0.0001 (*)
$OILX_{\_Oman}$	0.057347	0.023743	2.415324	0.0211 (**)
$OILX_{\_Kuwait}$	0.063231	0.025424	2.487054	0.0178 (**)
$OILX_{\_KSA}$	0.047337	0.027526	1.719700	0.0943 (***)
$OILX_{\_Bahrain}$	0.069104	0.023979	2.881833	0.0067 (*)
$NOILX_{\_UAE}$	0.041077	0.021546	1.906478	0.0648 (***)
$NOILX_{\_Qatar}$	0.006056	0.008056	0.751648	0.4573
$NOILX_{\_Oman}$	0.005915	0.007193	0.822212	0.4165
$NOILX_{\_Kuwait}$	0.006404	0.009010	0.710734	0.4820
$NOILX_{\_KSA}$	-0.001568	0.004744	-0.330516	0.7430
$NOILX_{\_Bahrain}$	0.030819	0.026436	1.165803	0.2516
$M_{\_UAE}$	-0.034063	0.037893	-0.898936	0.3748
$M_{\_Qatar}$	0.107744	0.021249	5.070581	0.0000 (*)
$M_{\_Oman}$	0.115031	0.034686	3.316331	0.0021 (*)
$M_{\_Kuwait}$	0.114984	0.039837	2.886343	0.0066 (*)
$M_{\_KSA}$	0.198016	0.037663	5.257551	0.0000 (*)
$M_{\_Bahrain}$	0.057785	0.053596	1.078162	0.2883
$FDOUT_{\_UAE}$	0.002630	0.003788	0.694313	0.4921
$FDOUT_{\_Qatar}$	0.006964	0.003388	2.055798	0.0473 (**)
$FDOUT_{\_Oman}$	0.007903	0.023596	0.334922	0.7397
$FDOUT_{\_Kuwait}$	0.012270	0.003497	3.508246	0.0013 (*)
$FDOUT_{\_KSA}$	-0.002336	0.012151	-0.192274	0.8486
$FDOUT_{\_Bahrain}$	0.003063	0.002292	1.336818	0.1899
$FDIN_{\_UAE}$	0.005873	0.002217	2.648762	0.0120 (*)
$FDIN_{\_Qatar}$	0.006335	0.004114	1.539662	0.1326
$FDIN_{\_Oman}$	-0.003625	0.003264	-1.110590	0.2743
$FDIN_{\_KSA}$	-0.011609	0.005735	-2.024194	0.0506 (**)
$FDIN_{\_Kuwait}$	0.005264	0.031512	0.167049	0.8683
$FDIN_{\_Bahrain}$	-8.58E-05	0.001581	-0.054290	0.9570
C	2.869816	0.135865	21.12260	0.0000 (*)

Effects Specification

	S.D.	Rho
Cross-section random	0.179006	0.9913
Idiosyncratic random	0.016800	0.0087

Weighted Statistics

R-squared	0.983306	Mean dependent var	0.135496
Adjusted R-squared	0.968997	S.D. dependent var	0.095763
S.E. of regression	0.016862	Sum squared resid	0.009951
F-statistic	68.71888	Durbin-Watson stat	1.968076
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.973824	Mean dependent var	4.790284
Sum squared resid	0.352857	Durbin-Watson stat	0.055502

Source: By using Eviews software, and panel data technique
(*), (**),(***) indicates statistically significant at the (1%), (5%) and (10%) levels, respectively.

We can explain this issue in the evident role of the oil exports that are linked to the local economy, it reflects the significance of investing the surplus of crude oil export revenues in various enterprises that have a positive effect on the real GDP over the period 1998-2008. However, the oil export coefficient is statistically significant at the 0.01 level, and it has a strong relation towards the dependent variable compared with the independent variables above, where increasing the oil export revenues by one time leads to an increase in the real GDP of about 0.959 times. In this respect we can say that the oil export revenues are still represent a significant source of income for the UAE economy despite its big efforts to diversify the structure of production.

In addition, we note that the FDI inflows represent the weak effect towards the Emirate's real GDP, where increasing the FDI inflows by one time leads to an increase in the real GDP by only 0.005 time, while the non-oil coefficient indicates that increasing it by one time will lead to an increase in the real GDP in the UAE by 0.041 times. This result confirms an important issue, which is that the size of FDI does not reflect the real picture of its role in the local economy, where over the period 1998-2008, the FDI inflows achieved a positive growth which reached about 5 per cent(*), where the average of FDI inflows to UAE was about USD6,101.51 million. In contrast, the average of FDI outflows amounted to USD 3099.03 million, on average, for the period 1998-2008, where its growth rate is about 2 per cent. Despite that, we have found that the FDI outflows have a more positive effect compared to the FDI inflows over the same period of study. However, it is worth noting in this context, that the economic policy in the UAE, in particular, and in the other GCC countries, in general, aims to attract more foreign direct investment, which is considered a good indicator for decision-makers, and obvious evidence of the success of the investment and trade policy in the UAE (Anwar, 2003). In addition, the attempt for economic integration in the

(*) Calculated based on the table (4-4), p.186.

GCC creates pressure to enhance the economic competitiveness in the UAE by hosting foreign direct investment (Anwar, 2003).

In contrast we note a weak role of non-oil commodity exports, where its coefficient is insignificant in this model because of the high reliance on oil export revenues which dominate about 29.2 per cent[(*)] of GDP on average over the period 1998-2008.

From the above, we can report that the economic growth level in the UAE is still reliant on the oil sector and its export revenues, where an increase in the global oil prices reflects high revenue that feed other economic sectors, as well as engage the surplus to increase the FDI outflows. In other words, there is a positive relation between an increase in oil prices, GDP and FDI inflows of the UAE, and vice versa in the case of a drop in the oil prices, therefore, the UAE economy is still influenced by global oil prices and its fluctuations.

Bahrain:

In respect of Bahrain economy, all of the model coefficients were statistically insignificant, except the oil exports coefficient, which was statistically significant at the 0.01 level, where its increase by one time leads to an increase in the real GDP of about 0.069 times. This result confirms the positive role of oil and its evident effect on the economic growth in Bahrain.

We can explain this by rising of level of oil revenues. Therefore, we see that others variables are not representing a significant relative importance. Hence, this analysis is consistent with the practice, where the economic contributions of non-oil sectors are modest in general. Moreover, we noted already that the Bahrain economy represents only 2 per cent of the average total of the real GDP of the GCC countries over the period 1998-2008, where it is considered the smallest economy compared to the other GCC countries. Therefore, other variables except oil export have not improved the economic activity that enhances the real GDP in Bahrain. Finally, we can conclude that

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(*) Look at table (3-3), p115.

the small size of GDP in Bahrain is has had a positive impact by oil export revenues in comparison with other independent variables of study.

Saudi Arabia:

The estimated model shows that the FDI inflows had a reverse impact on Saudi Arabia's economy over the period 1998-2008. However, this effect is relatively weak compared to other variables, and we can analyse it by the role of FDI inflows in competing for the local investment in Saudi Arabia, which affects the economy of Saudi Arabia despite the huge size of FDI inflows in comparison to the other GCC economies. This result confirms that there is no strong linkage between the FDI inflows and the local economy represented by the GDP. Therefore, this case makes it clear that most of the profit of foreign direct investment in Saudi Arabia is going back to their motherlands, and, accordingly, we can conclude that the foreign investor's strategy is not compatible with the strategy of economic development in Saudi Arabia for the period 1998-2008. The empirical result shows that the FDI inflows in Saudi Arabia have not achieved the required result which aimed to diversify the commodity production, because it has not increased the non-oil commodity foreign trade.

In regard of the oil export variable, the estimated model shows that it is statistically significant at the 0.10 level, and, according to this result, its impact will be important, where increasing the crude oil export by one time leads to an increase in the real GDP of Saudi Arabia by 0.047 times. This reflects the necessity of this variable and its positive effect to enhance the economic growth in Saudi Arabia, where Saudi's oil exports have achieved a high growth rate, which amounted to about 20 per cent(*) over the period 1998-2008, as well as the relative importance of oil exports from about 55.3 per cent(**), on average, of total oil export revenues of the GCC countries during the said period.

(*) Look at table (3-1) p.113.
(**) Calculated based on table (3-1).

The third coefficient is the commodity imports which have a clear positive effect on the GDP of Saudi Arabia, however, its increase by one time leads to an increase in the real GDP by 0.198 times. This result assures that the imports of Saudi Arabia have an essential role in enhancing the Saudi economy, as a result of the relative importance of the capital imports, which, on average, was about 49 per cent(***)of the total commodity imports of Saudi Arabia during the period 1998-2008.

Oman: In Oman, the result of the estimated model shows that the role of oil exports is statistically significant at the 0.05 level, which confirms the positive impact of oil revenue in increasing the GDP of Oman, where increasing the crude oil revenue by one time leads to an increase in the real GDP by 0.057 times. This result ensures the strength of the relationship between oil exports and the growth in the GDP, where it is compatible with the real situation, which shows that the oil export revenues have formed 38.5 per cent(****) as a ratio of the average real GDP in Oman during the period 1998-2008. Moreover, this revenue achieved a growth rate that amounted to 17 per cent(*****) over the said period, which shows the significant economic role of crude oil revenue to positively affect the GDP of Oman and enhance other economic activities in general. In other words, it is clear that the economic growth in Oman is still associated with the oil sector and its growth, where the obtained model result shows that the efforts to diversify the economy of Oman by increasing the share of the non-oil commodity exports has not reached an acceptable level in this regard, because the coefficient of non-oil commodity exports were statistically insignificant, which confirms the real situation of the economy of Oman.

In addition, the imports coefficient shows its positive role, where increasing the commodity imports level by one time leads to an increase in the real GDP of Oman by 0.115 times. In this context, and if we revert to table (3-17), we will see that the

(***) Look at table (3-16), p.150.
(****)Look at table (3-3) p.115.
(*****)Look at table (3-1) p.113

commodity imports of machinery and transportation equipment form about 28 per cent, on average, for the period 1998-2008, while the manufacturing imports represent 24 per cent, and food and beverages about 15 per cent for the same period, where the capital imports dominate the highest ratio, and, thus, reflects their role in enhancing the level of economic growth.

Qatar: The crude oil exports show a considerable effect on the real GDP of Qatar, where an increase in oil export revenues by one time leads to an increase in the economy by 0.092 times; this result confirms the important role of the oil sector in Qatar. In respect of commodity imports, we note that it had a positive impact on the GDP growth over the period 1998-2008, where its increase has raised the GDP by 0.107 times. While the increase of level of FDI outflows by one time will influence the real GDP in a slight rising which amounted by 0.006 times.

The other variables, FDI inflows, non-oil commodity exports are statistically insignificant, as shown in the estimated model, where the economic situation in Qatar is not different to the other GCC countries, in that the oil export revenue dominates as the main source of income. According to this result we can report that the FDI inflows and outflows have no positive effect on GDP and its growth over the study period.

Kuwait: The coefficient of FDI outflows was significant statistically, which reflects the limited positive effect on the real GDP of Kuwait, where increasing the FDI outflows by one time leads to growth of Kuwaiti economy by 0.012 times, as shown in the estimated model.

It is worth noting that the FDI outflows increased from USD 1,866.86 million in 1998 to USD8,858.00 million in 2008 (AIECGC, 2010), and, in this context, we can say that the positive effect of FDI outflows in Kuwait is based on the linkage of these investments with the local economy, where the model result shows that the FDI outflows reflected positively on the economy of Kuwait over the period 1998-2008.

The oil export coefficient is also statistically significant and is a positive sign, which confirms the major role of crude oil export revenue, which affected real GDP over the said period, where its rise by one time leads to an increase in GDP of 0.063 times. In respect of commodity imports we note through the estimated model that the coefficient was statistically significant, which means that an increase of commodity imports by one time leads to an increase in the real GDP of Kuwait by 0.114 times, and reflects the role of capital commodity imports in improving the production level and the growth of the real GDP in general, where the commodity imports of Kuwait represent the third rank, after Saudi Arabia and Oman. However, the machinery and transportation equipment dominated on 40 per cent(*), on average of the total commodity imports during the period 1998-2008, while the manufacturing goods were about 13 per cent, beverage and food about 34 per cent, where the significant ratio represents its big role in enhancing the various economic activities resulting in an increase in the size of GDP.

There is no doubt, and as we have noted empirically, concerning the important role of crude oil export revenue that positively affects the size of GDP in Kuwait and the other GCC countries. Its coefficients were significant in all of the GCC countries, where the necessity of this revenue emerges to meet the shortage of various goods, particularly the capital goods. The results of the model prove the continuing reliance on the oil sector in the GCC countries in general. In other words, the significant role of foreign trade, oil exports and commodity imports in which all of their coefficients were statistically significant except Bahrain. Moreover, this analysis is compatible with our analytical approach, which already confirmed the high reliance of GCC countries on the oil sector and its revenue over the period 1998-2008.

In other words, we can say that the results of the estimated model and analytical approach have proven that the GCC countries are highly depending on the non-GCC countries as a result of their crude oil exports, which mean that the GCC countries are

(*) Look at the table (3-16), p150.

still reacting to the oil market fluctuations and their effect on their local economies due to the change in global oil prices that occur from time to time, where the economic growth level in the GCC countries will remain positive in reacting to the global economic growth.

4.5.7 Findings:

The oil export have achieved a significant role in the UAE compared with that of FDI inflows and non-oil export, where an increase in oil export by one time will lead to an increase in the real GDP by 0.959 times. Moreover, a rise in the FDI inflows by one time leads to an increase in the level of real GDP by 0.005, where we found a positive relation between the FDI and GDP variables. Whereas, in Kuwait, we found that the positive effect on real GDP occurs for FDI outflows as a result of their rapid increase over the period 1998-2008, as well as, commodity imports and oil export. However, the econometric model shows that an increase in FDI outflows by one time leads to an increase in the level of the real GDP of Kuwait by 0.012 times.

The estimated model confirms that there is an insignificant relation between the FDI inflows and the real GDP of Saudi Arabia. This result could be explained because the FDI inflows have caused unequal competition in the local investment, as well as the weak linkage between the FDI inflows and the local economy, where most of the FDI profits are going to the motherland of the foreign investors. In addition, the empirical model confirms the continuous role of crude oil exports in developing the real GDP of the GCC countries over the period 1998-2008, where its importance is obvious in the UAE, Qatar, and Kuwait, which proves the significant share of oil exports in real GDP of GCC countries. However, an increase in oil exports by one time will lead to a positive increase in real GDP, which amounted to 0.959, 0.069, 0.047, 0.057, 0.092, and 0.063 times in the UAE, Bahrain, Saudi Arabia, Oman, Qatar and Kuwait, respectively.

In addition, there are insignificant levels of non-oil export coefficients in all of the GCC countries, except for UAE, where this result reflects that the non-oil exports have not improved the level of economic growth of the GCC countries. However, the increase in the level of non-oil exports was one of the major targets of the unified economic policy of the GCC. In this context, the specific model confirms the failure of the GCC efforts to improve the non-oil industry sectors over the period of study, 1998-2008.

Finally, the commodity imports had a positive effect on the real GDP in the GCC countries except for the UAE and Bahrain, where an increase in the level of commodity imports by one time leads to a rise in the level of real GDP by 0.198, 0.115, 0.107, and 0.114 times in Saudi Arabia, Oman Qatar and Kuwait, respectively. This result could be interpreted as meaning that the role of imported capital goods is to meet the major shortage of non-oil industries. However, we previously found that non-oil exports have an insignificant role according to the results of this model. Therefore, we see that the two results are consistent, with imports of capital goods against the shortage of non-oil industries. However, this explains the importance of imports, particularly capital imports, which influence the production of various goods, and, thus, increase the level of real GDP of the GCC countries.

CHAPTER FIVE

GROWTH, FDI, IMPORTS AND HEALTH EXPENDITURE, AND THEIR EFFECT ON EMISSIONS IN GCC COUNTRIES

5.1 Introduction:

As mentioned before, GCC countries are among the 25 top countries that contribute more than the world average to the increase in carbon dioxide emissions. The main target of this part is to analyse the reality of air pollution in GCC countries over the period 1998-2008 within an analysis of the impact of major commodity sectors that pollute the environment, in general. These include mining, quarrying and the fuel sector, the manufacturing industries, and the electricity and gas sectors, which are considered as the main components of GDP in GCC countries and constitute a local reason for pollution.

The FDI inflows will be analysed as external reasons for pollution in the GCC countries, and determine whether or not these foreign investments have affected the environment, this variable will represent the effect of foreign activities on the GCC economies. Furthermore, addressing the major commodity imports as a reason for the increase in the level of carbon dioxide emissions, which reflects the effect of trade on the environment.

Analysing the three mentioned variables is an attempt to extrapolate the reality of the environmental policy that was implemented in the GCC countries over the period 1998-2008. This is when these countries were considered as among the main contributors to climate change because of their huge reserves of oil, which account for 40 per cent of the world's proven reserves, and 23 per cent of the world's reserves of gas (Reiche, 2010). These significant percentages emphasize the importance of the comparative advantage of the GCC countries in investing in the oil sector, as well as in sectors related to the oil industry, which could have an adverse impact on the environment. Therefore, we can explain whether or not there were strict environmental policies through analysing the effect of FDI on carbon dioxide emissions over the period 1998-2008, and by analysing the per capita carbon dioxide emissions. Moreover, it tackles the relation between commodity imports and air pollution, and, finally, the researcher will examine the said variables quantitatively to determine their impact on environmental pollution, which is represented by carbon dioxide emissions.

5.2 Carbon dioxide emissions in the GCC countries:

The GCC countries have a high rate of carbon dioxide emissions as a result of the dependency of these economies on fossil fuels. These countries emit about 45 per cent to 50 per cent of the total emissions of Arab countries (Farid, 2008). The rate of carbon dioxide emissions in the GCC countries exceeds the global rate, where, in 2003, the emissions rate in the UAE, Bahrain, Qatar and Kuwait was, respectively, about 13, 8, 9, and 7 times more than the world average; the GCC's emissions rate amounted to 254 million metric tonnes. This confirms that the GCC countries are a significant contributor to the increase in the level of carbon dioxide emissions.

In addition, the study period, 1998-2008, witnessed a high increase of crude oil revenue in the GCC countries, especially the years 2002-2008, where the contribution of the oil sector in the GDP rose from 30.8 per cent in 2002 to 40 per cent in 2006. This revenue constitutes 77.4 per cent of the public revenue in 2002 and reached 86 per cent in 2006 (Saif, 2009). In contrast, we note that there is an increase in the level of carbon dioxide emissions over the said period, in that the carbon dioxide emission level rose in the UAE from 83.6 million metric tonnes in 2002 to 128.5 million metric tonnes in 2008. In addition, in Saudi Arabia, it rose from 323.4 million metric tonnes reaching 393 million metric tonnes for the same period. The other GCC countries, also witnessed an increase in carbon dioxide emissions, as shown in the following table:

Table (5-1)

Carbon Dioxide emissions in the GCC countries 1998-2008 (thousand metric tonnes)

Year	UAE	Bahrain	Saudi Arabia	Oman	Qatar	Kuwait
1998	98892	18405	207288	16667	32402	36421
1999	89038	18020	227229	20818	31408	66002
2000	126754	19758	297749	22057	34730	71107
2001	113783	15082	295843	20444	28001	67465
2002	83659	16824	323459	25544	28012	63982
2003	106365	17580	323697	31943	30564	73263
2004	112878	18056	346047	30971	40286	81338
2005	115628	19684	367067	34176	56820	89878
2006	121462	21294	384386	39717	49541	86343
2007	135540	22464	402450	37319	63054	86145
2008	128501	21879	393418	38518	56297	86244
98-2008	112045.5	19004.18	324421.18	28924.91	41010.45	73471.64

Source: SESRIC, The database of Statistical economic and social research and training centre for Islamic countries, Ankara –Turkey. http://www.sesric.org/index.php

Table (5-1) above shows that both Saudi Arabia and the UAE represent a significant contribution, where their emissions average about 324,421.18 and 112,045.5 thousand metric tonnes, respectively, for the period 1998-2008. Kuwait has come in the third level with 73471.64 thousand metric tonnes, followed by Qatar, the carbon emissions of which increased from 32,402 thousand metric tonnes in 1998 to 56,297 thousand metric tonnes in 2008 due its high production level of natural gas, which led to more pollution during the study period.

In Oman, the carbon dioxide emissions rose from 16,667 thousand metric tonnes in 1998 reaching 38,518 thousand metric tonnes in 2008, also in Bahrain from 98,892 to 128,501 during the period of study.

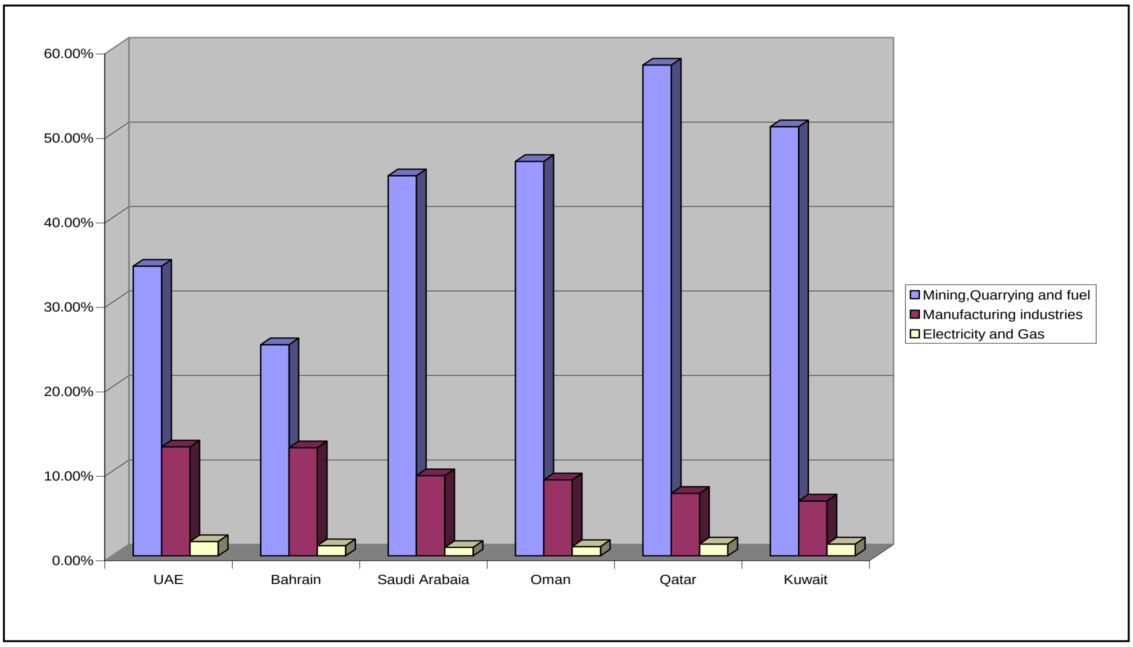
According to the facts above, we can say that there is a significant increase in the level of carbon dioxide emissions in the GCC countries in general, accompanied by the growing levels of GDP of the GCC countries during the period 1998-2008. In other words, we note that there is a positive relation between economic growth, as represented by GDP, and the increasing level of carbon dioxide emissions over the period 1998-2008. This fact confirms that the GCC countries have not paid much attention to environmental considerations. In addition, the economic policy of GCC countries has not adopted a strict environmental policy over the said period.

Furthermore, the author sees that there is a positive relation between the size of GCC economies and the carbon dioxide emissions. This confirms the high reliance on the mining, quarrying and fuel sectors in the GCC countries, so we note that the size of GDP reflects a high level of carbon dioxide emissions, which exceeded the average rate of world emissions, and explains the large negative impact of these emissions on the environment.

There is no doubt that the most polluting sectors in the GCC countries are the mining, quarrying and fuel sectors, as well as the manufacturing sector (ESCWA, 2005), which contributed, on average, between 25 per cent in Oman and 58 per cent in Qatar, as a ratio of total GDP. Moreover, the electricity and gas sector, which consumed a high level of oil, is also considered to be the third sector that emitted carbon dioxide into the atmosphere. The following figure shows the share of the main commodity sectors in the GCC countries for the period 1998-2008:

Figure (5-1)

Share of main commodity sectors to GDP, 1998-2008 (percentage)



Source: Based on data of Arab Monetary Fund, AMF, Kuwait; www.amf.org.ae

Figure (5-1) illustrates that the mining, quarrying and fuel sectors represent a significant share of the total commodity sectors in GDP for the period 1998-2008, which represents the high importance in the GCC economies, especially in Qatar and Kuwait. This fact confirms that these two countries depend too much on the extractive industries, which contributed about 58.1 per cent and 50.8 per cent, respectively, on average, of the total GDP over the study period (AMF, 2010)(*).

Moreover, the manufacturing industry is the second main sector, especially in Bahrain and the UAE, where it represents considerable relative importance in the total GDP, in that this sector contributed 12.9 per cent and 12.8 per cent of the GDP of the mentioned countries, respectively, during the period 1998-2008 (AMF, 2010).

However, we can say that the extractive and manufacturing industries are a major cause of carbon dioxide emissions, the level of which exceeds the emissions rate for the world. In other words, the economic activities in the GCC countries are considered as polluting activities compared to other sectors that can achieve a significant value added with less pollution, such as the agricultural and construction sectors, which represent very modest percentages(**) compared to the main sectors in the GCC countries. To show the real impact of air pollution and to achieve a more accurate analysis, we analyse the per capita carbon dioxide emissions in the GCC countries over the period 1998-2008, as shown in table (5-2). It indicates that Qatar has the highest share in terms of per capita carbon dioxide emissions over the period 1998-2008, where the average of these emissions is about 51.33 metric tons. This result reflects a high reliance on fossil fuel and other polluting industries, particularly the oil and gas industries.

(*) The ratios calculated based on statistical data of the Arab Monetary Fund (AMF), http://www.amf.org.ae

(**) For example, the average share of the agriculture sector to GDP in the GCC countries over the period 1998-2008 is as follows: UAE (0.01), Bahrain (0.003), Saudi Arabia (0.02), Oman (0.01), Qatar (0.000) and Kuwait (0.001).
Average share of construction sector to GDP is as follows: UAE (0.08), Bahrain (0.04), Saudi Arabia (0.04), Oman (0.05), Qatar (0.05), and Kuwait (0.01)
Source: Calculated by the author based on Statistical Bulletin of Arab Countries (2010), Arab Monetary Fund (AMF), Kuwait, pp 37-58.

Table (5-2)

Per capita carbon dioxide emissions in the GCC countries 1998-2008 (metric tonnes)

Year	UAE	Bahrain	KSA	Oman	Qatar	Kuwait
1998	34.16	29.62	10.52	7.19	57.03	31.29
1999	29.05	28.35	11.25	8.82	53.27	31.33
2000	39.15	30.4	14.42	9.18	56.31	32.47
2001	33.33	22.68	14.02	8.37	43.19	29.65
2002	23.3	24.73	15.01	10.28	40.92	27.4
2003	28.25	25.26	14.69	12.65	41.78	30.57
2004	28.7	25.37	15.36	12.05	50.54	33.07
2005	28.28	27.05	15.88	13.06	64.17	35.45
2006	28.7	28.64	16.23	14.87	49.51	33.22
2007	31.06	29.58	16.66	13.69	55.43	32.35
2008	29.88	29.11	16.44	14.28	52.47	32.78

Source: SESRIC, The database of Statistical economic and social research and training centre for Islamic countries, Ankara –Turkey. http://www.sesric.org/index.php

In addition, Kuwait comes in the second level, with 31.78 metric tonnes, followed by the UAE, which falls in the third level, 30.39 on average, for the years 1998-2008. While Bahrain, Saudi Arabia and Oman show a lower share compared with the other GCC countries, representing 27.34, 14.58 and 11.31 metric tonnes, respectively.

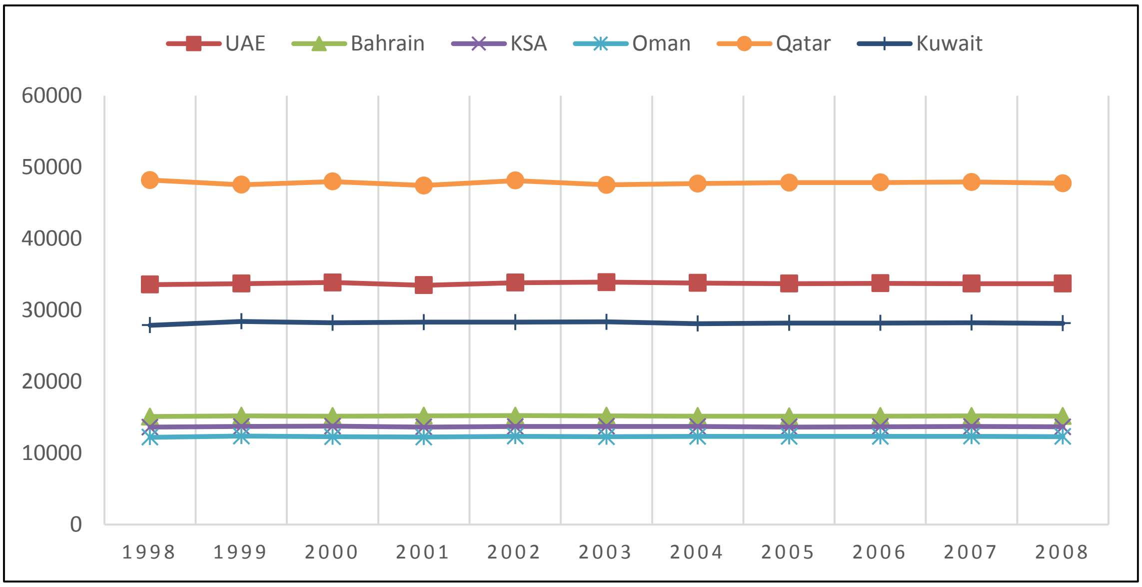
From figure (5-3), we also note that the share of per capita carbon dioxide emissions witnessed evident fluctuations during the period 1998-2002, especially in Qatar, Kuwait and the UAE. These changes are attributed to the volatility of economic activities that generated these emissions in that period. For the years 2002 to 2005, we note a significant increase in the per capita carbon dioxide emissions, where Qatar has the highest increase compared with the other GCC countries. Hence, the researcher sees that the main reason for the increase in the per capita carbon dioxide emissions is due to the increase in economic activities that depend mainly on crude oil and gas resulting from the increased global demand, which stimulated the oil and gas sectors to increase the production level, as well as the other related sectors, such as petrochemicals.

In the last two years of the study, 2007-2008, the per capita carbon dioxide emissions show an insignificant decline for Qatar, Bahrain, UAE, and Saudi Arabia. This decline can be explained by several initiatives(*) taken by the GCC countries in an attempt to reduce the level of pollution as a part of their commitment towards the global community, where the GCC countries are considered as major contributors of carbon dioxide emissions.

In Oman and Kuwait, we note an increase in the per capita carbon dioxide emissions, which reflects failure in the efforts of these countries to adopt successful policies to reduce carbon emissions. The following figure shows the per capita real GDP in GCC countries over the period 1998-2008. However, figure (5-2) below confirms the obvious increase of per capita real GDP in Qatar, the UAE, and Kuwait, compared with the per capita carbon dioxide emissions. This case is considered a good indicator, and, accordingly, we can say that these countries have good motivations towards improving the environment because the growth levels are better than in Saudi Arabia, Oman and Bahrain.

Figure (5-2)

Per capita real GDP in the GCC countries – 1998-2008 (US dollars)



Source: Based on Joint Arab Economic Report, Abu Dhabi, different issues (2004 -2010).
SESRIC, (2007) statistical yearbook, Statistical, Economics and Social Research and Training Centre for OIC Countries, Turkey.

(*) For example, the UAE, since 1999, started encouraging projects that maintain the environment, such as projects of solar energy that are used for multiple purposes. Moreover, the UAE has also banned the use of leaded fuel since 2003 in an attempt to reduce the level of carbon emissions of the transport sector (Raouf, 2008) and (Farid, 2008).

Finally, it is noted that the increase in real GDP and its per capita are accompanied by a positive increase in the level of carbon dioxide emissions. This means that GCC countries have not tried to use advanced technologies in their production process. Furthermore, these countries are not following a strict environmental policy, which could be enforced by foreign investors to use it in order to mitigate the level of carbon dioxide emissions.

5.3 Commodity imports and health expenditure:

Commodity imports

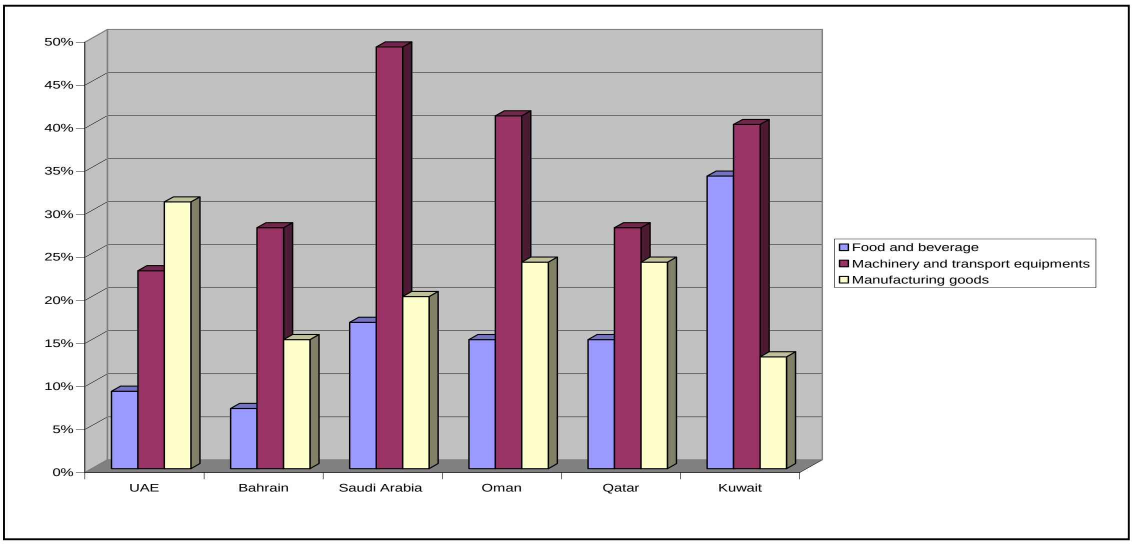
The economic literature indicates that liberalization of the commodity trade could lead to pollution of the environment when the traded goods lead to more pollution (Raouf, 2011). However, this issue remains subject to the role of the economic policy towards the environment in the attempt to reduce the pollution that may be derived from these commodity imports. For example, in the early 1980s, the United States of America tried to reduce the import of Japanese cars, as a result, the demand for American cars increased and led to more pollution, because the American cars emitted more carbon gas compared to the Japanese cars (Pugel, 2004). Hence, we note in this example that the adopted policy in this regard led to more pollution. However, without doubt, the economic policy has a significant role in caring for the environment and achieving a balance between the economic growth and environmental considerations, especially air pollution.

In the same way, free trade could lead to protection of the environment through liberalization of importing capital goods that have advanced technology and are friendly towards the environment. In this case, we see that the economic policy contributes in maintaining the environment by encouraging the importing of capital goods instead of old capital goods that have a technological disadvantage, and that this policy contributes to bringing new technologies rather than old polluting technologies.

According to the above, we cannot say definitely that foreign trade will lead to environmental pollution, as this issue is linked to the economic policy and its attempts to reduce the air pollution level while maximizing economic growth and per capita GDP. In other words, activating the economic sector and paying adequate attention to the environment to achieve sustainable economic growth, depends on the role of the government to follow a suitable economic policy that permits importing advanced capital goods to reduce the pollution that occurs from importing (*imported pollution*). This target could be achieved by providing incentives to the importers to encourage importing goods that have advanced technology, especially when used in production. In the GCC countries, the commodity imports, like machinery and transportation equipment, had considerable relative importance in the total commodity imports over the period 1998-2008, where these imports represent about 34.8 per cent, on average, of the total commodity imports of the GCC countries. The manufactured goods fall in the second level, which constitute 21.6 per cent of the total commodity imports, as shown in the following figure:

Figure (5-3)

Main commodity imports of the GCC countries, 1998-2008 (percentages)



Source: Based on data of foreign trade of GCC countries, Arab monetary fund, AMF, Kuwait (www.amf.or.ae)
League of Arab states, (2006) Joint Arab economic report, (AMF, Abu Dhabi), p 153.

The figure above represents that Saudi Arabia dominates on 49 per cent of the total commodity imports for this country during the study period 1998-2008. Oman and Kuwait fall in the second and third level, with 41 per cent and 40 per cent, respectively, while Bahrain and the UAE represent a relatively low contribution, 28 per cent and 23 per cent, respectively. These percentages are not modest in comparison with the imports of food and beverages for the same period, which amounted to 16.1 per cent of the total commodity imports. Furthermore, from figure (5-3), we also see that manufactured goods come in the second rank in terms of relative importance, where the UAE dominates with the main share, which amounted to 31 per cent, on average, of the total commodity imports, followed by Qatar and Oman 24 per cent for both. Saudi Arabia, Bahrain, and Kuwait show ratios of 20 per cent, 15 per cent, and 13 per cent, respectively.

In addition, machinery and transportation equipment is one of the reasons for pollution because of their high relative importance in total commodity imports over the period 1998-2008, especially in Saudi Arabia, Oman and Kuwait. This fact is obvious if we note the data in table (3-16), where machinery and transport equipment dominate with 49 per cent in Saudi Arabia, and 41 per cent and 40 per cent in Oman and Kuwait, respectively.

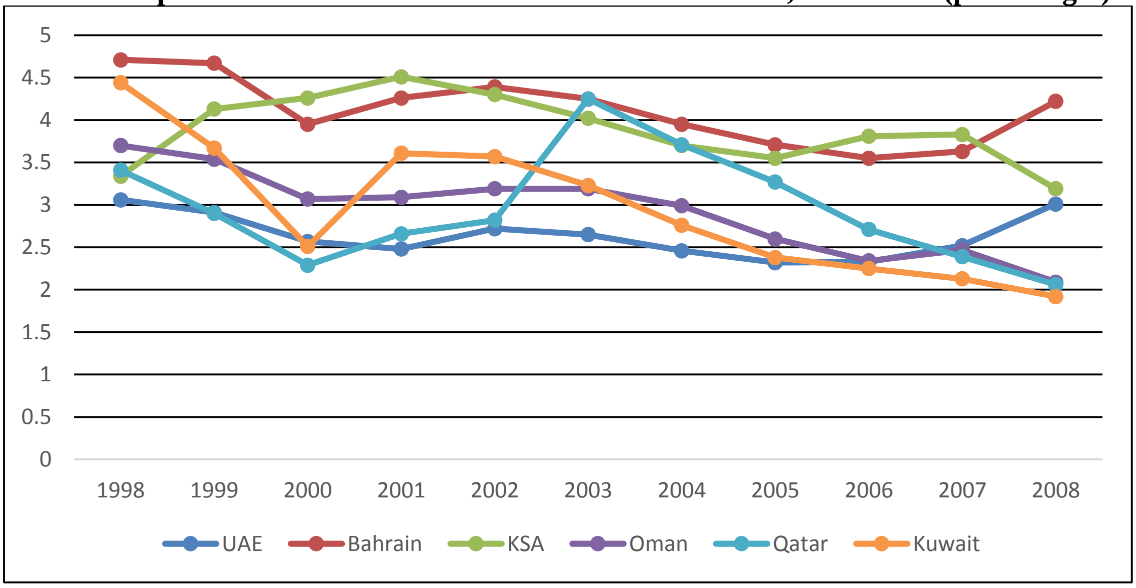
The effect of commodity imports towards the environment is dependent on the size and type of these imports, as well as the environmental consideration taken by the governments of these countries. In this respect and according to figure (5-3) we see that the polluted commodity imports have significant relative importance, which dominate the major contribution of total commodity imports. Consequently, the commodity imports could be contributing increasingly to pollution of the environment.

Through the above, we can report that the increase in the import of machinery and transportation equipment indirectly indicates the increase of energy consumption consumed by this machinery, which, ultimately, leads to an increase in carbon dioxide emissions as the main source of air pollution in the GCC countries. Particularly, in Saudi Arabia, the UAE, and Kuwait, which have a high level of energy consumption (Qader, 2009).

Health expenditure:

Health expenditure can be measured as an indicator of the potential for increased environmental awareness in GCC countries over the period of study. Where, environmental programs can be supported by spending on health to reduce the impacts of human actions (Elsabawy 2002) and production process (Grossman et al 1995). However, figure (5-4) below shows the level of health expenditure for the duration 1998-2008.

Figure (5-4)
Health Expenditure in GCC countries as a ratio of real GDP, 1998 -2008 (percentages)



Source: By the author based on: SESRIC, Database of Statistical, Economics and Social Research and Training for Islamic Countries. www.sesric.org/baseined-step3.php

The figure above illustrated that both Bahrain and Saudi Arabia occupied a high level of health expenditure as a ratio of real GDP over the period of study, 1998 -2008. And vice versa for the rest of GCC countries, the level of expenditure is modest. This figure reflects that the health spending of these economies is not consistent with the increase of level of real GDP, there is no main trends of both real GDP and expenditure on health. Meaning that, the environmental policy in GCC countries is not linked with the level of production and pollution occurred because of the economic activities. In other words, GCC countries have not paid an attention to the environment through their spending on health as a major way for mitigating the negative impact of various economic activities. However, the empirical model will reveal how much the level of expenditure on health is affecting the environment represented by carbon dioxide emissions as a dependent variable.

5.4 FDI and carbon dioxide emissions in the GCC countries:

The FDI is considered as one of the most important ways to enhance economic reformation, where many developing countries try to attract foreign companies in an attempt to increase their production level, and achieve economic growth. In contrast, these foreign investments could lead to an increase in environmental pollution, in that the size and type of FDI will determine whether it has a negative or positive impact on the environment in the host economies. Moreover, the economic policy towards the environment is a key factor in regulating the type of investment, and, in the case of the GCC countries, the econometric model will explain the real effect of FDI on the environmental degradation, which is represented by the per capita carbon dioxide emissions.

We have previously addressed the impact of FDI on economic growth in the GCC countries by analysing the relation between the size of FDI, inflows and outflows and their effect on GDP in the GCC countries over the period 1998-2008, and found that the effect of FDI is specific to the country. In the case of Saudi Arabia, it has a negative impact on GDP despite the country being considered as the main recipient compared to the other GCC countries. While in the UAE, the FDI effect was positive.

The findings above confirm that the role of FDI and its impact on growth, and, subsequently, on the environment will be related to the adopted policy of the host country and the sectors that have been invested in by foreign companies. Accordingly, the relation between FDI and the carbon dioxide emissions is linked to the situation of environmental legislation in the GCC countries, where strict environmental legislation could have a negative effect on attracting foreign investors (Kheder, 2010). According to this study, the GCC countries would be adversely affected in the case of applying strict environmental legislation on the foreign companies. In other words, the negative impact of foreign direct investment on the environment in the GCC countries would mean that foreign companies have exploited the feature of lax environmental laws as a great incentive that drives them to invest in sectors that have a comparative advantage, such as the oil and gas sector.

The GCC countries have become more attractive to international industries that are distinguished by the intensive use of energy because of the low prices of these resources, as well as the availability of cheap foreign labour. This has encouraged many foreign companies to invest in industries that lead to more environmental pollution, such as petrochemical, aluminium and steel, where these investments contributed to the increasing level of pollution in the GCC countries.

In addition, increasing the level of consumption of electricity has contributed significantly to an increase in the level of energy consumption in the GCC countries, which reflects its negative impact on pollution, where the rate of electricity consumption in the GCC countries is about 10 per cent while the global rate is about 3 per cent. This confirms that the high consumption of energy is a key factor that contributed to the increased level of air pollution in the GCC countries over the period 1998-2008.

However, most of the foreign direct investment inflows in the GCC countries have concentrated on the oil and gas sectors except the UAE and Bahrain. In the UAE the major share of FDI was in construction and financial intermediation in which their contribution reached 34.3 per cent and 35.4 per cent of total FDI inflows to the UAE in 2006 (DSC, 2007).

In Saudi Arabia, FDI concentrated on the manufacturing industries and dominated on a significant ratio (64.33 %) of the total FDI inflows in 2005, while the FDI inflows to Oman were directed to the oil and gas sector, and manufacturing industries, which amounted to about 47.64 per cent and 32.2 per cent, respectively, of the ratio of total FDI in 2002. The relative contribution of the industrial sector in Qatar and Kuwait amounted to about 72.2 per cent, and 78.5 per cent, respectively (DSC, 2007).

Through the above, we note that the availability of energy resources and low prices in the GCC countries contributed significantly in attracting foreign companies to the oil and other related sectors, which is considered a direct reason for increased emissions of carbon dioxide in the atmosphere. Therefore, we can conclude that the GCC countries have adopted a lax environmental policy towards the foreign investors, in that these countries achieved high levels of economic growth with continued increased carbon dioxide emissions, which, despite initiating various environmental legislation, was not enough to reduce air pollution in the GCC countries over the period 1998-2008.

However, the FDI inflows to GCC countries have been continuous, where Saudi Arabia and the UAE are the main recipients of these investments, for which the average amount is about USD8,571.54 million, and USD6,101.51 million, respectively, while Kuwait dominates with USD32.09 million (AIECGC, 2010).

From the above, it is clear that Kuwait has a low level of FDI inflows compared with the other GCC countries over the period 1998-2008. The important issue in this regard is that the impact of FDI on pollution may not be limited to the size of foreign investment inflows, but also to the sectors in which they are invested. Accordingly, we can say that the FDI inflows to the oil sector have a more negative impact on the environment in comparison with the foreign investment in the construction sector. In addition, we see that the level of environmental regulation and the type of these investments are more important factors that determine the level of carbon dioxide emissions. In the UAE, we previously discussed that its foreign investment has concentrated on the construction sector, where this type of investment does not significantly affect the environment compared to the impact of FDI inflows in the oil sector, as we noted in Qatar, Kuwait and Oman, in which their investments focused on the polluting sectors. However, the impact of FDI inflows on the environment is also linked to the level of environmental regulation in the GCC countries, where the effect of FDI on the environment is specific to the country.

In conclusion, we found a positive relationship between the growth of per capita GDP and per capita carbon dioxide emissions in the GCC countries over the period 1998-2008. Particularly in Bahrain and Oman, where there is an increasing level of emissions against any increase in per capita GDP. The level of carbon dioxide emissions increased from 25.26 and 12.65 metric tonnes in 2003 to 29.58 and 13.69 metric tonnes, respectively, for Bahrain and Oman in 2007. Moreover, we note that the increase of per capita income rose from USD14,127 and USD9,202 in 2003 to USD17,754 and USD15,180 in 2007 for the two countries, respectively. However, this result confirms that the increase in GDP and its per capita is accompanied by a positive increase in the level of carbon. This means that Bahrain and Oman, as well as the other GCC countries, have not tried to use advanced technologies in their production process. Furthermore, these countries are not following a strict environmental policy, which could be enforced to ensure foreign investors use it in order to mitigate the level of emissions.

Furthermore, the increase in the emissions of carbon dioxide emphasizes that there is no efficient strategy towards using renewable energy. In addition, it confirms the continued reliance on the extractive sector. This finding can be strongly considered if we note table (4-3) again, where we see that the share of the industrial sector (extractive and manufacturing sectors) ranges between 39.8 per cent and 68.5 per cent of the total GDP, on average, over the period of study, 1998-2008.

In addition, there is a clear positive relation between the size of GDP in the GCC countries and the level of carbon dioxide emissions, which reflect the situation of unsustainable growth that results from the high reliance on the oil and gas sector. However, the GCC countries joined the UN framework convention on climate change in 1994 in order to reduce the level of emissions. Through this study, we have found that there is no decrease in the level of emissions except for Qatar and the UAE, which witnessed a slight turndown in the level of emissions against a significant increase in their per capita GDP over the last two years of study, 2007 and 2008.

Finally, the most important issue that we should focus on is that the increase in per capita GDP in the GCC countries was more than the increase of per capita carbon dioxide emissions, especially for the period 2002-2008, which witnessed a significant oil boom. Therefore, it is good motivation to support programmes(*) that maintain the environment to diminish the air pollution problem, where the availability of funding allows the GCC governments to initiate efficient programmes to reduce the emissions of carbon dioxide. Such a target could be achieved by bringing advanced technologies to be used in various production processes, or by using energy alternatives, such as solar energy in some production branches. Moreover, the availability of energy resources and cheap foreign labour contributed to attracting FDI to the extractive sectors in all the GCC countries except for Bahrain and the UAE, for which their foreign investment was concentrated in the banking and construction sectors, respectively.

5.5 The Model:

5.5.1 Introduction:

This model aims to analyse the FDI, GDP and imports, and their impact on carbon dioxide emissions in the GCC countries over the period 1998-2008, in an attempt to determine the influence of various economic activities. We will depend on a specific model that examines three independent variables, namely, per capita GDP growth rate, FDI inflows and commodity imports. The selection of these variables derive from their role as major

(*)The GCC countries joined the United Nations framework convention on climate change. In 1994-1996, Kuwait, Oman, Qatar, and Saudi Arabia. UAE and Bahrain ratified the Kyoto protocol in 2005-2006. In addition, the GCC countries held some bilateral programmes with developed countries, in which Saudi Arabia is the most experienced in this respect. One important programme was "Solar energy research" American (Reiche, 2010).

causes that affect the environment, as represented by carbon dioxide emissions in GCC countries, where we have selected the per capita GDP growth rate because it reflects the increase in GDP level, which is based significantly on the oil sector as a major source of air pollution. Therefore, the researcher aims to show the effect of this variable on per capita carbon dioxide emissions, as well as determine whether or not continuous high reliance on the oil sector in the GCC countries has achieved sustainable economic growth. A positive relation between per capita growth rate and carbon dioxide emissions will prove that there is no sustainable economic growth, and, conversely, in terms of a negative sign.

In addition, we have selected FDI inflows based on their significant role in the GCC economies, especially Saudi Arabia and the UAE, where the main target is to determine whether the FDI inflows have affected the environment, while comparing its effect with other variables of this model over the period of the study.

Moreover, we have added the commodity imports variable to examine its impact on the environment and to extrapolate whether these imports have advanced the role of technology on the environment, in which a negative impact reflects that these commodity imports have advanced technology, and vice versa, if it has a positive impact. The Environmental awareness variable is also added and proxied by health expenditure of GCC countries over the period of study. Where, environmental programs can be supported by spending on health to reduce the impacts of economic production activities (Grossman et al 1995; M. Jerrett et al 2003).

5.5.2 Model description:

This model attempts to measure the effect of the main factors of environmental pollution in the GCC countries, where the empirical model will be designed with three independent variables: the growth rate of per capita GDP, FDI inflows and commodity imports.

An increase in the real GDP reflects a tangible progress in the economic activities, where we expect these activities will positively affect an increase in the pollution level, which will be represented by the per capita carbon dioxide level over the period 1998-2008. The FDI inflows are practically concentrated in the oil sector and petrochemical industry in Saudi Arabia, which hosts a huge amount of FDI compared with the other GCC countries. We expect that these investments will cause an increase in the level of pollution in this country, as well as the other countries of study.

The third variable is the commodity imports, which are construed as the ratio of total foreign trade of the GCC countries, where the main aim of selection is to analyse the effect of commodity imports on the environment in the GCC countries.

The dependent variable is the air pollution, as represented by the per capita carbon dioxide emissions (CO_2). This variable was selected because it is considered as the most damaging factor that affects the environment in the GCC countries over the study period.

5.5.3 Model specification:

Based on the above, we have formulated the specific model as follows:

$$Log\ Air = a + B1\ Log\ (GDP) + B2\ (FDin) + B3\ (M) + B4\ Hth + Ui$$

Where:

Air: Air pollution, measured by carbon dioxide emissions (CO_2)

GDP: Real gross domestic production (Million USD)

FDin: Foreign direct investments inflows, measured as a ratio of GDP

M: Commodity imports, measured as a ratio of foreign trade.

Hth: Environmental awareness measured by health expenditure as a ratio of real GDP.

Ui: Error term

5.5.4 Dataset:

The model data were collected from different official sources. In respect of carbon dioxide emissions over the period 1998-2008, they were collected by the Statistical and Social Research and Training Centre for Islamic countries (SESRIC). We obtained the data for foreign direct investment inflows from the database of the Arab Investment and Export Credit Guarantee Corporation (AIECGC), while the data for commodity imports were derived from the statistical data of the Arab Monetary Fund (AMF) in Kuwait. The Joint Arab Economic Report is used for obtaining data of GDP of GCC countries.

Table (5-3): Regression result of the model 3- random effects

Dependent Variable: LOGAIR
Method: Panel EGLS (Cross-section random effects)
Date: 01/25/14 Time: 22:41
Sample: 1998 2008
Periods included: 11
Cross-sections included: 6
Total panel (balanced) observations: 66
Wallace and Hussain estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
$FDIN\_{Bahrain}$	7.41E-05	0.000257	0.288975	0.7741
$FDIN\_{Kuwait}$	-0.037103	0.044489	-0.833986	0.4091
$FDIN\_{KSA}$	0.015523	0.009771	1.588637	0.1198
$FDIN\_{Oman}$	-0.005980	0.013025	-0.459101	0.6486
$FDIN\_{Qatar}$	0.026752	0.013515	1.979400	0.0545 (**)
$FDIN\_{UAE}$	-0.008613	0.009628	-0.894517	0.3763
$GDP\_{Bahrain}$	0.545831	0.227356	2.400776	0.0210 (**)
GDP_{KSA}	0.724958	0.239497	3.027008	0.0043 (*)
GDP_{Kuwait}	0.767544	0.210500	3.646292	0.0007 (*)
GDP_{Oman}	0.711589	0.272586	2.610513	0.0126 (*)
GDP_{Qatar}	0.501283	0.171787	2.918055	0.0057 (*)
GDP_{UAE}	0.697893	0.239690	2.911652	0.0058 (*)
$M\_{Bahrain}$	0.000794	0.004280	0.185589	0.8537
M_{Kuwait}	0.009147	0.006760	1.353186	0.1834
M_{KSA}	-0.023157	0.010274	-2.253905	0.0296 (**)
M_{Oman}	0.006997	0.008780	0.796943	0.4301
M_{Qatar}	8.55E-05	0.003298	0.025940	0.9794
M_{UAE}	0.000804	0.002834	0.283604	0.7781
HTH_{UAE}	-0.082814	0.121491	-0.681648	0.4993
$HTH\_{Bahrain}$	-0.005869	0.059139	-0.099235	0.9214
HTH_{KSA}	0.060736	0.053210	1.141447	0.2603
HTH_{Oman}	-0.230565	0.119473	-1.929860	0.0606 (***)
HTH_{Qatar}	-0.013069	0.029686	-0.440249	0.6621
HTH_{Kuwait}	-0.111793	0.048616	-2.299511	0.0266 (**)
C	1.717381	0.891485	1.926428	0.0610 (***)

Effects Specification

	S.D.	Rho
Cross-section random	1.000936	0.9970
Idiosyncratic random	0.054568	0.0030

Weighted Statistics

R-squared	0.821335	Mean dependent var	0.077945
Adjusted R-squared	0.716750	S.D. dependent var	0.102705
S.E. of regression	0.054661	Sum squared resid	0.122499
F-statistic	7.853319	Durbin-Watson stat	1.776978
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.257497	Mean dependent var	4.742571
Sum squared resid	8.834053	Durbin-Watson stat	0.024641

Source: prepared by using E-Views software and Panel data technique.
(**),(***), (****) indicate statistically significant at the (1%), (5%) and (10%) levels, respectively.

5.5.5 Model estimation:

The unit root test is used for all the data adopted in this study. Appendix B proves the stationarity of all data used in this model, while Appendix C indicates that the dependant variable of the model adopted is stable and situated within the red lines. Furthermore, the probability of the Hausman test results is more than 0.05 per cent (P-value > 0.05), (Appendix D). Therefore, a random effect regression is conducted with the panel data technique. By using Eviews software, we obtained the following result.

However, the dependent variable is the air pollution represented by carbon dioxide emissions in the GCC countries for the duration 1998-2008. The independent variables are real GDP, foreign direct investment inflows (*FDin*), commodity imports (*M*), and environmental awareness (*Hth*).

The regression result of the model above is statistically significant at the (0.01) level, and the estimated result confirms that the model has no auto-correlation problem, where the D.W. value amounted to about 1.77, which means that the estimated model is located in the acceptable statistical area. Based on the above indicators, we find that this model is significant, and can be used for analysing the variables of the study.

6.5.6 Results analysis:

All of the estimated real GDP coefficients of the model were statistically significant at the 0.01 level, which reflects its major impact as the main agent of the increase in the level of carbon dioxide emissions in the GCC countries over the period studied. However, the effect of each one was different from one country to another, as follows:

The UAE:

The estimated value of real GDP confirms the strength of the influence of this variable to positively affect an increase in the pollution level, where an increase in the real GDP by one time leads to an increase in the carbon dioxide emissions by 0.697 times. This result shows the real economic situation of the UAE, where the oil sector is the main factor that affects economic growth in the UAE over the period 1998-2008, which contributes significantly to the effect on the environment. In other words, the economic growth in the UAE has increased the level of carbon dioxide emissions, and, furthermore, the UAE is considered as the second producer of the petrochemical industry (DMCC, 2007), which is characterized as a highly polluting industry that led to environmental damage during the study period.

In addition, the estimated model has also proved that the coefficient of FDI inflows, FDI outflows, commodity imports, and environmental awareness are statistically insignificant. This means that these variables do not contribute to the increasing or decreasing level of carbon dioxide emissions in the UAE. In this context, we can explain that this result is because most of the foreign direct investments in the UAE are concentrated in the non-oil industries, such as the building and construction sector, which, on average, represents 90 per cent of the total FDI inflows to the UAE (Ministry of Economy, 2008), as well as to other industries, such as garment industries.

However, it is worth noting that after 1999, the UAE started encouraging establishing projects that were environmentally friendly, such as projects for solar energy that are used for a variety of purposes (Raouf, 2008).

Accordingly, we can say that the FDI inflows in the UAE have used advanced technology that keep the per capita carbon dioxide emissions at a certain level, and, thus, the air pollution in the UAE is attributed to the oil sector, which grew rapidly over the period 1998-2008.

Bahrain: In Bahrain, all of the coefficients are statistically insignificant except real GDP, which has a modest impact in comparison to the other GCC countries. This result can be explained due to the small size of the Bahraini economy, it represents only 2 per cent as a ratio of the total average of GDP in the GCC countries for the period 1998-2008. However, an increase in the level of carbon dioxide emissions by one time will lead to a rise in emissions level by 0.545 times.

Consequently, the low level of oil products confirmed its weak effect on the environment over the study period. Whereas other variables did not play a role in polluting the environment.

Saudi Arabia:

The estimated model shows that the real GDP variable is the major cause of environmental degradation, where its increase by one time leads to an increase in the carbon dioxide emissions by 0.724 times. In contrast, an increase in the commodity imports by one time induces a decrease in the per capita carbon dioxide emissions by 0.023 times. In fact, in the real situation we have noted already that most of the economic activities of Saudi Arabia are concentrated in the oil and petrochemical industry and oil-based industries (Abdul-Rahman, 2010), which are considered to be a significant factor that polluted the environment, and increased the carbon dioxide emissions over the period 1998-2008. Moreover, the key issue that we should focus on is the comparative advantage of Saudi Arabia, as represented by its energy resources, which encouraged foreign direct investment, in that many foreign companies preferred to invest in the oil sector and other industries that are associated with oil products, especially the petrochemical industries. This preference is attributed to the stringent environmental laws in the developed countries on the one hand, which have discouraged many investors in this field, and the lax environmental laws in the GCC countries, on the other, which have attracted more foreign direct investments to Saudi Arabia. In other words, the economic policy in Saudi Arabia does not focus on the importance of caring for the environment and creating a sustainable development, as much as focusing on achieving rapid economic growth without reducing the level of environmental degradation, as represented by the per capita carbon dioxide emissions over the study period. However, the result confirms that the GDP is the major factor of air pollution in Saudi Arabia.

In respect of the commodity imports coefficient, we note a negative relation between the increased level of imports and environmental degradation. This result reflects the substituted process of capital goods that have advanced technology instead of the polluting capital goods (Hussein, 2010).

Finally, the FDI inflows and health expenditure variables are statistically insignificant, which indicates that there is no relation between environmental degradation and these variables as much of the emissions results from the increase in extractive industries that achieve a high level of pollution in Saudi Arabia.

Oman:

The coefficient of real GDP and environmental awareness are statistically significant at the 0.01, 0.10 levels, respectively, where the effect of the GDP coefficient was positive because its increase by one time led to an increase in the carbon dioxide emissions by 0.711 times over the period 1998-2008.

In addition, the relation between environmental awareness and carbon dioxide emissions is negative, this means the environmental policy in Oman has succeeded in mitigation level of air pollution over the period 1998-2008. Thus, this result reflects the sound economic policy of Oman to treat the environmental problem, where Oman and the other GCC countries are considered as contributing considerably to air pollution due to their high reliance on the oil sector and other industries that are linked thereto. Therefore, the result of the specific model confirms that the carbon dioxide emissions result from the economic activities, while other variables, import (*M*) and FDI (*FDin*) did not influence the increase of emissions within the period of study.

Qatar:

Two coefficients – real GDP and FDI inflows – are statistically significant at the 0.05 and 0.01 levels, respectively, where the real GDP confirms its positive relation to the increase in the carbon dioxide emission in Qatar over the period of study. Therefore, the estimated model reports that increasing the level of real GDP and FDI inflows by one time leads to an increase in the carbon dioxide emission of about 0.501, and 0.026 times, respectively. The evident analysis of this issue is related to the growth of GDP in Qatar, which depends significantly on the oil and gas sector. In other words, the economic growth in Qatar has led to pollution of the environment.

In addition, the effect of FDI inflows on the environment in Qatar could be related to the fact that most foreign direct investments inflows are to the gas sector and petrochemical industry, which are considered as the main cause of air pollution. It is worth noting that Qatar has the third largest global reserve of natural gas. Qatar is considered as the principal supplier of liquefied natural gas in the world (EIA, 2011), and this feature is the main factor that encourages foreign companies to invest in the gas sector. However, the comparative advantage of Qatar led to more pollution over the study period.

In respect of commodity imports and health expenditure, the estimated result depicts that these variables are statistically insignificant. Therefore, we can say that the main cause of increased pollution is due to GDP and FDI inflows, this result indicates that the economic policy in Qatar did not show much concern for the environmental considerations over the period 1998-2008.

Kuwait:

In Kuwait, the real GDP has confirmed its effect on increasing the carbon dioxide emissions, where the estimated model indicates that increasing the real GDP by one time leads to an increase in the emissions of about 0.767 times. This result proves the role of economic activities, which are significantly reliant on oil production and its process, in maximizing the environmental pollution. Therefore, the continuing dependency on the oil sector and its export will not achieve sustainable economic growth in Kuwait, which indicates the importance of diversification for improving the level of economic growth while reducing the carbon dioxide emissions gradually; this target can be achieved by an increase in the level of investment in the non-oil sector.

In addition, the estimated model shows that the environmental awareness variable was statistically significant at the 0.05 level, however, it has an impact of about 0.11. This implies that Kuwait has taken into account the environmental consideration over the period studied.

In regard of commodity imports, and FDI inflows the model results show that it is insignificant, and that there is no relation between the air pollution in Kuwait and commodity imports because the real GDP had the major role in pollution of the environment over the period of study.

5.5.7 Findings:

The real GDP confirms its positive effect in increasing the carbon dioxide emissions for all GCC countries during the period 1998-2008, where it was the main cause of air pollution in the abovementioned countries. In addition, the econometric model indicates that a one-time increase in real GDP will lead to a positive significant influence on the carbon dioxide emission levels. Since the industrial sector shapes the high ratio of GDP for the GCC countries, the high level of economic growth of these countries will be accompanied by an increase in the level of carbon dioxide emissions. Furthermore, the FDI inflows of Qatar significantly contribute to an increase in the air pollution compared to other GCC countries. This result could be attributed to using non- advanced technologies, as well as the sectors that do pollute the environment, such as the gas and refineries sectors.

Furthermore, the commodity imports have affected the reducing level of emissions, which confirms that the economic policy has shown more concern to the environment in importing goods that cannot lead to emit more carbon dioxide. In this context, we can say that Saudi Arabia applied in practice its commitment on the unified economic policy, which is related to green economies as a main target of this agreement. We can say that these facts reflect a specific result for each country in this study, where the effect of imports in Saudi Arabia is friendly to the environment, which means that these imports are characterized by advanced technology. Finally, for both Kuwait and Oman, the environmental awareness variable (*Hth*) has reduced the air pollution, whereas the other GCC countries show an insignificant result in this respect. However, there are evident differences in the environmental policies of GCC countries, as clearly seen in the case of Kuwait and Oman, where there is a significant linkage between environmental awareness and the level of emissions. While in the UAE, Bahrain, Saudi Arabia and Qatar, we reveal that the policy of these countries is not taking into account the high level of air pollution, in that, these countries have not achieved an important role to the decreasing level of carbon dioxide emissions over the period of study, 1998-2008.

CHAPTER SIX
CONCLUSIONS AND IMPLICATIONS

The real GDP of the GCC countries is the main factor that affects the level of foreign trade between Saudi Arabia and the other countries of study. Its actual trade with the UK, Australia, Qatar and Bahrain is more than its potential because of the small size of GDP of Saudi Arabia and other GCC member countries compared with that of the said non-nearby countries. However, the foreign trade of Saudi Arabia with Brazil, Iran, Turkey, Malaysia, Kuwait, Oman and the UAE was less than its potential over the period 1998-2008. Therefore, Saudi Arabia, as a hub economy, tends to trade with countries like the UK and Australia more than with Iran. This is attributed to the size of economy, where Bahrain and Qatar represent an important level, in relative terms of size of imports from Saudi Arabia compared to the other GCC countries. Therefore, the said countries have high actual foreign trade in comparison with their potential trade.

In respect of Oman, we can say that this economy is smaller than the other GCC economies, and that it depends too much on its trade with Saudi Arabia. Furthermore, Oman is geographically closer to Saudi Arabia compared to the other GCC economies.

In addition, the cost of the transport variable is not an important factor in respect of its influence on the level of foreign trade between Saudi Arabia and other countries in the model. However, the main reason for this issue is the similarity of the production patterns of the GCC countries, as well as the small size of these economies compared to the selected major trade partners of GCC countries. This finding is consistent with other studies that report that the cost of transport and distance are not more important than the size of the economy (Jean-Francois et al. 2003; Erica Vido et al. 2003).

Accordingly, Saudi's actual foreign trade with the UK and Australia is more than expected; this confirms that the cost of transport between Saudi Arabia and the abovementioned countries has an insignificant impact in determining the foreign trade flows. Therefore, the size of real GDP is the main factor that determines the direction of trade between Saudi Arabia and other countries. In addition, the actual foreign trade commodity between Saudi Arabia, Turkey, Iran and Brazil and Malaysia is less than its potential. However, we found that Saudi Arabia tends to trade more with large economies, and that the cost of transport does not matter in this respect, in that Iran is the closest foreign country to Saudi Arabia, while Brazil is further geographically. However, the foreign trade of Saudi Arabia with Brazil is larger than Iran. In this context, we note from the size of the real GDP of the two countries, Brazil and Iran, that the Brazilian real GDP is more significant than the Iranian real GDP. This justifies the important role of foreign trade between Saudi Arabia and Brazil.

Consequently, we can say that this result is due to the similarity of the comparative advantages of the GCC countries, which lead to an increase in the foreign trade with other countries more than the neighbouring GCC countries; the empirical model shows that Saudi's actual trade flows with the UK, and Australia were more than with Oman and Kuwait, specifically.

In addition, the quantitative approach confirms the conclusion reached in the qualitative approach, in terms of the significant role of crude oil exports in the GCC countries over the study period, 1998-2008, especially in the UAE, Qatar, and Kuwait. In addition, the variables of non-oil exports of the GCC countries are statistically insignificant except for UAE. This reflects the failure of the efforts of these economies to improve their non-oil commodity sectors as a main target during the period 1998-2008. In contrast, the commodity imports are statistically significant in all GCC countries except the UAE and Bahrain. This means that these imports have an important role in meeting the various needs of capital goods. Moreover, the positive effect of the GCC's imports implies the necessity of capital goods in improving the level of productivity of the GCC countries during the study period, which positively affects the level of real GDP of these economies. However, we found that the negative relation between the FDI inflows and real GDP of Saudi Arabia is due to unequal competition between the foreign and local investments, as well as the weak linkage between the FDI inflows and the local economy. This implies that most of the FDI profits are related to the parent country of the foreign companies. In contrast, the estimated model also confirmed that the FDI inflows and outflows have achieved a significant role for the UAE, in which there is a positive relation between the FDI and real GDP variable. In Kuwait, we have concluded that the positive effect on real GDP was from the FDI outflows as a result of its rapid increase over the period 1998-2008. However, the specific model of the second essay of this study proves the continuous role of the crude oil exports in developing the real GDP of the GCC countries during the period of the study. This is obvious in the UAE, Qatar and Kuwait, which indicates the significant share of oil exports in the real GDP.

Moreover, the model also confirms that there are insignificant levels of non-oil export coefficients for all the GCC countries, except for the UAE. This indicates a failure in the GCC’s efforts to improve the non-oil commodity sectors. However, this conclusion disagrees with the main target of the unified economic policy of the GCC countries over the period of study, 1998-2008.

The commodity imports had a positive impact on the real GDP of the GCC countries, except for the UAE and Bahrain, which is explained by the importance of the commodity imports, particularly the capital imports that influence the activation of many production fields for various goods, and, in turn, enhance the level of economic growth.

In addition, the increased level of FDI inflows to Qatar significantly contributed to the increase in the level of carbon dioxide emissions. This has more effect than the other variables of the model, namely, real GDP, commodity imports, and health expenditure, which are statistically insignificant. However, based on the neoclassical theory assumption, we can say that the FDI inflows to Qatar have not used advanced technologies, and it did not lead to sustaining the level of economic growth during the period 1998-2008. While the coefficient of real GDP statistically shows its positive effect on the increasing level of carbon dioxide emissions in all GCC countries over the period 1998-2008 as the main reason for the air pollution in the GCC countries. Furthermore, the empirical results represent that the FDI inflows to Qatar make a significant contribution to increasing the level of carbon dioxide emissions over the period of study. This means that these investments have used non-advanced technologies, while for other GCC countries this variable was statistically insignificant, meaning that these inflows and carbon dioxide emissions had no association over the period of study, in which the key reason for air pollution is mainly related to the economic activities represented by the real GDP of the GCC countries.

Accordingly, we have found that the real GDP confirms its positive influence on increasing the level of carbon dioxide emissions in all GCC countries during the period 1998-2008, where it is the main cause of air pollution in these countries. Moreover, the FDI inflows to Qatar significantly contributed to increasing the air pollution over the study period. This conclusion could be attributed to using non-advanced technologies, as well as the fact that most of the FDI inflows are concentrated in sectors that have major impacts on increasing the level of pollution, particularly the extractive and petrochemical industries.

The increased inflows of FDI for Qatar significantly contributed to the increase in the level of per capita carbon dioxide emissions more than the effect of other independent variables of this country. However, we noted that in the other GCC countries, the FDI inflows and commodity imports – except Saudi Arabia – have no relation to the air pollution. In other words, these two variables are not affected by the increase in the level of pollution represented by carbon dioxide emissions. While in Kuwait and Oman, we found that the environmental awareness variable is significant in reducing the level of emissions in both countries. Furthermore, the variable of the commodity imports shows its inverse effect in Saudi Arabia, which means that these imports have advanced technologies.

Thus, the economic openness in GCC countries and their high reliance on the export of crude oil over the period of study, 1998-2008, clearly shows that the fluctuations of the trade balance are related to the export value more than the import values due to the significant role of the oil sector as the main source of income of these economies. Moreover, the weakness of intra-regional trade implies that the non-oil industries have an insignificant role. However, this issue is due to the similarity of investment pattern and production, which lead to the non-oil industries becoming increasingly competitive instead of being integrated. Therefore, the non-oil industries of the GCC countries have not achieved a positive effect in improving the level of intra-regional trade during the period of study. We can conclude that the intra-investment of GCC countries does not have an important role towards reinforcing the integrated industries, which can lead to a varied and increased level of production and subsequent increase in the level of intra-regional trade. Moreover, it indicates that there is no sound economic policy in this respect, which means that there is no good coordination of the investment policies between the GCC countries, where, in turn, this shortcoming reflects the failure of the unified economic policy that was adopted by the GCC bloc in 1981.

Furthermore, the intensity index of trade between the GCC countries clearly confirms this fact, meaning that the GCC economies remain highly reliant on the oil sector and some industries that are linked to these sectors. Accordingly, the economic openness of these economies indicates that the fluctuations of trade balance are related to the oil export revenue more than the fluctuations that occur in the import value. This issue reflects the significant role of the crude oil exports of the GCC countries as the main source of income during the period 1998-2008.

The GCC countries have not achieved their target in terms of improving the level of economic diversification. The positive growth rate of these economies is related to the increase in the level of prices of crude oil exports, especially over the years 2002-2006, which witnessed an increase in the price of oil exports globally. In this context, the economic growth did not reflect the success of the unified economic policy of the GCC countries. Similarly, we can conclude that attracting more foreign direct investments has not led to an improvement in the level of the non-oil sector, which implies that most of the FDI flows are concentrated in the extractive sector and associated industries.

However, because of the high reliance on the oil sector, the GCC countries tend to trade with the developed countries more than the developing. This means that the developed countries are the main direction for exports from the GCC countries, and the oil exports constitute a major share of the export component of these countries. For this reason, the GCC countries have traded with geographically distant countries more than with nearby countries. Moreover, the similarity of production pattern is also considered as a further reason for the low level of intra-regional trade.

In addition, the real GDP of the GCC countries has a major role in attracting foreign direct investment. This implies that there is a positive relation between the size of the local markets of these economies and the level of FDI flows over the period of study, where we note that Saudi Arabia and the UAE are the main recipients of FDI inflows, due to their significant real GDP in comparison with the other GCC economies. However, we found that Saudi Arabia is the hub market of the GCC countries due to its positive intra-trade intensity, where the level of this indicator is about 0.0742 over the period of study, 1998-2008.

Besides, the level of economic growth in GCC countries is linked with the progress of developed countries over the period of study, because of the important role of these countries as a main consumer of the oil exports of the GCC countries. This means that an increase in world growth will lead to higher imports of crude oil from the GCC countries, which affects the level of their economic growth and vice versa in terms of a declining level of economic growth, where a reduction in the level of oil prices will have a significant impact on the level of GDP of the GCC countries.

The GCC countries – except Saudi Arabia and the UAE – have not improved the non-oil industry sector, which is characterized by its modest level to the total GDP over the period of study. While the FDI flows constitute a clear relative importance in Bahrain, Oman and Qatar despite the low level of these inflows and small size of these economies. In other words, the FDI inflows play a significant role in small economies due to the relative importance of these investments.

In respect of air pollution, we conclude that the GCC countries have not followed an efficient strategy for reducing the level of carbon dioxide emissions. In other words, these countries pursue a lax environmental policy, and the achieved growth is not sustained. Therefore, the increase in the level of real GDP is accompanied by an increase in the level of per capita carbon dioxide emissions, especially in Bahrain and Oman, while both the

UAE and Qatar witnessed a slight decrease in the per capita carbon dioxide emissions with a significant increase in per capita GDP over the period 1998-2008. However, we found that there is a high reliance on the fossil fuel and other polluting industries that negatively affect the environment, especially the oil and gas industries. In this respect, the level of air pollution, as represented by the carbon dioxide emissions, increased steadily over the period of study, particularly in Kuwait, where the level of its emissions is about 31.78 metric tonnes, followed by the UAE, 30.39 metric tonnes, on average. Moreover, Bahrain Saudi Arabia and Oman demonstrate an insignificant share, which amounted to be 27.34, 14.58 and 11.31 metric tonnes, respectively.

Accordingly, we can also conclude that the availability of energy resources, and cheap foreign labour have led to attracting more foreign direct investment towards the extractive sectors of the GCC countries, except Bahrain and the UAE, where their foreign investments concentrated on other sectors, such as banking and construction.

However, the results obtained in this study have important implications for the GCC economic policy and core sectors, which are related to economic growth, such as FDI, foreign trade, as well as the issue of carbon dioxide emissions. For example, the results of model 3 help identify the particular sector that affected air pollution over the 11 years. Thus, developers of the GCC economies, both in the public and private sectors, can take these findings into consideration when assessing the economic policy for a certain time. From the findings of this study, we can say that the GCC countries need to follow a comprehensive economic reformation programme in order to diversify their non-oil production structures. The main target for that is to reduce the share of the oil sector in the GDP, especially in Kuwait, Oman and Qatar. These programmes could be achieved through encouraging and attracting efficient FDI in order to enhance the level of economic growth with a lower level of carbon dioxide emissions. This means that the unified economic policy of the GCC countries should focus on achieving a sustained growth, in which the joint efforts of all six member countries are needed. The most important is to follow a strict environmental policy, and stimulate investment in industries that have a low level of emissions.

In addition, diversifying the level of production capacity in the non-oil sector is a good policy for economic integration and enhancing the level of domestic production, which could be a significant factor for increasing the level of intra-regional trade. There is also a need for creating a suitable investment climate and expansion of the industrial and agricultural sectors of the GCC countries, which could achieve a high level of value added. However, unifying the investment policies in the GCC countries would be a good motive for supporting the industry between these economies. This step will overcome the similarity in the production patterns. In other words, the GCC countries should diversify their economic structures as a key target of the unified economic policy for the GCC countries.

Moreover, limiting the commodity imports that cause more pollution of the environment supports the role of the import policy by focusing on importing capital goods that have advanced technology. This policy will lead to an improved level of productivity, and reduce the emissions resulting from these goods, as well as demonstrate the importance of creating a new economic policy for increasing the level of commodity exports. This target could be through supporting the export-oriented industries. Moreover, these industries should not have a similar pattern of production between the six member countries of the GCC.

Finally, applying a strict environmental policy against foreign investment in the extractive industries is considered a major means to reduce the level of carbon dioxide emissions, this goal could be achieved through an increase in the level of advanced capital goods that replace the non-advanced goods. This policy will help in limiting the level of pollution, and achieve sustained economic growth, especially in Saudi Arabia and Qatar.

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Appendix (A)
Data of Models of study

A.1 Data of Model (1):

Level of real GDP of GCC countries, 1998 – 2008, constant prices 2005. (Million USD)

Year	UAE	Bahrain	KSA	Oman	Qatar	Kuwait
1998	118793	10948	248474	25556	26704	53209
1999	124002	11602	246614	25400	27848	52258
2000	139151	12416	258611	26577	30084	54706
2001	141065	12726	260027	28059	31257	54825
2002	144490	13152	260359	28638	33502	56480
2003	157214	13980	280301	28739	34748	66263
2004	172254	14956	306240	29719	41426	73048
2005	180610	15968	328461	30904	44530	80797
2006	198300	17001	346779	32614	56184	86870
2007	204700	18411	367558	34807	66290	92075
2008	211230	19559	398533	39389	77998	94358

Source: SESRIC, Database of Statistical, Economics and Social Research and Training for Islamic Countries. www.sesric.org/baseined-step3.php

Real GDP of selected trade partners of GCC countries, 1998-2008 (million USD)(*)

Years	Malaysia	Turkey	Iran	UK	Aus.	Brazil
1998	98553	374666	144672	2275250	695060	885574
1999	104603	362057	150450	2277106	700971	881721
2000	113869	386584	155414	2273201	694871	883153
2001	114459	364559	159621	2262909	691687	878701
2002	120629	387029	172273	2270501	696910	884598
2003	127612	407408	185867	2269280	699207	876934
2004	136268	445552	195324	2270608	699177	885013
2005	143534	482986	205587	2280114	696034	882185
2006	151551	516280	218136	2279835	693811	885298
2007	161096	540383	236180	2275642	696598	881279
2008	168880	543944	240243	2275770	697593	880604

Source: Database of World Bank: http://www.worldbank.org.
SESRIC, database of Statistical, Economics, and Social Research and Training for OIC countries. www.sesric.org/baseined-step3.php
(*) Real GDP of UK, Australia and Brazil calculated by the author based on year 2005.

Transportation Cost rate between Saudi Arabia and other countries (thousand USD)

Years	UAE	Bahrain	Oman	Qatar	Kuwait	Iran
1998	2674	1470	4185	1563	1853	5872
1999	2699	1484	4224	1578	1870	5927
2000	2724	1498	4264	1593	1888	5983
2001	2750	1512	4304	1608	1906	6039
2002	2776	1526	4344	1623	1924	6096
2003	2802	1540	4385	1638	1942	6153
2004	2828	1554	4426	1653	1960	6211
2005	2855	1569	4468	1668	1978	6269
2006	2882	1583	4510	1684	1997	6328
2007	2909	1598	4552	1700	2016	6387
2008	2936	1613	4595	1716	2035	6447
Years	**UK**	**Brazil**	**Aus.**	**Turkey**	**Malaysia**	
1998	24359	52450	50845	6617	29904	
1999	24588	52943	51323	6679	30185	
2000	24819	53441	51805	6742	30467	
2001	25052	53943	52292	6805	30753	
2002	25287	54450	52783	6869	31042	
2003	25525	54962	53279	6933	31333	
2004	25765	55479	53780	6998	31627	
2005	26007	56000	54285	7064	31924	
2006	26251	56526	54795	7130	32224	
2007	26498	57057	55310	7197	32527	
2008	26747	57593	55830	7264	32833	

Source: Calculated by the author.

Saudi Arabia's intra - trade with the other GCC countries (million USD)

Year	UAE	Bahrain	Oman	Qatar	Kuwait
	Total trade	Total trade	Total trade	Total trade	Total trade
1998	1745.43	1405.65	214.55	228.41	563.36
1999	1783.53	1669.21	233.73	240.54	552.34
2000	2654	18744.1	316.4	398.2	893.4
2001	2556	2069.5	308.0	390.9	848.3
2002	2880.9	2119.3	303.99	256.55	780.3
2003	2616.33	2088.51	309.93	352.17	761.3
2004	3023.43	2974.18	318.9	428.85	1017.39
2005	4573.5	4712.34	508.29	617.81	1114.07
2006	8710.6	6748.2	633.7	1282.2	1524.1
2007	9581.2	7360.2	727.0	1406.7	1626.6
2008	11656.9	10618.1	1168	1783.1	1812.5

Source: Database of Arab Monetary Fund (AMF): http:// www.amf.org.ae

Saudi Arabia's foreign trade with selected trade partners countries, 1998-2008 (million USD)

Year	Iran	Turkey	Brazil	Australia	UK	Malaysia
	Total trade	Total trade	Total trade	Total trade	Total trade	Total trade
1998	195.09	1256.56	1612.99	1017.7	3545.22	438.94
1999	135.65	971.08	1032.69	867.57	2882	358.12
2000	75.5	789.61	1055.99	1029.96	3544.95	498.91
2001	67.7	1102.03	1447.61	1639.57	3569.35	883.31
2002	201.4	1184.66	1398.27	1310.82	2870.43	933.98
2003	304.34	1267.28	1262.37	1457.21	2662.54	739.28
2004	338.63	1442.19	1488.87	1640.65	3851.95	839.44
2005	695.13	1809.46	2112.19	2103.66	4736.53	1414.17
2006	982.34	2578.77	2736.1	2750.48	6001.26	1990.37
2007	1202.7	3128.75	3263.62	2818.38	5614.58	2701.33
2008	1418.74	2363.72	3334.73	2646.95	5556.51	2584.52

Source: Database of World Bank: http://www.worldbank.org.

A.2 Data of Model (2):

Level of real GDP of GCC countries, 1998 – 2008, constant prices 2005. (Million USD).

Year	UAE	Bahrain	KSA	Oman	Qatar	Kuwait
1998	118793	10948	248474	25556	26704	53209
1999	124002	11602	246614	25400	27848	52258
2000	139151	12416	258611	26577	30084	54706
2001	141065	12726	260027	28059	31257	54825
2002	144490	13152	260359	28638	33502	56480
2003	157214	13980	280301	28739	34748	66263
2004	172254	14956	306240	29719	41426	73048
2005	180610	15968	328461	30904	44530	80797
2006	198300	17001	346779	32614	56184	86870
2007	204700	18411	367558	34807	66290	92075
2008	211230	19559	398533	39389	77998	94358

Source: SESRIC, Database of Statistical, Economics and Social Research and Training for Islamic Countries. www.sesric.org/baseined-step3.php

FDI inflows to the GCC countries 1998-2008 (million USD)

Year	UAE	Bahrain	KSA	Oman	Qatar	Kuwait
1998	257.66	179.52	94.00	101.44	347.30	59.06
1999	-985.34	453.72	123.00	39.01	113.25	72.28
2000	-506.33	363.56	183.00	83.20	251.60	16.30
2001	1183.84	80.40	504.00	5.20	295.52	-175.00
2002	1314.27	217.02	453.00	122.24	623.92	3.62
2003	4255.96	516.70	778.46	26.01	624.92	-68.00
2004	10004.08	865.31	1942.00	111.05	1198.97	23.75
2005	10899.93	1048.67	12097.00	1538.36	2500.00	234.00
2006	12805.99	2914.89	17140.00	1596.88	3500.00	122.00
2007	14186.52	1756.11	22821.07	3331.60	4700.00	116.00
2008	13700.00	1793.88	38151.47	2358.91	4107.00	-51.00

Source: UNCTAD, Database of FDI.
AIECGC, (2010), Statistics of Arab Investment and Export Credit Guarantee Corporation.
SESRIC, Database of Statistical, Economics and Social Research and Training for Islamic Countries.

Oil exports of the GCC countries, 1998-2008 (million USD)

Year	UAE	Bahrain	KSA	Oman	Qatar	Kuwait
1998	10260	800	31980	3860	3110	8471
1999	15021	1706	44934	5685	4775	11029
2000	26148	2589	70960	8800	7834	18183
2001	22414	2054	59868	7697	6964	14976
2002	17300	1806	63900	7969	6885	14057
2003	22054	2631	70642	8290	7500	19002
2004	29624	3450	92856	9079	11694	16517
2005	43502	5066	137050	13189	13774	28234
2006	54140	5923	162002	14378	17274	36642
2007	58991	6184	178284	16523	19022	38488
2008	80653	5895	247097	23296	27428	57690

Source: Organization of the Petroleum Exporting Countries (OPEC) (2008), Annual statistical bulletin, p31.

Non-oil export for GCC countries – 1998-2008 (million USD)

Year	UAE	Bahrain	KSA	Oman	Qatar	Kuwait
1998	40408.40	4383.01	60572.50	7656.70	3856.10	14280.20
1999	33835.01	3270.21	38724.40	5521.51	5030.50	9616.40
2000	36470.80	4362.79	50756.00	7237.97	7213.73	12165.11
2001	49834.24	6242.55	77584.00	11315.05	11593.96	19476.04
2002	48413.90	5657.18	67973.20	11070.78	10871.16	16244.90
2003	51774.00	5887.87	72464.30	11172.95	10978.02	15363.77
2004	66755.62	6720.81	93243.50	11669.70	13382.14	21791.95
2005	90948.94	7650.70	125665.33	13381.01	18684.62	30089.24
2006	117287.95	10348.63	180086.93	18691.81	25761.81	46970.55
2007	145587.47	12339.89	210458.67	21586.48	26980.49	58633.00
2008	180898.57	13790.16	233418.40	25602.00	37796.00	63666.10

Source: Arab Monetary Fund (AMF), bulletin of foreign trade, different tables.
League of Arab states (general secretary) Joint Arab economic report (2006), P. 153.

FDI outflows in the GCC countries – 1998-2008 (million USD)

Year	UAE	Bahrain	KSA	Oman	Qatar	Kuwait
1998	127.30	180.80	140.65	- 4.73	21.43	- 1866.86
1999	317.11	163.40	97.38	3.39	7.20	23.00
2000	423.67	9.57	1550.00	- 2.00	17.75	- 303.14
2001	213.70	215.96	45.63	54.99	17.21	- 242.00
2002	441.12	190.16	2020.03	0.03	- 21.04	- 78.00
2003	991.15	741.35	473.00	88.43	88.17	- 5016.00
2004	2208.30	1035.64	78.74	41.61	437.92	2581.00
2005	3749.49	1135.37	6602.86	233.55	351.91	5142.10
2006	10891.76	980.05	5397.57	274.64	127.43	8240.00
2007	14567.73	1669.14	12729.91	- 36.41	5160.25	10156.00
2008	15800.00	1620.47	1450.33	585.18	6028.68	8858.00

Source: AIECGC, Arab Investment and export credit guarantee corporation, statistics.
UNCTAD, world investment report, 2009, p260.
SESRIC, Database of statistical, economics and social research and training.

The commodity imports in GCC countries, 1998-2008 (million USD)

Year	UAE	Bahrain	KSA	Oman	Qatar	Kuwait
1998	34093.96	4025.53	28743.12	5026.06	3321.84	8214.41
1999	32587.92	3477.66	30012.55	5825.72	3356.79	8617.03
2000	24972.18	4272.90	28032.00	4674.33	2499.56	7616.39
2001	26717.03	4832.98	30197.35	5130.79	3252.20	7156.13
2002	30076.02	4305.41	31181.55	5796.17	3724.29	7872.58
2003	37533.02	5012.36	32290.13	6005.20	4052.03	9000.01
2004	45824.37	5657.24	36916.00	6572.17	4897.34	10985.15
2005	63430.91	6484.49	47375.73	8615.60	6004.45	12630.57
2006	74494.21	7946.25	59462.67	8827.05	10060.71	15801.03
2007	86118.45	8943.62	69707.10	10897.53	12614.01	15951.70
2008	12110.00	11515.20	90156.80	12112.20	20934.53	23587.70

Source: Based on data of foreign trade of GCC countries, Arab monetary fund, AMF, Kuwait.
League of Arab states, (2006) Joint Arab economic report, (AMF, Abu Dhabi), p 153.

A.3 Data of Model (3):

Carbon Dioxide Emissions in GCC countries, 1998 - 2008 (Thousand metric ton)

Year	UAE	Bahrain	KSA	Oman	Qatar	Kuwait
1998	98892	18405	207288	16667	32402	36421
1999	89038	18020	227229	20818	31408	66002
2000	126754	19758	297749	22057	34730	71107
2001	113783	15082	295843	20444	28001	67465
2002	83659	16824	323459	25544	28012	63982
2003	106365	17580	323697	31943	30564	73263
2004	112878	18056	346047	30971	40286	81338
2005	115628	19684	367067	34176	56820	89878
2006	121462	21294	384386	39717	49541	86343
2007	135540	22464	402450	37319	63054	86145
2008	128501	21879	393418	38518	56297	86244

Source: SESRIC, Database of Statistical, Economics and Social Research and Training for Islamic Countries. www.sesric.org/baseined-step3.php

Level of real GDP of GCC countries, 1998 – 2008, constant prices 2005. (Million USD).

Year	UAE	Bahrain	KSA	Oman	Qatar	Kuwait
1998	118793	10948	248474	25556	26704	53209
1999	124002	11602	246614	25400	27848	52258
2000	139151	12416	258611	26577	30084	54706
2001	141065	12726	260027	28059	31257	54825
2002	144490	13152	260359	28638	33502	56480
2003	157214	13980	280301	28739	34748	66263
2004	172254	14956	306240	29719	41426	73048
2005	180610	15968	328461	30904	44530	80797
2006	198300	17001	346779	32614	56184	86870
2007	204700	18411	367558	34807	66290	92075
2008	211230	19559	398533	39389	77998	94358

Source: SESRIC, Database of Statistical, Economics and Social Research and Training for Islamic Countries. www.sesric.org/baseined-step3.php

Health expenditure in GCC countries, 1998 -2008 (% of Real GDP)

Year	UAE	Bahrain	KSA	Oman	Qatar	Kuwait
1998	3.06	4.71	3.34	3.7	3.41	4.44
1999	2.91	4.67	4.13	3.54	2.9	3.67
2000	2.57	3.95	4.26	3.07	2.29	2.51
2001	2.48	4.26	4.51	3.09	2.66	3.61
2002	2.72	4.39	4.3	3.19	2.82	3.57
2003	2.65	4.25	4.02	3.19	4.25	3.23
2004	2.46	3.95	3.7	2.99	3.71	2.76
2005	2.32	3.71	3.55	2.6	3.27	2.38
2006	2.33	3.55	3.81	2.34	2.71	2.25
2007	2.52	3.63	3.83	2.47	2.39	2.13
2008	3.01	4.22	3.19	2.09	2.06	1.92

Source: SESRIC, Database of Statistical, Economics and Social Research and Training for Islamic Countries. www.sesric.org/baseined-step3.php

The commodity imports in GCC countries, 1998-2008 (million USD)

Year	UAE	Bahrain	KSA	Oman	Qatar	Kuwait
1998	34093.96	4025.53	28743.12	5026.06	3321.84	8214.41
1999	32587.92	3477.66	30012.55	5825.72	3356.79	8617.03
2000	24972.18	4272.90	28032.00	4674.33	2499.56	7616.39
2001	26717.03	4832.98	30197.35	5130.79	3252.20	7156.13
2002	30076.02	4305.41	31181.55	5796.17	3724.29	7872.58
2003	37533.02	5012.36	32290.13	6005.20	4052.03	9000.01
2004	45824.37	5657.24	36916.00	6572.17	4897.34	10985.15
2005	63430.91	6484.49	47375.73	8615.60	6004.45	12630.57
2006	74494.21	7946.25	59462.67	8827.05	10060.71	15801.03
2007	86118.45	8943.62	69707.10	10897.53	12614.01	15951.70
2008	12110.00	11515.20	90156.80	12112.20	20934.53	23587.70

Source: Based on data of foreign trade of GCC countries, Arab monetary fund, AMF, Kuwait. League of Arab states, (2006) Joint Arab economic report, (AMF, Abu Dhabi), p 153.

FDI inflows to the GCC countries 1998-2008 (million USD)

Year	UAE	Bahrain	KSA	Oman	Qatar	Kuwait
1998	257.66	179.52	94.00	101.44	347.30	59.06
1999	-985.34	453.72	123.00	39.01	113.25	72.28
2000	-506.33	363.56	183.00	83.20	251.60	16.30
2001	1183.84	80.40	504.00	5.20	295.52	-175.00
2002	1314.27	217.02	453.00	122.24	623.92	3.62
2003	4255.96	516.70	778.46	26.01	624.92	-68.00
2004	10004.08	865.31	1942.00	111.05	1198.97	23.75
2005	10899.93	1048.67	12097.00	1538.36	2500.00	234.00
2006	12805.99	2914.89	17140.00	1596.88	3500.00	122.00
2007	14186.52	1756.11	22821.07	3331.60	4700.00	116.00
2008	13700.00	1793.88	38151.47	2358.91	4107.00	-51.00

Source: UNCTAD, Database of FDI.
AIECGC, (2010), Statistics of Arab Investment and Export Credit Guarantee Corporation.
SESRIC, Database of Statistical, Economics and Social Research and Training for Islamic Countries.

A.4 Data of study:

Average of Total Carbon Dioxide emissions in GCC countries 1970 - 2008
(Thousands Metric Tonnes)

year	UAE	Bahrain	KSA	Oman	Qatar	Kuwait
1970-74	22629.06	3709.17	67645.15	1632.73	9993.49	26014.62
1975- 79	36046.61	6594.00	103396.93	6844.82	10457.55	18570.42
1980- 84	36516.72	8522.84	160434.92	6610.87	12788.29	22067.27
1985-89	47923.29	10801.52	185301.58	9100.03	12292.52	31446.72
1990- 94	57524.99	12171.41	257761.50	11672.78	20260.19	29749.65
1995-99	61594.40	16524.20	245588.60	15670.40	32313.00	50109.80
2000-04	96779.60	16551.20	294857.40	24150.40	32228.00	55747.00
2005- 08	130321.00	20582.80	407598.00	36627.60	57649.80	72809.00

Source: SESRIC, Database of Statistical, Economics and Social Research and Training for Islamic Countries. www.sesric.org/baseined-step3.php

Average of annual change of Export in GCC countries, 1970 – 2008 (Percentages)

year	UAE	Bahrain	KSA	Oman	Qatar	Kuwait
1970-74	18.26	7.80	34.39	5.78	9.18	-2.99
1975- 79	7.28	5.63	3.77	8.48	6.73	1.96
1980- 84	-0.71	-1.05	-8.79	3.98	-6.14	-11.57
1985-89	1.57	1.67	-2.30	12.54	4.40	7.39
1990- 94	4.91	6.23	9.68	7.55	1.79	79.16
1995-99	5.80	2.54	1.91	5.03	14.79	-0.49
2000-04	11.57	7.13	5.13	2.04	6.64	7.178
2005- 08	11.16	13.15	3.97	4.45	14.00	6.00

Source: UNCTAD, Database of Export.
AIECGC, (2010), Statistics of Arab Investment and Export Credit Guarantee Corporation.

Average of annual change of Import in GCC countries, 1970 – 2008 (Percentages)

year	UAE	Bahrain	KSA	Oman	Qatar	Kuwait
1970-74	10.11	8.30	9.42	30.93	10.27	12.98
1975- 79	19.68	7.40	30.34	12.94	3.04	24.78
1980- 84	-2.24	3.18	4.20	19.73	-5.66	5.53
1985-89	5.68	-0.84	-4.57	-8.55	-1.07	-2.36
1990- 94	2.80	4.47	-0.19	9.91	-0.26	21.69
1995-99	6.49	-3.19	3.17	6.05	8.63	3.81
2000-04	14.14	10.60	10.82	14.24	18.11	7.57
2005- 08	22.25	14.84	22.48	15.53	35.29	11.37

Source: UNCTAD, Database of Import.
AIECGC, (2010), Statistics of Arab Investment and Export Credit Guarantee Corporation.

Average of Annual FDI inflows in GCC countries, 1970 – 2008 (Million USD)

year	UAE	Bahran	KSA	Oman	Qatar	Kuwait
1970-74	6.1	1.8	(885.7)	(11.0)	9.5	5.3
1975- 79	72.6	34.7	307.3	22.6	5.0	0.6
1980- 84	14.6	(36.1)	4,845.6	131.2	0.9	(1.3)
1985-89	53.8	121.0	(139.9)	108.1	(71.8)	1.3
1990- 94	203.9	247.7	319.4	120.1	58.2	11.0
1995-99	51864.79	597.4	183.2	62.5	262.3	101.0
2000-04	65413.52	408.6	772.1	186.7	599.0	(27.0)
2005- 08	51,864.8	1,878.4	22,552.3	2,355.0	3,619.7	115.2

Source: UNCTAD, Database of FDI inflows.
AIECGC, (2010), Statistics of Arab Investment and Export Credit Guarantee Corporation.

Average of Annual FDI outflows in GCC countries, 1970 – 2008 (Million USD)

year	UAE	Bahrain	KSA	Oman	Qatar	Kuwait
1970-74	0.0	0.0	0.0	0.0	0.0	0.0
1975- 79	0.0	0.0	0.0	0.0	0.0	32.2
1980- 84	4.4	6.0	108.6	(0.6)	1.0	139.7
1985-89	10.0	18.1	484.7	2.0	(2.4)	512.7
1990- 94	115.1	73.1	(47.9)	1.0	8.9	(499.6)
1995-99	173.3	107.6	201.5	3.8	11.3	-44.67891
2000-04	855.5	438.5	833.5	49.6	108.0	(600.1)
2005- 08	11,257.5	1,351.3	743.5	264.6	2,324.3	8,056.8

Source: UNCTAD, Database of FDI outflows.
AIECGC, (2010), Statistics of Arab Investment and Export Credit Guarantee Corporation.

Appendix (B)
Augmented Dickey-Fuller test for data of study

B.1 Data of Model (1)

Null Hypothesis: D(Real GDP,UAE,2) has a unit root
Exogenous: None
Lag Length: 1 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.908004	0.0022
Test critical values:	1% level	-2.937216	
	5% level	-2.006292	
	10% level	-1.598068	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 7

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(Real GDP, UAE,3)
Method: Least Squares
Date: 01/23/14 Time: 19:46
Sample (adjusted): 2002 2008
Included observations: 7 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(SER02(-1),2)	-1.996057	0.510761	-3.908004	0.0113
D(SER02(-1),3)	0.485102	0.285315	1.700232	0.1498

R-squared	0.844114	Mean dependent var	0.006281
Adjusted R-squared	0.812937	S.D. dependent var	0.036554
S.E. of regression	0.015810	Akaike info criterion	-5.221427
Sum squared resid	0.001250	Schwarz criterion	-5.236881
Log likelihood	20.27499	Hannan-Quinn criter.	-5.412438
Durbin-Watson stat	2.347717		

Null Hypothesis: D(Real GDP, Bahrain,2) has a unit root
Exogenous: None
Lag Length: 1 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.911555	0.0022
Test critical values:	1% level	-2.937216	
	5% level	-2.006292	
	10% level	-1.598068	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 7

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(Real GDP, Bahrain,3)
Method: Least Squares
Date: 01/23/14 Time: 19:48
Sample (adjusted): 2002 2008
Included observations: 7 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(SER03(-1),2)	-1.582569	0.404588	-3.911555	0.0113
D(SER03(-1),3)	0.419261	0.272066	1.541027	0.1839

R-squared	0.799773	Mean dependent var	0.001486
Adjusted R-squared	0.759728	S.D. dependent var	0.012783
S.E. of regression	0.006266	Akaike info criterion	-7.072351
Sum squared resid	0.000196	Schwarz criterion	-7.087805
Log likelihood	26.75323	Hannan-Quinn criter.	-7.263362
Durbin-Watson stat	1.492298		

Null Hypothesis: D(Real GDP, KSA, 2) has a unit root
Exogenous: None
Lag Length: 1 (Automatic based on AIC, MAXLAG=1)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.194758	0.0065
Test critical values:	1% level	-2.937216	
	5% level	-2.006292	
	10% level	-1.598068	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 7

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(Real GDP, KSA,3)
Method: Least Squares
Date: 01/23/14 Time: 20:08
Sample (adjusted): 2002 2008
Included observations: 7 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(SER01(-1),2)	-1.448409	0.453370	-3.194758	0.0241
D(SER01(-1),3)	0.486207	0.273749	1.776106	0.1359

R-squared	0.665822	Mean dependent var	0.004018
Adjusted R-squared	0.598987	S.D. dependent var	0.019349
S.E. of regression	0.012253	Akaike info criterion	-5.731109
Sum squared resid	0.000751	Schwarz criterion	-5.746563
Log likelihood	22.05888	Hannan-Quinn criter.	-5.922120
Durbin-Watson stat	0.902309		

Null Hypothesis: D(Real GDP, Oman,2) has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on HQ, MAXLAG=1)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.931413	0.0561
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 8

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(Real GDP, Oman,3)
Method: Least Squares
Date: 01/23/14 Time: 19:58
Sample (adjusted): 2001 2008
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(SER01(-1),2)	-0.761603	0.394324	-1.931413	0.0947

R-squared	0.347182	Mean dependent var	0.000389
Adjusted R-squared	0.347182	S.D. dependent var	0.015619
S.E. of regression	0.012620	Akaike info criterion	-5.790603
Sum squared resid	0.001115	Schwarz criterion	-5.780673
Log likelihood	24.16241	Hannan-Quinn criter.	-5.857578
Durbin-Watson stat	1.268089		

Null Hypothesis: D(Real GDP Qatar,2) has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on AIC, MAXLAG=1)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.409865	0.0000
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations and may not be accurate for a sample size of 8

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(Real GDP, Qatar,3)
Method: Least Squares
Date: 01/23/14 Time: 20:01
Sample (adjusted): 2001 2008
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(SER02(-1),2)	-1.764295	0.238101	-7.409865	0.0001

R-squared	0.886836	Mean dependent var	-0.002065
Adjusted R-squared	0.886836	S.D. dependent var	0.078425
S.E. of regression	0.026382	Akaike info criterion	-4.315790
Sum squared resid	0.004872	Schwarz criterion	-4.305859
Log likelihood	18.26316	Hannan-Quinn criter.	-4.382765
Durbin-Watson stat	1.803658		

Null Hypothesis: D(Real GDP,Kuwait,2) has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on AIC, MAXLAG=1)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.731554	0.0024
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 8

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(Real GDP, Kuwait,3)
Method: Least Squares
Date: 01/23/14 Time: 20:04
Sample (adjusted): 2001 2008
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(SER03(-1),2)	-1.277299	0.342297	-3.731554	0.0073

R-squared	0.659681	Mean dependent var	-0.005294
Adjusted R-squared	0.659681	S.D. dependent var	0.043042
S.E. of regression	0.025110	Akaike info criterion	-4.414661
Sum squared resid	0.004413	Schwarz criterion	-4.404731
Log likelihood	18.65864	Hannan-Quinn criter.	-4.481636
Durbin-Watson stat	1.884246		

Null Hypothesis: D(Real GDP, Malaysia,2) has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on AIC, MAXLAG=1)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.561910	0.0002
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 8

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(Real GDP, Malaysia,3)
Method: Least Squares
Date: 01/23/14 Time: 21:08
Sample (adjusted): 2001 2008
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(SER01(-1),2)	-1.607253	0.288975	-5.561910	0.0008

R-squared	0.814298	Mean dependent var	-0.002127
Adjusted R-squared	0.814298	S.D. dependent var	0.028496
S.E. of regression	0.012280	Akaike info criterion	-5.845255
Sum squared resid	0.001056	Schwarz criterion	-5.835324
Log likelihood	24.38102	Hannan-Quinn criter.	-5.912230
Durbin-Watson stat	1.157905		

Null Hypothesis: D(Real GDP, Turkey,2) has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on AIC, MAXLAG=1)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.314762	0.0000
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 8

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(Real GDP, Turkey,3)
Method: Least Squares
Date: 01/23/14 Time: 21:10
Sample (adjusted): 2001 2008
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(SER02(-1),2)	-1.660889	0.227060	-7.314762	0.0002

R-squared	0.882123	Mean dependent var	-0.007537
Adjusted R-squared	0.882123	S.D. dependent var	0.058628
S.E. of regression	0.020129	Akaike info criterion	-4.856866
Sum squared resid	0.002836	Schwarz criterion	-4.846936
Log likelihood	20.42747	Hannan-Quinn criter.	-4.923841
Durbin-Watson stat	0.908406		

Null Hypothesis: D(Real GDP, Iran,2) has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on AIC, MAXLAG=1)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.635844	0.0156
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 8

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(Real GDP, Iran,3)
Method: Least Squares
Date: 01/23/14 Time: 21:12
Sample (adjusted): 2001 2008
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(SER03(-1),2)	-1.373349	0.521028	-2.635844	0.0336

R-squared	0.483843	Mean dependent var	-0.003025
Adjusted R-squared	0.483843	S.D. dependent var	0.019169
S.E. of regression	0.013772	Akaike info criterion	-5.615902
Sum squared resid	0.001328	Schwarz criterion	-5.605972
Log likelihood	23.46361	Hannan-Quinn criter.	-5.682878
Durbin-Watson stat	1.828917		

Null Hypothesis: D(Real GDP, UK,2) has a unit root
Exogenous: None
Lag Length: 1 (Automatic based on AIC, MAXLAG=1)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.832651	0.0006
Test critical values:	1% level	-2.937216	
	5% level	-2.006292	
	10% level	-1.598068	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations and may not be accurate for a sample size of 7

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(Real GDP, UK,3)
Method: Least Squares
Date: 01/23/14 Time: 21:13
Sample (adjusted): 2002 2008
Included observations: 7 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(SER04(-1),2)	-2.433874	0.503631	-4.832651	0.0047
D(SER04(-1),3)	0.621421	0.294496	2.110116	0.0886

R-squared	0.880559	Mean dependent var	0.000293
Adjusted R-squared	0.856671	S.D. dependent var	0.003380
S.E. of regression	0.001280	Akaike info criterion	-10.24969
Sum squared resid	8.19E-06	Schwarz criterion	-10.26515
Log likelihood	37.87393	Hannan-Quinn criter.	-10.44071
Durbin-Watson stat	0.673056		

Null Hypothesis: D(Real GDP, AUS,2) has a unit root
Exogenous: None
Lag Length: 1 (Automatic based on AIC, MAXLAG=1)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.629828	0.0008
Test critical values:	1% level	-2.937216	
	5% level	-2.006292	
	10% level	-1.598068	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 7

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(Real GDP, AUS,3)
Method: Least Squares
Date: 01/23/14 Time: 21:15
Sample (adjusted): 2002 2008
Included observations: 7 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(SER05(-1),2)	-1.601522	0.345914	-4.629828	0.0057
D(SER05(-1),3)	0.565558	0.192926	2.931473	0.0326

R-squared	0.808380	Mean dependent var	-0.000417
Adjusted R-squared	0.770056	S.D. dependent var	0.003926
S.E. of regression	0.001883	Akaike info criterion	-9.477440
Sum squared resid	1.77E-05	Schwarz criterion	-9.492895
Log likelihood	35.17104	Hannan-Quinn criter.	-9.668452
Durbin-Watson stat	2.711296		

Null Hypothesis: D(Real GDP, Brazil,2) has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on AIC, MAXLAG=1)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-14.84181	0.0001
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 8

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(Real GDP, Brazil,3)
Method: Least Squares
Date: 01/23/14 Time: 21:16
Sample (adjusted): 2001 2008
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(SER06(-1),2)	-1.927998	0.129903	-14.84181	0.0000

R-squared	0.969196	Mean dependent var	-0.000119
Adjusted R-squared	0.969196	S.D. dependent var	0.010356
S.E. of regression	0.001818	Akaike info criterion	-9.666166
Sum squared resid	2.31E-05	Schwarz criterion	-9.656235
Log likelihood	39.66466	Hannan-Quinn criter.	-9.733141
Durbin-Watson stat	2.476035		

Null Hypothesis: D(TRADE_U,2)* has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-4.570670	0.0006
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

* Trade volume between United Arab Emirates and Saudi Arabia, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(TRADE_U,3)
Method: Least Squares
Sample (adjusted): 4 11
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(TRADE_U(-1),2)	-1.420164	0.310712	-4.570670	0.0026

R-squared	0.748027	Mean dependent var	-0.034345
Adjusted R-squared	0.748027	S.D. dependent var	0.582900
S.E. of regression	0.292598	Akaike info criterion	0.496432
Sum squared resid	0.599294	Schwarz criterion	0.506362
Log likelihood	-0.985728	Durbin-Watson stat	1.594517

Null Hypothesis: D(TRADE_BH,2)* has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-8.399272	0.0004
Test critical values:	1% level	-4.803492	
	5% level	-3.403313	
	10% level	-2.841819	

*Trade volume between Bahrain And Saudi Arabia, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(TRADE_BH,3)
Method: Least Squares
Sample (adjusted): 5 11
Included observations: 7 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(TRADE_BH(-1),2)	-1.590803	0.189398	-8.399272	0.0011
D(TRADE_BH(-1),3)	0.122149	0.096831	1.261465	0.2757
C	0.214339	0.145596	1.472153	0.2150

R-squared	0.988596	Mean dependent var	0.700304
Adjusted R-squared	0.982894	S.D. dependent var	2.864581
S.E. of regression	0.374662	Akaike info criterion	1.171940
Sum squared resid	0.561485	Schwarz criterion	1.148758
Log likelihood	-1.101789	F-statistic	173.3740
Durbin-Watson stat	0.948235	Prob(F-statistic)	0.000130

Null Hypothesis: D(TRADE_O,2)* has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-3.905346	0.0018
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

*Trade volume between Oman and Saudi Arabia, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(TRADE_O,3)
Method: Least Squares
Sample (adjusted): 4 11
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(TRADE_O(-1),2)	-1.448191	0.370823	-3.905346	0.0059

R-squared	0.684948	Mean dependent var	0.015375
Adjusted R-squared	0.684948	S.D. dependent var	0.425609
S.E. of regression	0.238892	Akaike info criterion	0.090858
Sum squared resid	0.399486	Schwarz criterion	0.100788
Log likelihood	0.636569	Durbin-Watson stat	1.797628

Null Hypothesis: D(TRADE_Q,2)* has a unit root
Exogenous: None
Lag Length: 1 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-3.800921	0.0026
Test critical values:	1% level	-2.937216	
	5% level	-2.006292	
	10% level	-1.598068	

*Trade volume between Qatar and Saudi Arabia, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(TRADE_Q,3)
Method: Least Squares
Sample (adjusted): 5 11
Included observations: 7 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(TRADE_Q(-1),2)	-2.181448	0.573926	-3.800921	0.0126
D(TRADE_Q(-1),3)	0.617812	0.340027	1.816951	0.1289

R-squared	0.810021	Mean dependent var	0.095334
Adjusted R-squared	0.772025	S.D. dependent var	0.790068
S.E. of regression	0.377231	Akaike info criterion	1.123040
Sum squared resid	0.711517	Schwarz criterion	1.107586
Log likelihood	-1.930640	Durbin-Watson stat	1.686615

Null Hypothesis: D(TRADE_KW,2)* has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-5.843161	0.0024
Test critical values:	1% level	-4.582648	
	5% level	-3.320969	
	10% level	-2.801384	

*Trade volume between Saudi Arabia and Kuwait, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(TRADE_KW,3)
Method: Least Squares
Sample (adjusted): 4 11
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(TRADE_KW(-1),2)	-1.511488	0.258676	-5.843161	0.0011
C	-0.041225	0.081235	-0.507474	0.6299

R-squared	0.850533	Mean dependent var	-0.057309
Adjusted R-squared	0.825621	S.D. dependent var	0.549910
S.E. of regression	0.229635	Akaike info criterion	0.107667
Sum squared resid	0.316394	Schwarz criterion	0.127528
Log likelihood	1.569331	F-statistic	34.14253
Durbin-Watson stat	1.421088	Prob(F-statistic)	0.001108

Null Hypothesis: D(TRADE_M,2)* has a unit root
Exogenous: None
Lag Length: 1 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-3.845080	0.0024
Test critical values:	1% level	-2.937216	
	5% level	-2.006292	
	10% level	-1.598068	

*Trade volume between Saudi Arabia and Malaysia, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(TRADE_M,3)
Method: Least Squares
Sample (adjusted): 5 11
Included observations: 7 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(TRADE_M(-1),2)	-1.529657	0.397822	-3.845080	0.0121
D(TRADE_M(-1),3)	0.664065	0.278375	2.385503	0.0627

R-squared	0.738109	Mean dependent var	-0.089801
Adjusted R-squared	0.685730	S.D. dependent var	0.494625
S.E. of regression	0.277285	Akaike info criterion	0.507417
Sum squared resid	0.384436	Schwarz criterion	0.491963
Log likelihood	0.224039	Durbin-Watson stat	1.797067

Null Hypothesis: D(TRADE_TU,2)* has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-2.347316	0.0264
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

*Trade volume between Saudi Arabia and Turkey, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(TRADE_TU,3)
Method: Least Squares
Sample (adjusted): 4 11
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(TRADE_TU(-1),2)	-1.094385	0.466228	-2.347316	0.0513

R-squared	0.423067	Mean dependent var	-0.065401
Adjusted R-squared	0.423067	S.D. dependent var	0.396761
S.E. of regression	0.301364	Akaike info criterion	0.555474
Sum squared resid	0.635742	Schwarz criterion	0.565404
Log likelihood	-1.221895	Durbin-Watson stat	1.275529

Null Hypothesis: D(TRADE_IR,2)* has a unit root
Exogenous: None
Lag Length: 1 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-3.164658	0.0068
Test critical values:	1% level	-2.937216	
	5% level	-2.006292	
	10% level	-1.598068	

*Trade volume between Saudi Arabia and Iran, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(TRADE_IR,3)
Method: Least Squares
Sample (adjusted): 5 11
Included observations: 7 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(TRADE_IR(-1),2)	-1.758365	0.555626	-3.164658	0.0250
D(TRADE_IR(-1),3)	0.520126	0.360398	1.443200	0.2086

R-squared	0.710508	Mean dependent var	-0.072503
Adjusted R-squared	0.652610	S.D. dependent var	0.997582
S.E. of regression	0.587973	Akaike info criterion	2.010686
Sum squared resid	1.728563	Schwarz criterion	1.995231
Log likelihood	-5.037400	Durbin-Watson stat	1.471322

Null Hypothesis: D(TRADE_UK,2)* has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-3.781717	0.0022
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

*Trade volume between Saudi Arabia and the United Kingdom, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(TRADE_UK,3)
Method: Least Squares
Sample (adjusted): 4 11
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(TRADE_UK(-1),2)	-1.183582	0.312975	-3.781717	0.0069

R-squared	0.667126	Mean dependent var	-0.044729
Adjusted R-squared	0.667126	S.D. dependent var	0.420111
S.E. of regression	0.242384	Akaike info criterion	0.119884
Sum squared resid	0.411251	Schwarz criterion	0.129814
Log likelihood	0.520463	Durbin-Watson stat	1.888403

Null Hypothesis: D(TRADE_AU,2)* has a unit root
Exogenous: None
Lag Length: 1 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-4.250096	0.0013
Test critical values:	1% level	-2.937216	
	5% level	-2.006292	
	10% level	-1.598068	

*Trade volume between Saudi Arabia and Australia, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(TRADE_AU,3)
Method: Least Squares
Sample (adjusted): 5 11
Included observations: 7 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(TRADE_AU(-1),2)	-2.222650	0.522965	-4.250096	0.0081
D(TRADE_AU(-1),3)	0.473038	0.304653	1.552710	0.1812

R-squared	0.862518	Mean dependent var	-0.054347
Adjusted R-squared	0.835021	S.D. dependent var	0.604762
S.E. of regression	0.245640	Akaike info criterion	0.265055
Sum squared resid	0.301694	Schwarz criterion	0.249601
Log likelihood	1.072308	Durbin-Watson stat	1.068986

Null Hypothesis: D(TRADE_BR,2)* has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-5.131144	0.0071
Test critical values:	1% level	-4.803492	
	5% level	-3.403313	
	10% level	-2.841819	

*Trade volume between Saudi Arabia and Brazil, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(TRADE_BR,3)
Method: Least Squares
Sample (adjusted): 5 11
Included observations: 7 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(TRADE_BR(-1),2)	-1.599670	0.311757	-5.131144	0.0068
D(TRADE_BR(-1),3)	0.601605	0.217899	2.760941	0.0508
C	0.018478	0.060109	0.307411	0.7739

R-squared	0.868215	Mean dependent var	-0.064089
Adjusted R-squared	0.802322	S.D. dependent var	0.333452
S.E. of regression	0.148256	Akaike info criterion	-0.682227
Sum squared resid	0.087919	Schwarz criterion	-0.705408
Log likelihood	5.387793	F-statistic	13.17622
Durbin-Watson stat	1.210520	Prob(F-statistic)	0.017367

Null Hypothesis: D(COST_UAE,2)* has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-3.753753	0.0023
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

*Transportation cost rate between United Arab Emirates and Saudi Arabia, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(COST_UAE,3)
Method: Least Squares
Sample (adjusted): 4 11
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(COST_U(-1),2)	-1.331778	0.354786	-3.753753	0.0071

R-squared	0.668091	Mean dependent var	1.25E-06
Adjusted R-squared	0.668091	S.D. dependent var	0.000270
S.E. of regression	0.000156	Akaike info criterion	-14.57923
Sum squared resid	1.70E-07	Schwarz criterion	-14.56930
Log likelihood	59.31692	Durbin-Watson stat	1.553317

Null Hypothesis: D(COST_BH)* has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-4.555894	0.0084
Test critical values:	1% level	-4.420595	
	5% level	-3.259808	
	10% level	-2.771129	

* Transportation cost between Bahrain and Saudi Arabia, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(COST_BH,2)
Method: Least Squares
Sample (adjusted): 3 11
Included observations: 9 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(COST_BH(-1))	-1.445560	0.317294	-4.555894	0.0026
C	0.013394	0.002944	4.549410	0.0026

R-squared	0.747804	Mean dependent var	-1.56E-05
Adjusted R-squared	0.711776	S.D. dependent var	0.000378
S.E. of regression	0.000203	Akaike info criterion	-13.97586
Sum squared resid	2.88E-07	Schwarz criterion	-13.93203
Log likelihood	64.89138	F-statistic	20.75617
Durbin-Watson stat	2.136795	Prob(F-statistic)	0.002618

Null Hypothesis: D(COST_O)* has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-4.491266	0.0091
Test critical values:	1% level	-4.420595	
	5% level	-3.259808	
	10% level	-2.771129	

*Transportation cost between Oman and Saudi Arabia, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(COST_O,2)
Method: Least Squares
Sample (adjusted): 3 11
Included observations: 9 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(COST_O(-1))	-1.463731	0.325906	-4.491266	0.0028
C	0.013685	0.003044	4.495535	0.0028

R-squared	0.742377	Mean dependent var	1.33E-05
Adjusted R-squared	0.705574	S.D. dependent var	0.000118
S.E. of regression	6.40E-05	Akaike info criterion	-16.28130
Sum squared resid	2.87E-08	Schwarz criterion	-16.23747
Log likelihood	75.26584	F-statistic	20.17147
Durbin-Watson stat	2.184191	Prob(F-statistic)	0.002828

Null Hypothesis: D(COST_Q,2)* has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-3.135956	0.0064
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

*Transportation cost between Saudi Arabia and Qatar, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(COST_Q,3)
Method: Least Squares
Sample (adjusted): 4 11
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(COST_Q(-1),2)	-1.165746	0.371735	-3.135956	0.0165

R-squared	0.584173	Mean dependent var	1.25E-06
Adjusted R-squared	0.584173	S.D. dependent var	0.000329
S.E. of regression	0.000212	Akaike info criterion	-13.96178
Sum squared resid	3.15E-07	Schwarz criterion	-13.95185
Log likelihood	56.84713	Durbin-Watson stat	2.052701

Null Hypothesis: D(COST_KW,2)* has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-4.376495	0.0009
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

*Transportation cost between Saudi Arabia and Kuwait, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(COST_KW,3)
Method: Least Squares
Sample (adjusted): 4 11
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(COST_KW(-1),2)	-1.181775	0.270028	-4.376495	0.0032

R-squared	0.719772	Mean dependent var	-6.75E-05
Adjusted R-squared	0.719772	S.D. dependent var	0.000333
S.E. of regression	0.000176	Akaike info criterion	-14.33341
Sum squared resid	2.17E-07	Schwarz criterion	-14.32348
Log likelihood	58.33364	Durbin-Watson stat	2.074169

Null Hypothesis: D(COST_My)* has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-7.937254	0.0002
Test critical values:	1% level	-4.420595	
	5% level	-3.259808	
	10% level	-2.771129	

*Transportation cost between Saudi Arabia and Malaysia, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(COST_M,2)
Method: Least Squares
Sample (adjusted): 3 11
Included observations: 9 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(COST_M(-1))	-1.800000	0.226779	-7.937254	0.0001
C	0.016820	0.002119	7.937142	0.0001
R-squared	0.900000	Mean dependent var		1.97E-16
Adjusted R-squared	0.885714	S.D. dependent var		0.000100
S.E. of regression	3.38E-05	Akaike info criterion		-17.55873
Sum squared resid	8.00E-09	Schwarz criterion		-17.51490
Log likelihood	81.01427	F-statistic		63.00000
Durbin-Watson stat	2.350000	Prob(F-statistic)		0.000096

Null Hypothesis: D(COST_TY,2)* has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-7.042930	0.0007
Test critical values:	1% level	-4.582648	
	5% level	-3.320969	
	10% level	-2.801384	

*Transportation cost between Saudi Arabia and Turkey, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(COST_TY,3)
Method: Least Squares
Sample (adjusted): 4 11
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(COST_TY(-1),2)	-1.781812	0.252993	-7.042930	0.0004
C	-1.21E-05	1.78E-05	-0.677148	0.5235

R-squared	0.892092	Mean dependent var	-1.88E-05
Adjusted R-squared	0.874107	S.D. dependent var	0.000142
S.E. of regression	5.03E-05	Akaike info criterion	-16.74334
Sum squared resid	1.52E-08	Schwarz criterion	-16.72348
Log likelihood	68.97338	F-statistic	49.60286
Durbin-Watson stat	2.313777	Prob(F-statistic)	0.000410

Null Hypothesis: (COST_IR)* has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-15.13288	0.0000
Test critical values:	1% level	-4.420595	
	5% level	-3.259808	
	10% level	-2.771129	

*Transportation cost between Saudi Arabia and Iran, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(COST_IR)
Method: Least Squares
Sample (adjusted): 3 11
Included observations: 9 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
COST_IR(-1)	-0.001309	8.65E-05	-15.13288	0.0000
D(COST_IR(-1))	-0.953431	0.045094	-21.14328	0.0000
C	0.029675	0.000974	30.48253	0.0000

R-squared	0.988737	Mean dependent var	0.009344
Adjusted R-squared	0.984983	S.D. dependent var	4.85E-05
S.E. of regression	5.94E-06	Akaike info criterion	-20.96717
Sum squared resid	2.12E-10	Schwarz criterion	-20.90143
Log likelihood	97.35228	F-statistic	263.3678
Durbin-Watson stat	1.442367	Prob(F-statistic)	0.000001

Null Hypothesis: D(COST_UK,2)* has a unit root
Exogenous: None
Lag Length: 1 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-3.779645	0.0026
Test critical values:	1% level	-2.937216	
	5% level	-2.006292	
	10% level	-1.598068	

*Transportation cost between Saudi Arabia and the United Kingdom, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(COST_UK,3)
Method: Least Squares
Sample (adjusted): 5 11
Included observations: 7 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(COST_UK(-1),2)	-2.500000	0.661438	-3.779645	0.0129
D(COST_UK(-1),3)	0.562500	0.369755	1.521278	0.1887

R-squared	0.858218	Mean dependent var	2.86E-05
Adjusted R-squared	0.829861	S.D. dependent var	0.000160
S.E. of regression	6.61E-05	Akaike info criterion	-16.17453
Sum squared resid	2.19E-08	Schwarz criterion	-16.18998
Log likelihood	58.61084	Durbin-Watson stat	2.325000

Null Hypothesis: D(GDP_AUS,2)* has a unit root
Exogenous: None
Lag Length: 1 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-2.889025	0.0108
Test critical values:	1% level	-2.937216	
	5% level	-2.006292	
	10% level	-1.598068	

*Gross Domestic Product of Australia, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GDP_AUS,3)
Method: Least Squares
Sample (adjusted): 5 11
Included observations: 7 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GDP_AUS(-1),2)	-1.359260	0.470491	-2.889025	0.0342
D(GDP_AUS(-1),3)	0.528659	0.356705	1.482061	0.1984

R-squared	0.623804	Mean dependent var	0.022686
Adjusted R-squared	0.548565	S.D. dependent var	0.152631
S.E. of regression	0.102551	Akaike info criterion	-1.481958
Sum squared resid	0.052583	Schwarz criterion	-1.497412
Log likelihood	7.186852	Durbin-Watson stat	2.032332

Null Hypothesis: D(COST_AUS,2)* has a unit root
Exogenous: None
Lag Length: 1 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-4.541476	0.0009
Test critical values:	1% level	-2.937216	
	5% level	-2.006292	
	10% level	-1.598068	

*Transportation cost between Saudi Arabia and Australia, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(COST_AUS,3)
Method: Least Squares
Sample (adjusted): 5 11
Included observations: 7 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(COST_AUS(-1),2)	-3.000000	0.660578	-4.541476	0.0062
D(COST_AUS(-1),3)	0.636364	0.344976	1.844662	0.1244

R-squared	0.950413	Mean dependent var	-5.08E-16
Adjusted R-squared	0.940496	S.D. dependent var	0.000191
S.E. of regression	4.67E-05	Akaike info criterion	-16.87027
Sum squared resid	1.09E-08	Schwarz criterion	-16.88573
Log likelihood	61.04596	Durbin-Watson stat	1.833333

Null Hypothesis: D(COST_BR,2)* has a unit root
Exogenous: None
Lag Length: 1 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-4.541476	0.0009
Test critical values:	1% level	-2.937216	
	5% level	-2.006292	
	10% level	-1.598068	

*Transportation cost between Saudi Arabia and Brazil, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(COST_BR,3)
Method: Least Squares
Sample (adjusted): 5 11
Included observations: 7 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(COST_BR(-1),2)	-3.000000	0.660578	-4.541476	0.0062
D(COST_BR(-1),3)	0.636364	0.344976	1.844662	0.1244

R-squared	0.950413	Mean dependent var	0.000000
Adjusted R-squared	0.940496	S.D. dependent var	0.000191
S.E. of regression	4.67E-05	Akaike info criterion	-16.87027
Sum squared resid	1.09E-08	Schwarz criterion	-16.88573
Log likelihood	61.04596	Durbin-Watson stat	1.833333

B.2 Data of Model (2)

Null Hypothesis: D(FDIN_UAE,2)* has a unit root
Exogenous: None
Lag Length: 1 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-3.780463	0.0026
Test critical values:	1% level	-2.937216	
	5% level	-2.006292	
	10% level	-1.598068	

*Foreign direct investments flows to the united Arab Emirates
measured as a ratio of GDP, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(FDIN_UAE,3)
Method: Least Squares
Sample (adjusted): 5 11
Included observations: 7 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FDIN_UAE(-1),2)	-2.095621	0.554329	-3.780463	0.0129
D(FDIN_UAE(-1),3)	0.509078	0.328348	1.550421	0.1817

R-squared	0.799845	Mean dependent var	-0.400000
Adjusted R-squared	0.759814	S.D. dependent var	5.454662
S.E. of regression	2.673261	Akaike info criterion	5.039432
Sum squared resid	35.73162	Schwarz criterion	5.023977
Log likelihood	-15.63801	Durbin-Watson stat	1.552396

Null Hypothesis: D(FDOUT_UA,2)* has a unit root
Exogenous: None
Lag Length: 1 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-2.530073	0.0200
Test critical values:	1% level	-2.937216	
	5% level	-2.006292	
	10% level	-1.598068	

* Foreign direct investments out flows of the united Arab Emirates measured as a ratio of GDP, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(FDOUT_UA,3)
Method: Least Squares
Sample (adjusted): 5 11
Included observations: 7 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FDOUT_UA(-1),2)	-3.020256	1.193743	-2.530073	0.0525
D(FDOUT_UA(-1),3)	1.156480	0.728446	1.587598	0.1732

R-squared	0.706398	Mean dependent var	-0.242857
Adjusted R-squared	0.647678	S.D. dependent var	2.825395
S.E. of regression	1.677062	Akaike info criterion	4.106920
Sum squared resid	14.06268	Schwarz criterion	4.091466
Log likelihood	-12.37422	Durbin-Watson stat	1.893908

Null Hypothesis: D(OILX_UAE,2)* has a unit root
Exogenous: None
Lag Length: 1 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-4.901631	0.0005
Test critical values:	1% level	-2.937216	
	5% level	-2.006292	
	10% level	-1.598068	

*Oil export of the United Arab Emirates measured by natural logarithmic, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(OILX_UAE,3)
Method: Least Squares
Sample (adjusted): 5 11
Included observations: 7 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(OILX_UAE(-1),2)	-1.465065	0.298893	-4.901631	0.0045
D(OILX_UAE(-1),3)	0.472054	0.204201	2.311709	0.0688

R-squared	0.827290	Mean dependent var	0.013074
Adjusted R-squared	0.792748	S.D. dependent var	0.040950
S.E. of regression	0.018643	Akaike info criterion	-4.891780
Sum squared resid	0.001738	Schwarz criterion	-4.907235
Log likelihood	19.12123	Durbin-Watson stat	2.522600

Null Hypothesis: D(NOILX_UA,2)* has a unit root
Exogenous: None
Lag Length: 1 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-14.63816	0.0001
Test critical values:	1% level	-2.937216	
	5% level	-2.006292	
	10% level	-1.598068	

*Non-oil export of the United Arab Emirates measured by natural logarithmic, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(NOILX_UA,3)
Method: Least Squares
Sample (adjusted): 5 11
Included observations: 7 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(NOILX_UA(-1),2)	-1.862841	0.127259	-14.63816	0.0000
D(NOILX_UA(-1),3)	0.341564	0.075106	4.547767	0.0061

R-squared	0.987702	Mean dependent var	-0.248586
Adjusted R-squared	0.985242	S.D. dependent var	1.017632
S.E. of regression	0.123624	Akaike info criterion	-1.108182
Sum squared resid	0.076415	Schwarz criterion	-1.123636
Log likelihood	5.878637	Durbin-Watson stat	1.224457

Null Hypothesis: D(M_UAE,2)* has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-3.959752	0.0016
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

*Commodity imports of United Arab Emirates measured by natural logarithmic, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(M_UAE,3)
Method: Least Squares
Sample (adjusted): 4 11
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(M_UAE(-1),2)	-1.358153	0.342989	-3.959752	0.0055

R-squared	0.679317	Mean dependent var	0.052113
Adjusted R-squared	0.679317	S.D. dependent var	0.282111
S.E. of regression	0.159756	Akaike info criterion	-0.713864
Sum squared resid	0.178655	Schwarz criterion	-0.703934
Log likelihood	3.855458	Durbin-Watson stat	0.893761

Null Hypothesis: D(FDIN_BH,2)* has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-5.434285	0.0002
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

*Foreign direct investment flows to Bahrain measured as a ratio of GDP, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(FDIN_BH,3)
Method: Least Squares
Sample (adjusted): 4 11
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FDIN_BH(-1),2)	-1.619108	0.297943	-5.434285	0.0010

R-squared	0.806108	Mean dependent var	1.625000
Adjusted R-squared	0.806108	S.D. dependent var	15.93986
S.E. of regression	7.018821	Akaike info criterion	6.851536
Sum squared resid	344.8470	Schwarz criterion	6.861467
Log likelihood	-26.40615	Durbin-Watson stat	2.258275

Null Hypothesis: D(FDOUT_BH,2)* has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-5.281723	0.0002
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

*Foreign direct investments outflows of Bahrain measured as a ratio of GDP, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(FDOUT_BH,3)
Method: Least Squares
Sample (adjusted): 4 11
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FDOUT_BH(-1),2)	-1.626688	0.307984	-5.281723	0.0011

R-squared	0.799282	Mean dependent var	-0.175000
Adjusted R-squared	0.799282	S.D. dependent var	7.482694
S.E. of regression	3.352364	Akaike info criterion	5.373677
Sum squared resid	78.66841	Schwarz criterion	5.383607
Log likelihood	-20.49471	Durbin-Watson stat	1.764569

Null Hypothesis: D(OILX_BH,2)* has a unit root
Exogenous: None
Lag Length: 1 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-4.036239	0.0018
Test critical values:	1% level	-2.937216	
	5% level	-2.006292	
	10% level	-1.598068	

* Oil export of Bahrain measured by natural logarithmic, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(OILX_BH,3)
Method: Least Squares
Sample (adjusted): 5 11
Included observations: 7 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(OILX_BH(-1),2)	-1.350532	0.334602	-4.036239	0.0100
D(OILX_BH(-1),3)	0.318729	0.251549	1.267065	0.2609

R-squared	0.781140	Mean dependent var	0.079661
Adjusted R-squared	0.737368	S.D. dependent var	0.453116
S.E. of regression	0.232211	Akaike info criterion	0.152616
Sum squared resid	0.269610	Schwarz criterion	0.137162
Log likelihood	1.465843	Durbin-Watson stat	2.443762

Null Hypothesis: D(NOILX_BH,2)* has a unit root
Exogenous: None
Lag Length: 1 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-5.170779	0.0004
Test critical values:	1% level	-2.937216	
	5% level	-2.006292	
	10% level	-1.598068	

*Non-oil export of Bahrain measured by natural logarithmic, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(NOILX_BH,3)
Method: Least Squares
Sample (adjusted): 5 11
Included observations: 7 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(NOILX_BH(-1),2)	-1.894422	0.366371	-5.170779	0.0036
D(NOILX_BH(-1),3)	0.378163	0.223294	1.693561	0.1511

R-squared	0.869314	Mean dependent var	-0.116377
Adjusted R-squared	0.843177	S.D. dependent var	0.974188
S.E. of regression	0.385788	Akaike info criterion	1.167896
Sum squared resid	0.744160	Schwarz criterion	1.152442
Log likelihood	-2.087637	Durbin-Watson stat	1.606874

Null Hypothesis: D(M_BH,2)* has a unit root
Exogenous: None
Lag Length: 1 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-5.670054	0.0002
Test critical values:	1% level	-2.937216	
	5% level	-2.006292	
	10% level	-1.598068	

*Commodity imports of Bahrain measured by natural logarithmic, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(M_BH,3)
Method: Least Squares
Sample (adjusted): 5 11
Included observations: 7 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(M_BH(-1),2)	-2.421131	0.427003	-5.670054	0.0024
D(M_BH(-1),3)	0.603372	0.214684	2.810511	0.0375

R-squared	0.887476	Mean dependent var	0.031036
Adjusted R-squared	0.864971	S.D. dependent var	0.270583
S.E. of regression	0.099429	Akaike info criterion	-1.543785
Sum squared resid	0.049431	Schwarz criterion	-1.559239
Log likelihood	7.403247	Durbin-Watson stat	1.143724

Null Hypothesis: D(FDIN_KSA,2)* has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-3.874628	0.0019
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

*Foreign direct investments inflows to Saudi Arabia measured as a ratio of GDP, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(FDIN_KSA,3)
Method: Least Squares
Sample (adjusted): 4 11
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FDIN_KSA(-1),2)	-1.401130	0.361617	-3.874628	0.0061

R-squared	0.680946	Mean dependent var	0.112500
Adjusted R-squared	0.680946	S.D. dependent var	2.086307
S.E. of regression	1.178449	Akaike info criterion	3.282743
Sum squared resid	9.721186	Schwarz criterion	3.292673
Log likelihood	-12.13097	Durbin-Watson stat	2.182672

Null Hypothesis: D(FDOUT_KS)* has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-4.683711	0.0004
Test critical values:	1% level	-2.847250	
	5% level	-1.988198	
	10% level	-1.600140	

*Foreign direct investments outflows of Saudi Arabia measured as a ratio of GDP, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(FDOUT_KS,2)
Method: Least Squares
Sample (adjusted): 3 11
Included observations: 9 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FDOUT_KS(-1))	-1.469903	0.313833	-4.683711	0.0016

R-squared	0.732685	Mean dependent var	-0.033333
Adjusted R-squared	0.732685	S.D. dependent var	1.948076
S.E. of regression	1.007203	Akaike info criterion	2.956671
Sum squared resid	8.115670	Schwarz criterion	2.978585
Log likelihood	-12.30502	Durbin-Watson stat	1.744333

Null Hypothesis: D(OILX_KSA,2)* has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-3.789664	0.0022
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

*Oil export of Saudi Arabia measured by natural logarithmic, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(OILX_KSA,3)
Method: Least Squares
Sample (adjusted): 4 11
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(OILX_KSA(-1),2)	-1.379013	0.363888	-3.789664	0.0068

R-squared	0.671973	Mean dependent var	0.014237
Adjusted R-squared	0.671973	S.D. dependent var	0.475878
S.E. of regression	0.272553	Akaike info criterion	0.354500
Sum squared resid	0.519995	Schwarz criterion	0.364430
Log likelihood	-0.418000	Durbin-Watson stat	1.183639

Null Hypothesis: D(NOILX_KS,2)* has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-4.784540	0.0005
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

*Non-oil export of Saudi Arabia measured by natural logarithmic, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(NOILX_KS,3)
Method: Least Squares
Sample (adjusted): 4 11
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(NOILX_KS(-1),2)	-1.629463	0.340568	-4.784540	0.0020

R-squared	0.764849	Mean dependent var	-0.285387
Adjusted R-squared	0.764849	S.D. dependent var	4.733045
S.E. of regression	2.295165	Akaike info criterion	4.615955
Sum squared resid	36.87447	Schwarz criterion	4.625885
Log likelihood	-17.46382	Durbin-Watson stat	1.488191

Null Hypothesis: D(M_KSA,2)* has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-3.646588	0.0027
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

*Commodity imports of Saudi Arabia measured by natural logarithmic, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(M_KSA,3)
Method: Least Squares
Sample (adjusted): 4 11
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(M_KSA(-1),2)	-1.287707	0.353127	-3.646588	0.0082

R-squared	0.642800	Mean dependent var	0.026213
Adjusted R-squared	0.642800	S.D. dependent var	0.148190
S.E. of regression	0.088568	Akaike info criterion	-1.893633
Sum squared resid	0.054910	Schwarz criterion	-1.883703
Log likelihood	8.574531	Durbin-Watson stat	1.365394

Null Hypothesis: D(FDIN_O,2)* has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-7.607655	0.0000
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

*Foreign direct investment inflows of Oman measured as a ratio of GDP, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(FDIN_O,3)
Method: Least Squares
Sample (adjusted): 4 11
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FDIN_O(-1),2)	-2.162363	0.284235	-7.607655	0.0001

R-squared	0.889203	Mean dependent var	-1.062500
Adjusted R-squared	0.889203	S.D. dependent var	6.928809
S.E. of regression	2.306337	Akaike info criterion	4.625667
Sum squared resid	37.23434	Schwarz criterion	4.635597
Log likelihood	-17.50267	Durbin-Watson stat	1.712934

Null Hypothesis: D(FDOUT_O,2)* has a unit root
Exogenous: None
Lag Length: 1 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-6.304644	0.0001
Test critical values:	1% level	-2.937216	
	5% level	-2.006292	
	10% level	-1.598068	

*Foreign direct investments outflows of Oman measured as a ratio of GDP, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(FDOUT_O,3)
Method: Least Squares
Sample (adjusted): 5 11
Included observations: 7 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FDOUT_O(-1),2)	-3.938528	0.624703	-6.304644	0.0015
D(FDOUT_O(-1),3)	1.210196	0.364045	3.324299	0.0209

R-squared	0.937018	Mean dependent var	0.200000
Adjusted R-squared	0.924422	S.D. dependent var	1.462874
S.E. of regression	0.402166	Akaike info criterion	1.251055
Sum squared resid	0.808689	Schwarz criterion	1.235600
Log likelihood	-2.378691	Durbin-Watson stat	1.922768

Null Hypothesis: D(OILX_O,2)* has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-3.745863	0.0023
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

*Oil export of Oman measured by natural logarithmic, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(OILX_O,3)
Method: Least Squares
Sample (adjusted): 4 11
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(OILX_O(-1),2)	-1.370857	0.365966	-3.745863	0.0072

R-squared	0.666489	Mean dependent var	0.019350
Adjusted R-squared	0.666489	S.D. dependent var	0.458862
S.E. of regression	0.264994	Akaike info criterion	0.298252
Sum squared resid	0.491554	Schwarz criterion	0.308183
Log likelihood	-0.193009	Durbin-Watson stat	1.345109

Null Hypothesis: D(NOILX_O,2)* has a unit root
Exogenous: None
Lag Length: 1 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-4.564688	0.0009
Test critical values:	1% level	-2.937216	
	5% level	-2.006292	
	10% level	-1.598068	

* Non-oil export of Oman measured by natural logarithmic, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(NOILX_O,3)
Method: Least Squares
Sample (adjusted): 5 11
Included observations: 7 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(NOILX_O(-1),2)	-3.195304	0.700005	-4.564688	0.0060
D(NOILX_O(-1),3)	0.901278	0.385498	2.337959	0.0665

R-squared	0.916476	Mean dependent var	-0.242256
Adjusted R-squared	0.899771	S.D. dependent var	5.865151
S.E. of regression	1.856845	Akaike info criterion	4.310591
Sum squared resid	17.23937	Schwarz criterion	4.295137
Log likelihood	-13.08707	Durbin-Watson stat	2.099897

Null Hypothesis: D(M_O,2)* has a unit root
Exogenous: None
Lag Length: 1 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-4.104395	0.0016
Test critical values:	1% level	-2.937216	
	5% level	-2.006292	
	10% level	-1.598068	

*Commodity imports of Oman measured by natural logarithmic, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(M_O,3)
Method: Least Squares
Sample (adjusted): 5 11
Included observations: 7 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(M_O(-1),2)	-2.283478	0.556350	-4.104395	0.0093
D(M_O(-1),3)	0.478667	0.276237	1.732813	0.1437

R-squared	0.877522	Mean dependent var	-0.059774
Adjusted R-squared	0.853027	S.D. dependent var	0.305449
S.E. of regression	0.117100	Akaike info criterion	-1.216615
Sum squared resid	0.068562	Schwarz criterion	-1.232070
Log likelihood	6.258154	Durbin-Watson stat	2.227344

Null Hypothesis: D(FDIN_Q,2)* has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-3.718253	0.0024
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

*Foreign direct investment inflows to Qatar measured as a ratio of GDP, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(FDIN_Q,3)
Method: Least Squares
Sample (adjusted): 4 11
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FDIN_Q(-1),2)	-1.369576	0.368339	-3.718253	0.0075

R-squared	0.636585	Mean dependent var	-0.737500
Adjusted R-squared	0.636585	S.D. dependent var	2.767122
S.E. of regression	1.668130	Akaike info criterion	3.977753
Sum squared resid	19.47862	Schwarz criterion	3.987683
Log likelihood	-14.91101	Durbin-Watson stat	1.607765

Null Hypothesis: D(FDIOUT_Q,2)* has a unit root
Exogenous: None
Lag Length: 1 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-10.53327	0.0001
Test critical values:	1% level	-2.937216	
	5% level	-2.006292	
	10% level	-1.598068	

*Foreign direct investments outflows of Qatar measured as a ratio of GDP, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(FDIOUT_Q,3)
Method: Least Squares
Sample (adjusted): 5 11
Included observations: 7 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FDIOUT_Q(-1),2)	-6.183389	0.587034	-10.53327	0.0001
D(FDIOUT_Q(-1),3)	4.113870	0.565942	7.269069	0.0008

R-squared	0.982019	Mean dependent var	-1.157143
Adjusted R-squared	0.978423	S.D. dependent var	7.139761
S.E. of regression	1.048766	Akaike info criterion	3.168063
Sum squared resid	5.499555	Schwarz criterion	3.152608
Log likelihood	-9.088219	Durbin-Watson stat	1.195398

Null Hypothesis: D(OILX_Q,2)* has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-3.610073	0.0029
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

*Oil export of Qatar measured by natural logarithmic, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(OILX_Q,3)
Method: Least Squares
Sample (adjusted): 4 11
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(OILX_Q(-1),2)	-1.353308	0.374870	-3.610073	0.0086

R-squared	0.649549	Mean dependent var	0.025387
Adjusted R-squared	0.649549	S.D. dependent var	0.502081
S.E. of regression	0.297227	Akaike info criterion	0.527825
Sum squared resid	0.618406	Schwarz criterion	0.537756
Log likelihood	-1.111301	Durbin-Watson stat	1.267154

Null Hypothesis: D(NOILX_Q,2)* has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-5.629914	0.0002
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

*Non-oil export of Qatar measured by natural logarithmic, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(NOILX_Q,3)
Method: Least Squares
Sample (adjusted): 4 11
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(NOILX_Q(-1),2)	-1.257288	0.223323	-5.629914	0.0008

R-squared	0.813405	Mean dependent var	-0.342269
Adjusted R-squared	0.813405	S.D. dependent var	2.061697
S.E. of regression	0.890585	Akaike info criterion	2.722592
Sum squared resid	5.551990	Schwarz criterion	2.732522
Log likelihood	-9.890368	Durbin-Watson stat	2.063890

Null Hypothesis: D(M_Q,2)* has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-5.963960	0.0001
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

*Commodity imports of Qatar measured by natural logarithmic, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(M_Q,3)
Method: Least Squares
Sample (adjusted): 4 11
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(M_Q(-1),2)	-1.659206	0.278205	-5.963960	0.0006

R-squared	0.832013	Mean dependent var	0.073217
Adjusted R-squared	0.832013	S.D. dependent var	0.532934
S.E. of regression	0.218429	Akaike info criterion	-0.088241
Sum squared resid	0.333979	Schwarz criterion	-0.078311
Log likelihood	1.352966	Durbin-Watson stat	1.344380

Null Hypothesis: D(FDIN_K,2)* has a unit root
Exogenous: None
Lag Length: 1 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-5.040317	0.0004
Test critical values:	1% level	-2.937216	
	5% level	-2.006292	
	10% level	-1.598068	

*Foreign direct investment inflows of Kuwait measured as a ratio of GDP, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(FDIN_K,3)
Method: Least Squares
Sample (adjusted): 5 11
Included observations: 7 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FDIN_K(-1),2)	-2.615385	0.518893	-5.040317	0.0040
D(FDIN_K(-1),3)	0.547814	0.283921	1.929457	0.1116

R-squared	0.932030	Mean dependent var	0.057143
Adjusted R-squared	0.918436	S.D. dependent var	1.035788
S.E. of regression	0.295814	Akaike info criterion	0.636788
Sum squared resid	0.437531	Schwarz criterion	0.621333
Log likelihood	-0.228757	Durbin-Watson stat	0.243479

Null Hypothesis: D(FDOUT_K)* has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-6.315806	0.0001
Test critical values:	1% level	-2.847250	
	5% level	-1.988198	
	10% level	-1.600140	

*Foreign direct investment outflows of Kuwait measured as a ratio of GDP, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(FDOUT_K,2)
Method: Least Squares
Sample (adjusted): 3 11
Included observations: 9 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FDOUT_K(-1))	-1.413587	0.223817	-6.315806	0.0002

R-squared	0.829722	Mean dependent var	0.477778
Adjusted R-squared	0.829722	S.D. dependent var	3.646155
S.E. of regression	1.504579	Akaike info criterion	3.759342
Sum squared resid	18.11006	Schwarz criterion	3.781256
Log likelihood	-15.91704	Durbin-Watson stat	1.935824

Null Hypothesis: D(OILX_K,2)* has a unit root
Exogenous: None
Lag Length: 1 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-4.827834	0.0006
Test critical values:	1% level	-2.937216	
	5% level	-2.006292	
	10% level	-1.598068	

*Oil export of Kuwait measured by natural Logarithmic, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(OILX_K,3)
Method: Least Squares
Sample (adjusted): 5 11
Included observations: 7 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(OILX_K(-1),2)	-2.397120	0.496521	-4.827834	0.0048
D(OILX_K(-1),3)	0.571336	0.280246	2.038695	0.0970

R-squared	0.897706	Mean dependent var	0.149929
Adjusted R-squared	0.877247	S.D. dependent var	0.786270
S.E. of regression	0.275479	Akaike info criterion	0.494343
Sum squared resid	0.379443	Schwarz criterion	0.478889
Log likelihood	0.269798	Durbin-Watson stat	2.010269

Null Hypothesis: D(NOILX_K,2)* has a unit root
Exogenous: None
Lag Length: 1 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-4.378742	0.0011
Test critical values:	1% level	-2.937216	
	5% level	-2.006292	
	10% level	-1.598068	

*Non-oil export of Kuwait measured by natural logarithmic, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(NOILX_K,3)
Method: Least Squares
Sample (adjusted): 5 11
Included observations: 7 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(NOILX_K(-1),2)	-2.995715	0.684150	-4.378742	0.0072
D(NOILX_K(-1),3)	0.831133	0.357708	2.323495	0.0678

R-squared	0.893587	Mean dependent var	-0.631974
Adjusted R-squared	0.872304	S.D. dependent var	3.242067
S.E. of regression	1.158538	Akaike info criterion	3.367152
Sum squared resid	6.711056	Schwarz criterion	3.351698
Log likelihood	-9.785031	Durbin-Watson stat	2.326389

Null Hypothesis: D(M_K,2)* has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-4.333904	0.0009
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

*Commodity imports of Kuwait measured by natural logarithmic, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(M_K,3)
Method: Least Squares
Sample (adjusted): 4 11
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(M_K(-1),2)	-1.839775	0.424508	-4.333904	0.0034

R-squared	0.708580	Mean dependent var	0.069125
Adjusted R-squared	0.708580	S.D. dependent var	0.272818
S.E. of regression	0.147276	Akaike info criterion	-0.876549
Sum squared resid	0.151831	Schwarz criterion	-0.866619
Log likelihood	4.506195	Durbin-Watson stat	1.678447

B.3 Data of Model (3)

Null Hypothesis: D(LOGAIR_U)* has a unit root
Exogenous: None
Lag Length: 1 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-4.385383	0.0008
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

*Air pollution in United Arab Emirates measured by natural logarithmic of carbon dioxide emissions, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGAIR_U,2)
Method: Least Squares
Sample (adjusted): 4 11
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGAIR_U(-1))	-1.926968	0.439407	-4.385383	0.0046
D(LOGAIR_U(-1),2)	0.530557	0.262888	2.018190	0.0901

R-squared	0.810545	Mean dependent var	-0.042139
Adjusted R-squared	0.778969	S.D. dependent var	0.290293
S.E. of regression	0.136478	Akaike info criterion	-0.932985
Sum squared resid	0.111758	Schwarz criterion	-0.913125
Log likelihood	5.731940	Durbin-Watson stat	1.131820

Null Hypothesis: D(LOGAIR_B,2)* has a unit root
Exogenous: None
Lag Length: 1 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-5.278988	0.0003
Test critical values:	1% level	-2.937216	
	5% level	-2.006292	
	10% level	-1.598068	

* Air pollution in Bahrain measured by natural logarithmic of carbon dioxide emissions, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGAIR_B,3)
Method: Least Squares
Sample (adjusted): 5 11
Included observations: 7 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGAIR_B(-1),2)	-2.253611	0.426902	-5.278988	0.0032
D(LOGAIR_B(-1),3)	0.399634	0.228954	1.745480	0.1413

R-squared	0.947244	Mean dependent var	0.044921
Adjusted R-squared	0.936692	S.D. dependent var	0.353146
S.E. of regression	0.088855	Akaike info criterion	-1.768664
Sum squared resid	0.039476	Schwarz criterion	-1.784119
Log likelihood	8.190325	Durbin-Watson stat	0.287151

Null Hypothesis: D(LOGAIR_K)* has a unit root
Exogenous: None
Lag Length: 1 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-7.279846	0.0000
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

* Air pollution in Saudi Arabia measured by natural logarithmic of carbon dioxide emissions, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGAIR_K,2)
Method: Least Squares
Sample (adjusted): 4 11
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGAIR_K(-1))	-0.880988	0.121017	-7.279846	0.0003
D(LOGAIR_K(-1),2)	-0.272985	0.089599	-3.046746	0.0226

R-squared	0.960513	Mean dependent var	-0.032692
Adjusted R-squared	0.953932	S.D. dependent var	0.113984
S.E. of regression	0.024465	Akaike info criterion	-4.370839
Sum squared resid	0.003591	Schwarz criterion	-4.350978
Log likelihood	19.48335	Durbin-Watson stat	0.967271

Null Hypothesis: D(LOGAIR_O,2)* has a unit root
Exogenous: None
Lag Length: 1 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-10.32651	0.0001
Test critical values:	1% level	-2.937216	
	5% level	-2.006292	
	10% level	-1.598068	

* Air pollution in Oman measured by natural logarithmic of carbon dioxide emissions, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGAIR_O,3)
Method: Least Squares
Sample (adjusted): 5 11
Included observations: 7 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGAIR_O(-1),2)	-2.535313	0.245515	-10.32651	0.0001
D(LOGAIR_O(-1),3)	0.891885	0.158906	5.612667	0.0025

R-squared	0.961145	Mean dependent var	0.036751
Adjusted R-squared	0.953375	S.D. dependent var	0.333402
S.E. of regression	0.071991	Akaike info criterion	-2.189587
Sum squared resid	0.025914	Schwarz criterion	-2.205042
Log likelihood	9.663555	Durbin-Watson stat	0.795161

Null Hypothesis: D(LOGAIR_Q,2)* has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-5.084626	0.0003
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

* Air pollution in Qatar measured by natural logarithmic of carbon dioxide emissions, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGAIR_Q,3)
Method: Least Squares
Sample (adjusted): 4 11
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGAIR_Q(-1),2)	-1.584759	0.311677	-5.084626	0.0014

R-squared	0.785716	Mean dependent var	-0.036442
Adjusted R-squared	0.785716	S.D. dependent var	0.515538
S.E. of regression	0.238647	Akaike info criterion	0.088805
Sum squared resid	0.398666	Schwarz criterion	0.098735
Log likelihood	0.644781	Durbin-Watson stat	1.993324

Null Hypothesis: D(logair_KW,2)* has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-3.092915	0.0069
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

* Air pollution in Kuwait measured by natural logarithmic of carbon dioxide emissions, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(V6_A,3)
Method: Least Squares
Sample (adjusted): 4 11
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(V6_A(-1),2)	-1.157568	0.374264	-3.092915	0.0175

R-squared	0.577442	Mean dependent var	0.000661
Adjusted R-squared	0.577442	S.D. dependent var	0.156033
S.E. of regression	0.101428	Akaike info criterion	-1.622462
Sum squared resid	0.072014	Schwarz criterion	-1.612532
Log likelihood	7.489850	Durbin-Watson stat	1.778518

Null Hypothesis: D(M_UAE,2)* has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-4.536155	0.0007
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

*Commodity imports of the United Arab Emirates measured as a ratio
of total commodity foreign trade, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(M_UAE,3)
Method: Least Squares
Sample (adjusted): 4 11
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(M_UAE(-1),2)	-1.416153	0.312192	-4.536155	0.0027

R-squared	0.742406	Mean dependent var	2.087500
Adjusted R-squared	0.742406	S.D. dependent var	18.34522
S.E. of regression	9.310875	Akaike info criterion	7.416712
Sum squared resid	606.8467	Schwarz criterion	7.426642
Log likelihood	-28.66685	Durbin-Watson stat	0.500103

Null Hypothesis: D(FDIN_UAE,2)* has a unit root
Exogenous: None
Lag Length: 1 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-3.780463	0.0026
Test critical values:	1% level	-2.937216	
	5% level	-2.006292	
	10% level	-1.598068	

*Foreign direct investment of the United Arab Emirates, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(FDIN_UAE,3)
Method: Least Squares
Sample (adjusted): 5 11
Included observations: 7 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FDIN_UAE(-1),2)	-2.095621	0.554329	-3.780463	0.0129
D(FDIN_UAE(-1),3)	0.509078	0.328348	1.550421	0.1817

R-squared	0.799845	Mean dependent var	-0.400000
Adjusted R-squared	0.759814	S.D. dependent var	5.454662
S.E. of regression	2.673261	Akaike info criterion	5.039432
Sum squared resid	35.73162	Schwarz criterion	5.023977
Log likelihood	-15.63801	Durbin-Watson stat	1.552396

Null Hypothesis: D(M_BH)* has a unit root
Exogenous: None
Lag Length: 1 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-5.375612	0.0002
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

*Commodity imports of Bahrain measured as a ratio of total commodity foreign trade, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(M_BH,2)
Method: Least Squares
Sample (adjusted): 4 11
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(M_BH(-1))	-2.200608	0.409369	-5.375612	0.0017
D(M_BH(-1),2)	0.471509	0.204106	2.310119	0.0603

R-squared	0.860101	Mean dependent var	-0.237500
Adjusted R-squared	0.836784	S.D. dependent var	8.355826
S.E. of regression	3.375750	Akaike info criterion	5.483430
Sum squared resid	68.37414	Schwarz criterion	5.503291
Log likelihood	-19.93372	Durbin-Watson stat	0.852533

Null Hypothesis: D(FDIN_BH)* has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-5.096277	0.0002
Test critical values:	1% level	-2.847250	
	5% level	-1.988198	
	10% level	-1.600140	

*Foreign direct investment inflows to Bahrain, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(FDIN_BH,2)
Method: Least Squares
Sample (adjusted): 3 11
Included observations: 9 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FDIN_BH(-1))	-1.338717	0.262685	-5.096277	0.0009

R-squared	0.760816	Mean dependent var	22.21111
Adjusted R-squared	0.760816	S.D. dependent var	188.0310
S.E. of regression	91.95933	Akaike info criterion	11.98501
Sum squared resid	67652.14	Schwarz criterion	12.00692
Log likelihood	-52.93254	Durbin-Watson stat	2.475692

Null Hypothesis: D(M_KSA,2)* has a unit root
Exogenous: None
Lag Length: 1 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-5.117757	0.0004
Test critical values:	1% level	-2.937216	
	5% level	-2.006292	
	10% level	-1.598068	

*Commodity imports of Saudi Arabia measured as a ratio of total commodity foreign trade, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(M_KSA,3)
Method: Least Squares
Sample (adjusted): 5 11
Included observations: 7 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(M_KSA(-1),2)	-1.621462	0.316830	-5.117757	0.0037
D(M_KSA(-1),3)	0.291803	0.175045	1.667019	0.1564

R-squared	0.906707	Mean dependent var	-0.785714
Adjusted R-squared	0.888048	S.D. dependent var	2.870208
S.E. of regression	0.960348	Akaike info criterion	2.991915
Sum squared resid	4.611344	Schwarz criterion	2.976461
Log likelihood	-8.471702	Durbin-Watson stat	0.968733

Null Hypothesis: D(FDIN_KSA,2)* has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-3.883503	0.0019
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

*Foreign direct investment inflows to Saudi Arabia, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(FDIN_KSA,3)
Method: Least Squares
Sample (adjusted): 4 11
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FDIN_KSA(-1),2)	-1.402634	0.361178	-3.883503	0.0060

R-squared	0.681694	Mean dependent var	0.125000
Adjusted R-squared	0.681694	S.D. dependent var	2.087206
S.E. of regression	1.177572	Akaike info criterion	3.281255
Sum squared resid	9.706726	Schwarz criterion	3.291185
Log likelihood	-12.12502	Durbin-Watson stat	2.180891

Null Hypothesis: D(M_O,2)* has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-6.859638	0.0001
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

*Commodity imports of Oman measured as a ratio of total commodity foreign trade, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(M_O,3)
Method: Least Squares
Sample (adjusted): 4 11
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(M_O(-1),2)	-1.596346	0.232716	-6.859638	0.0002

R-squared	0.870093	Mean dependent var	0.787500
Adjusted R-squared	0.870093	S.D. dependent var	14.99147
S.E. of regression	5.403316	Akaike info criterion	6.328372
Sum squared resid	204.3708	Schwarz criterion	6.338302
Log likelihood	-24.31349	Durbin-Watson stat	1.670025

Null Hypothesis: D(FDIN_O,2)* has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-7.404200	0.0000
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

*Foreign direct investment inflows to Oman, 1998-2008. .

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(FDIN_O,3)
Method: Least Squares
Sample (adjusted): 4 11
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FDIN_O(-1),2)	-2.064516	0.278830	-7.404200	0.0001

R-squared	0.884148	Mean dependent var	-1.125000
Adjusted R-squared	0.884148	S.D. dependent var	7.900045
S.E. of regression	2.688943	Akaike info criterion	4.932642
Sum squared resid	50.61290	Schwarz criterion	4.942572
Log likelihood	-18.73057	Durbin-Watson stat	2.038159

Null Hypothesis: D(M_Q,2)* has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-5.036181	0.0003
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

*Commodity imports of Qatar measured as a ratio of total commodity foreign trade, 1998-2008..

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(M_Q,3)
Method: Least Squares
Sample (adjusted): 4 11
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(M_Q(-1),2)	-1.499952	0.297835	-5.036181	0.0015

R-squared	0.781538	Mean dependent var	1.212500
Adjusted R-squared	0.781538	S.D. dependent var	12.95326
S.E. of regression	6.054337	Akaike info criterion	6.555896
Sum squared resid	256.5850	Schwarz criterion	6.565826
Log likelihood	-25.22358	Durbin-Watson stat	0.921221

Null Hypothesis: D(FDIN_Q,2)* has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-3.718253	0.0024
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

*Foreign direct investment inflows to Qatar, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(FDIN_Q,3)
Method: Least Squares
Sample (adjusted): 4 11
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FDIN_Q(-1),2)	-1.369576	0.368339	-3.718253	0.0075

R-squared	0.636585	Mean dependent var	-0.737500
Adjusted R-squared	0.636585	S.D. dependent var	2.767122
S.E. of regression	1.668130	Akaike info criterion	3.977753
Sum squared resid	19.47862	Schwarz criterion	3.987683
Log likelihood	-14.91101	Durbin-Watson stat	1.607765

Null Hypothesis: D(M_KW,2)* has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-5.509002	0.0002
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

*Commodity imports of Kuwait measured as a ratio of total commodity foreign trade, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(M_KW,3)
Method: Least Squares
Sample (adjusted): 4 11
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(M_KW(-1),2)	-1.554942	0.282255	-5.509002	0.0009

R-squared	0.807372	Mean dependent var	1.137500
Adjusted R-squared	0.807372	S.D. dependent var	7.295192
S.E. of regression	3.201820	Akaike info criterion	5.281784
Sum squared resid	71.76156	Schwarz criterion	5.291715
Log likelihood	-20.12714	Durbin-Watson stat	0.989683

Null Hypothesis: D(FDIN_KW,2)* has a unit root
Exogenous: None
Lag Length: 1 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.
Augmented Dickey-Fuller test statistic		-5.040317	0.0004
Test critical values:	1% level	-2.937216	
	5% level	-2.006292	
	10% level	-1.598068	

*Foreign direct investment inflows to Kuwait, 1998-2008.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(FDIN_KW,3)
Method: Least Squares
Sample (adjusted): 5 11
Included observations: 7 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FDIN_KW(-1),2)	-2.615385	0.518893	-5.040317	0.0040
D(FDIN_KW(-1),3)	0.547814	0.283921	1.929457	0.1116

R-squared	0.932030	Mean dependent var	0.057143
Adjusted R-squared	0.918436	S.D. dependent var	1.035788
S.E. of regression	0.295814	Akaike info criterion	0.636788
Sum squared resid	0.437531	Schwarz criterion	0.621333
Log likelihood	-0.228757	Durbin-Watson stat	0.243479

Null Hypothesis: D(Hth.UAE,2) has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.147116	0.0380
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 8

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(Hth.UAE,3)
Method: Least Squares
Date: 01/26/14 Time: 21:08
Sample (adjusted): 2001 2008
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(UAE(-1),2)	-0.860416	0.400731	-2.147116	0.0689

R-squared	0.370065	Mean dependent var	6.125000
Adjusted R-squared	0.370065	S.D. dependent var	30.93513
S.E. of regression	24.55274	Akaike info criterion	9.355992
Sum squared resid	4219.858	Schwarz criterion	9.365922
Log likelihood	-36.42397	Hannan-Quinn criter.	9.289017
Durbin-Watson stat	1.285504		

Null Hypothesis: D(Hth. Bahrain,2) has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.258739	0.0010
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations and may not be accurate for a sample size of 8

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(Hth. Bahrain,3)
Method: Least Squares
Date: 01/26/14 Time: 21:11
Sample (adjusted): 2001 2008
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(SER01(-1),2)	-1.381694	0.324437	-4.258739	0.0038

R-squared	0.710267	Mean dependent var	14.87500
Adjusted R-squared	0.710267	S.D. dependent var	79.09025
S.E. of regression	42.57180	Akaike info criterion	10.45673
Sum squared resid	12686.51	Schwarz criterion	10.46666
Log likelihood	-40.82692	Hannan-Quinn criter.	10.38975
Durbin-Watson stat	0.660547		

Null Hypothesis: D(Hth.KSA,2) has a unit root
Exogenous: None
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.579204	0.0173
Test critical values:	1% level	-2.886101	
	5% level	-1.995865	
	10% level	-1.599088	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations and may not be accurate for a sample size of 8

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(Hth.KSA,3)
Method: Least Squares
Date: 01/26/14 Time: 21:12
Sample (adjusted): 2001 2008
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(KSA(-1),2)	-0.974531	0.377842	-2.579204	0.0365

R-squared	0.487266	Mean dependent var	3.26E-16
Adjusted R-squared	0.487266	S.D. dependent var	0.506867
S.E. of regression	0.362945	Akaike info criterion	0.927336
Sum squared resid	0.922101	Schwarz criterion	0.937266
Log likelihood	-2.709342	Hannan-Quinn criter.	0.860360
Durbin-Watson stat	1.318916		

Null Hypothesis: D(Hth.OMAN,2) has a unit root
Exogenous: None
Lag Length: 1 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.996508	0.0090
Test critical values:	1% level	-2.937216	
	5% level	-2.006292	
	10% level	-1.598068	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 7

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(Hth.OMAN,3)
Method: Least Squares
Date: 01/26/14 Time: 21:14
Sample (adjusted): 2002 2008
Included observations: 7 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(OMAN(-1),2)	-1.756431	0.586159	-2.996508	0.0302
D(OMAN(-1),3)	0.549370	0.410929	1.336898	0.2389

R-squared	0.643082	Mean dependent var	-0.142857
Adjusted R-squared	0.571698	S.D. dependent var	0.417880
S.E. of regression	0.273481	Akaike info criterion	0.479785
Sum squared resid	0.373958	Schwarz criterion	0.464331
Log likelihood	0.320752	Hannan-Quinn criter.	0.288773
Durbin-Watson stat	2.151903		

Null Hypothesis: D(hth.QATAR,2) has a unit root
Exogenous: Constant
Bandwidth: 0 (Newey-West using Bartlett kernel)

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-4.272009	0.0147
Test critical values:	1% level	-4.582648	
	5% level	-3.320969	
	10% level	-2.801384	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 8

Residual variance (no correction)	0.612211
HAC corrected variance (Bartlett kernel)	0.612211

Phillips-Perron Test Equation
Dependent Variable: D(hth.QATAR,3)
Method: Least Squares
Date: 01/26/14 Time: 21:16
Sample (adjusted): 2001 2008
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(QATAR(-1),2)	-1.504002	0.352060	-4.272009	0.0053
C	0.046970	0.319539	0.146993	0.8880

R-squared	0.752578	Mean dependent var	0.011250
Adjusted R-squared	0.711341	S.D. dependent var	1.681619
S.E. of regression	0.903483	Akaike info criterion	2.847199
Sum squared resid	4.897691	Schwarz criterion	2.867060
Log likelihood	-9.388798	Hannan-Quinn criter.	2.713249
F-statistic	18.25006	Durbin-Watson stat	1.704414
Prob(F-statistic)	0.005251		

Null Hypothesis: D(Hth. KUWAIT,2) has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.451633	0.0020
Test critical values:	1% level	-4.803492	
	5% level	-3.403313	
	10% level	-2.841819	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 7

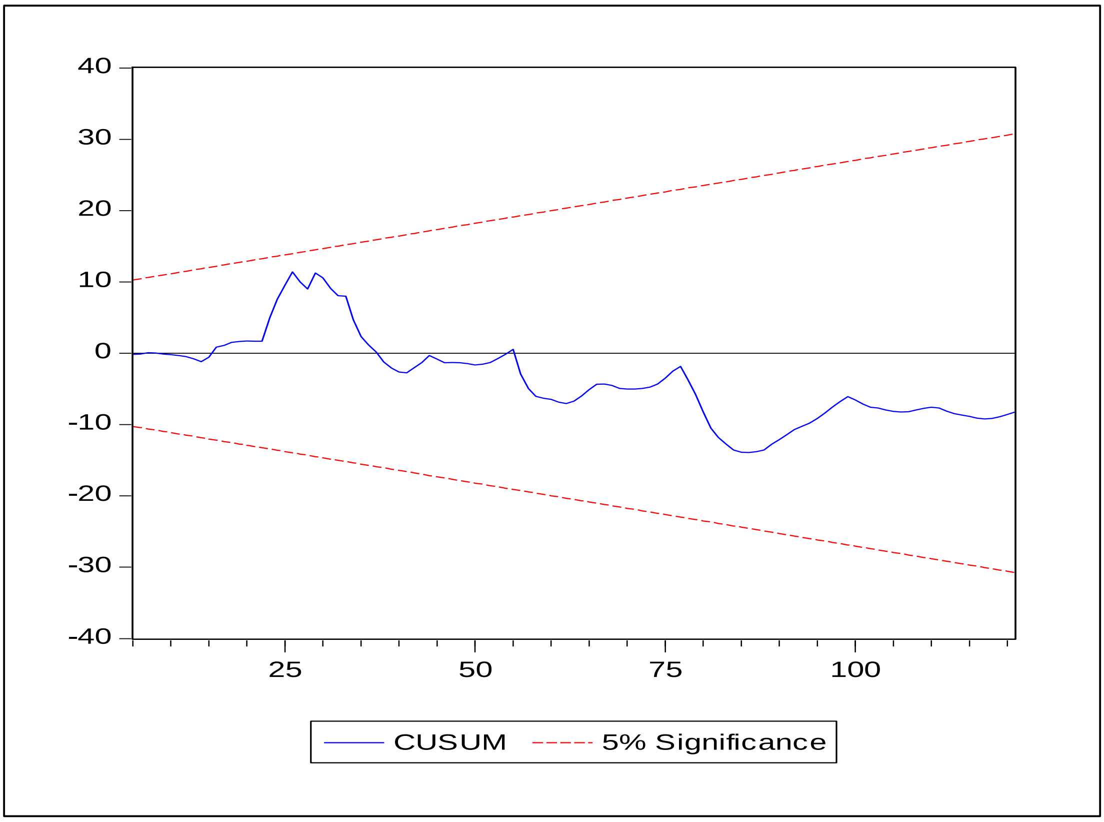
Augmented Dickey-Fuller Test Equation
Dependent Variable: D(hth.KUWAIT,3)
Method: Least Squares
Date: 01/26/14 Time: 21:17
Sample (adjusted): 2002 2008
Included observations: 7 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(KUWAIT(-1),2)	-1.606841	0.249060	-6.451633	0.0030
D(KUWAIT(-1),3)	0.199585	0.143295	1.392828	0.2361
C	-0.108388	0.126313	-0.858096	0.4392

R-squared	0.963847	Mean dependent var	-0.335714
Adjusted R-squared	0.945771	S.D. dependent var	1.393268
S.E. of regression	0.324453	Akaike info criterion	0.884175
Sum squared resid	0.421079	Schwarz criterion	0.860993
Log likelihood	-0.094612	Hannan-Quinn criter.	0.597657
F-statistic	53.32061	Durbin-Watson stat	0.859065
Prob(F-statistic)	0.001307		

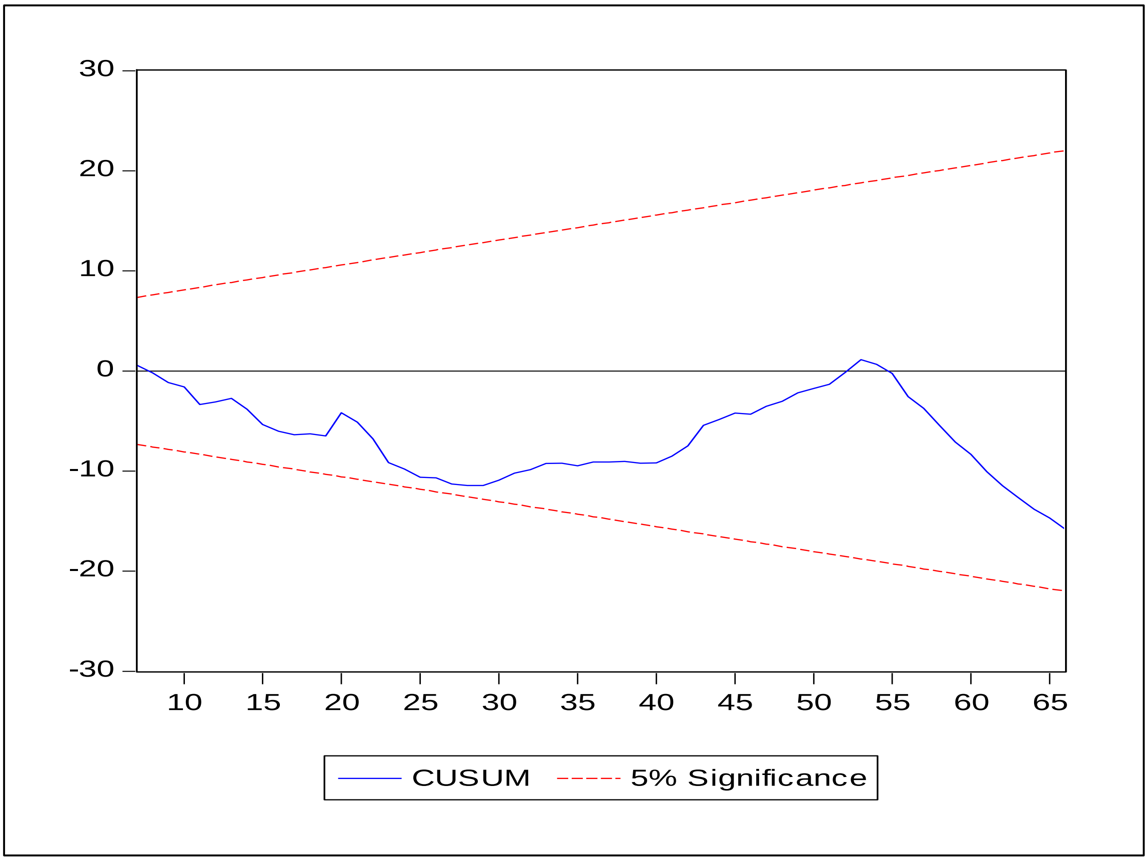
Appendix (C)
Stability test for models of Study

a. Stability Test for Model (1)



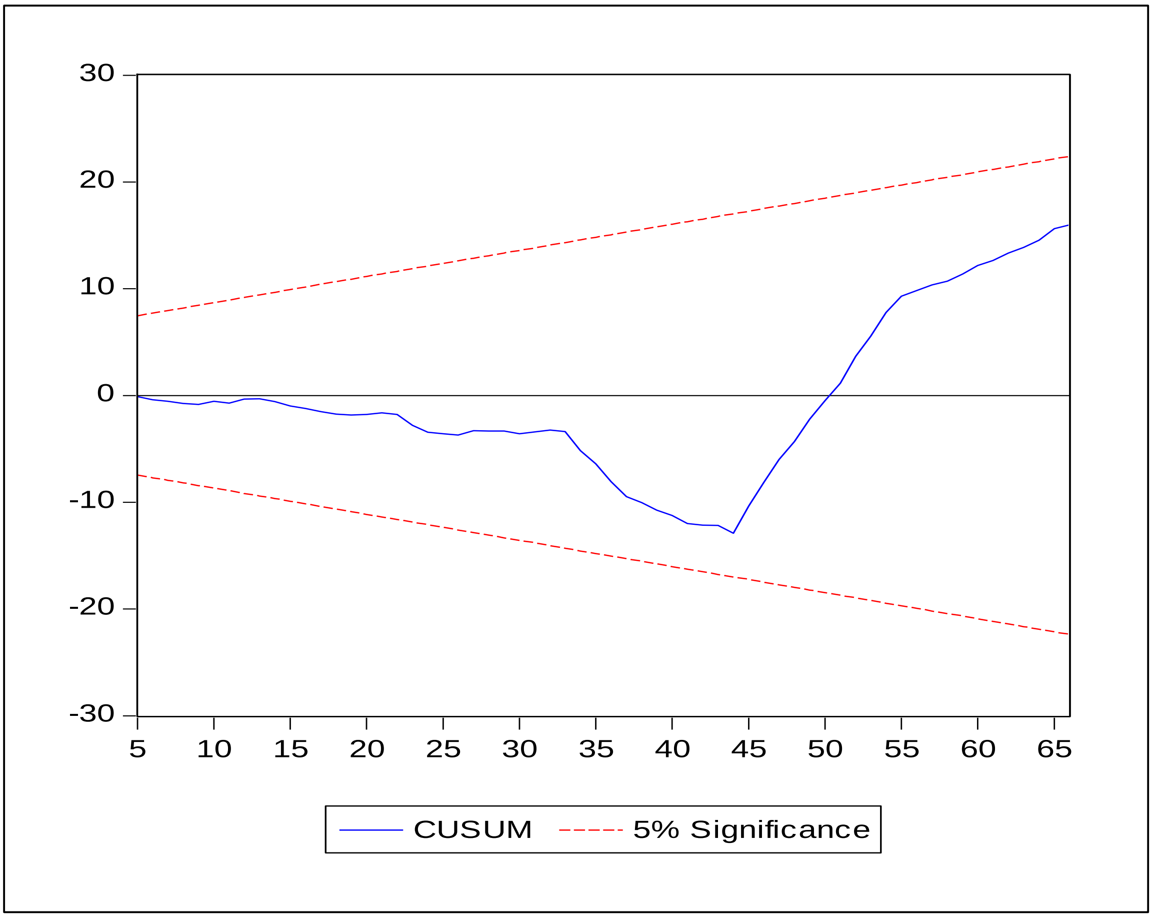
Source: By the author based on Eviews software.

B. Stability Test for Model (2):



Source: By the author based on Eviews software.

C. Stability Test for Model (3):



Source: By the author based on Eviews software.

Appendix (D)
Hausman Test Results for the Models of study

Model (1)

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	22	1.0000

* Cross-section test variance is invalid. Hausman statistic set to zero.

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
GDP_{UAE}	7.466741	10.236786	60.978323	0.7228
$Cost\_{UAE}$	-0.441031	-8.320541	496.893574	0.7237
$GDP\_{Bahrain}$	50.199639	8.578679	89.038199	0.0000
$Cost\_{Bahrain}$	-119.629073	-6.596203	660.081627	0.0000
GDP_{Oman}	9.497884	13.142599	14.957712	0.3460
$Cost\_{Oman}$	-1.411791	-8.803081	65.824920	0.3623
GDP_{Qatar}	6.405340	5.438147	3.059752	0.5803
$Cost\_{Qatar}$	-10.543208	-5.376274	90.306574	0.5866
GDP_{Kuwait}	0.765770	5.085126	7.613841	0.1175
$Cost\_{Kuwait}$	9.777911	-5.111425	93.890359	0.1244
$GDP\_{Malaysia}$	-6.865296	11.209807	215.909896	0.2187
$Cost\_{Malaysia}$	38.109773	-6.899065	1341.993500	0.2192
GDP_{Turkey}	6.346371	8.697775	7.522064	0.3913
$Cost\_{Turkey}$	-1.280353	-7.092110	50.410596	0.4130
GDP_{Iran}	50.657119	17.439140	104.306385	0.0011
$Cost\_{Iran}$	-97.547514	-12.275169	690.872490	0.0012
GDP_{UK}	99.609953	13.365367	8736.023436	0.2268
$Cost\_{UK}$	6.204960	-7.117470	-1.625091	NA
$GDP\_{AUS.}$	69.679833	26.662116	2640.444154	0.4025
$Cost\_{AUS.}$	-12.911390	-13.062691	-2.091546	NA
GDP_{Brazil}	53.922353	22.757697	3911.262384	0.2202
$Cost\_{Brazil}$	11.896238	-11.155457	-1.704816	NA

Cross-section random effects test equation:
Dependent Variable: TRADE
Method: Panel Least Squares
Date: 01/26/14 Time: 10:51
Sample: 1998 2008
Periods included: 11
Cross-sections included: 11
Total panel (balanced) observations: 121

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.435006	79.64986	-0.030571	0.9757
GDP_{UAE}	7.466741	8.171154	0.913793	0.3633
$Cost\_{UAE}$	-0.441031	22.96767	-0.019202	0.9847
$GDP\_{Bahrain}$	50.19964	9.783942	5.130819	0.0000
$Cost\_{Bahrain}$	-119.6291	26.33734	-4.542185	0.0000
GDP_{Oman}	9.497884	5.219927	1.819544	0.0722
$Cost\_{Oman}$	-1.411791	9.815462	-0.143833	0.8860
GDP_{Qatar}	6.405340	2.112019	3.032805	0.0032
$Cost\_{Qatar}$	-10.54321	10.78989	-0.977137	0.3312
GDP_{Kuwait}	0.765770	3.383559	0.226321	0.8215
$Cost\_{Kuwait}$	9.777911	11.11652	0.879584	0.3815
$GDP\_{Malaysia}$	-6.865296	14.86667	-0.461791	0.6454
$Cost\_{Malaysia}$	38.10977	36.86054	1.033891	0.3040
GDP_{Turkey}	6.346371	3.920081	1.618939	0.1090
$Cost\_{Turkey}$	-1.280353	8.810066	-0.145328	0.8848
GDP_{Iran}	50.65712	10.52187	4.814460	0.0000
$Cost\_{Iran}$	-97.54751	26.77174	-3.643675	0.0005
GDP_{UK}	99.60995	93.75592	1.062439	0.2909
$Cost\_{UK}$	-6.204960	2.928505	-2.118815	0.0369
$GDP\_{AUS.}$	69.67983	52.02630	1.339319	0.1839
$Cost\_{AUS.}$	-12.91139	2.788905	-4.629554	0.0000
GDP_{Brazil}	53.92235	63.03932	0.855377	0.3947
$Cost\_{Brazil}$	11.89624	2.813752	4.227891	0.0001

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.950422	Mean dependent var	7.153235
Adjusted R-squared	0.932393	S.D. dependent var	1.052130
S.E. of regression	0.273567	Akaike info criterion	0.472461
Sum squared resid	6.585825	Schwarz criterion	1.234949
Log likelihood	4.416132	Hannan-Quinn criter.	0.782136
F-statistic	52.71797	Durbin-Watson stat	2.193479
Prob(F-statistic)	0.000000		

Model (2):

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	1.593670	30	1.0000

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
$OILX\_{UAE}$	0.955224	0.959872	0.031171	0.9790
$OILX\_{Qatar}$	0.095918	0.092406	0.000058	0.6442
$OILX\_{Oman}$	0.056875	0.057347	0.000065	0.9532
$OILX\_{Kuwait}$	0.070940	0.063231	0.000118	0.4785
$OILX\_{KSA}$	0.046544	0.047337	0.000102	0.9373
$OILX\_{Bahrain}$	0.066557	0.069104	0.000139	0.8287
$NOILX\_{UAE}$	0.040920	0.041077	0.000085	0.9863
$NOILX\_{Qatar}$	0.005221	0.006056	0.000008	0.7656
$NOILX\_{Oman}$	0.006750	0.005915	0.000014	0.8225
$NOILX\_{Kuwait}$	0.007561	0.006404	0.000010	0.7146
$NOILX\_{KSA}$	-0.002175	-0.001568	0.000013	0.8674
$NOILX\_{Bahrain}$	0.027598	0.030819	0.000197	0.8186
M_{UAE}	-0.034243	-0.034063	0.000202	0.9899
M_{Qatar}	0.114241	0.107744	0.000091	0.4962
M_{Oman}	0.101002	0.115031	0.002439	0.7764
M_{Kuwait}	0.089530	0.114984	0.000688	0.3319
M_{KSA}	0.172533	0.198016	0.019087	0.8537
$M\_{Bahrain}$	0.069015	0.057785	0.001778	0.7900
$FDOUT\_{UAE}$	0.002762	0.002630	0.000025	0.9790
$FDOUT\_{Qatar}$	0.005585	0.006964	0.000003	0.4356
$FDOUT\_{Oman}$	0.014129	0.007903	0.000516	0.7839
$FDOUT\_{Kuwait}$	0.013725	0.012270	0.000003	0.4028
$FDOUT\_{KSA}$	-0.002774	-0.002336	0.000022	0.9254
$FDOUT\_{Bahrain}$	0.002802	0.003063	0.000001	0.8233
$FDIN\_{UAE}$	0.005902	0.005873	0.000002	0.9821
$FDIN\_{Qatar}$	0.005280	0.006335	0.000003	0.5395
$FDIN\_{Oman}$	-0.002321	-0.003625	0.000021	0.7765
$FDIN\_{KSA}$	-0.007737	-0.011609	0.000441	0.8537
$FDIN\_{Kuwait}$	0.015176	0.005264	0.000187	0.4689
$FDIN\_{Bahrain}$	-0.000189	-0.000086	0.000000	0.8699

Cross-section random effects test equation:
Dependent Variable: Real GDP
Method: Panel Least Squares
Date: 01/25/14 Time: 09:22
Sample: 1998 2008
Periods included: 11
Cross-sections included: 6
Total panel (balanced) observations: 66

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.940339	0.284847	10.32251	0.0000
OILX_UAE	0.955224	0.222911	4.285229	0.0002
OILX_Qatar	0.095918	0.021745	4.411096	0.0001
OILX_Oman	0.056875	0.025069	2.268734	0.0306
OILX_Kuwait	0.070940	0.027653	2.565358	0.0155
OILX_KSA	0.046544	0.029318	1.587547	0.1229
OILX_Bahrain	0.066557	0.026712	2.491623	0.0185
NOILX_UAE	0.040920	0.023426	1.746805	0.0909
NOILX_Qatar	0.005221	0.008529	0.612171	0.5450
NOILX_Oman	0.006750	0.008102	0.833224	0.4113
NOILX_Kuwait	0.007561	0.009549	0.791757	0.4347
NOILX_KSA	-0.002175	0.005976	-0.363883	0.7185
NOILX_Bahrain	0.027598	0.029934	0.921964	0.3639
M_UAE	-0.034243	0.040467	-0.846197	0.4041
M_Qatar	0.114241	0.023295	4.904037	0.0000
M_Oman	0.101002	0.060348	1.673652	0.1046
M_Kuwait	0.089530	0.047699	1.876977	0.0703
M_KSA	0.172533	0.143199	1.204847	0.2377
M_Bahrain	0.069015	0.068197	1.011999	0.3196
FDOUT_UAE	0.002762	0.006264	0.440850	0.6625
FDOUT_Qatar	0.005585	0.003822	1.461073	0.1544
FDOUT_Oman	0.014129	0.032748	0.431454	0.6692
FDOUT_Kuwait	0.013725	0.003906	3.513757	0.0014
FDOUT_KSA	-0.002774	0.013020	-0.213078	0.8327
FDOUT_Bahrain	0.002802	0.002574	1.088683	0.2850
FDIN_UAE	0.005902	0.002571	2.295741	0.0289
FDIN_Qatar	0.005280	0.004459	1.183935	0.2457
FDIN_Oman	-0.002321	0.005635	-0.411860	0.6834
FDIN_KSA	-0.007737	0.021760	-0.355582	0.7246
FDIN_Kuwait	0.015176	0.034355	0.441739	0.6618
FDIN_Bahrain	-0.000189	0.001703	-0.111194	0.9122

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.999303	Mean dependent var	4.790284
Adjusted R-squared	0.998489	S.D. dependent var	0.455400
S.E. of regression	0.017701	Akaike info criterion	-4.927923
Sum squared resid	0.009400	Schwarz criterion	-3.733566
Log likelihood	198.6215	Hannan-Quinn criter.	-4.455976
F-statistic	1228.359	Durbin-Watson stat	2.081796
Prob(F-statistic)	0.000000		

Model (3):

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	2.606672	24	1.0000

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
$FDIN\_{Bahrain}$	0.000084	0.000074	0.000000	0.8851
$FDIN\_{Kuwait}$	-0.039696	-0.037103	0.000130	0.8199
$FDIN\_{KSA}$	-0.001218	0.015523	0.001202	0.6292
$FDIN\_{Oman}$	-0.005778	-0.005980	0.000012	0.9543
$FDIN\_{Qatar}$	0.032012	0.026752	0.000046	0.4398
$FDIN\_{UAE}$	-0.010530	-0.008613	0.000091	0.8411
$GDP\_{Bahrain}$	0.368102	0.545831	0.091747	0.5574
GDP_{KSA}	1.409307	0.724958	2.002423	0.6287
GDP_{Kuwait}	1.136524	0.767544	0.069677	0.1622
GDP_{Oman}	0.573242	0.711589	0.739536	0.8722
GDP_{Qatar}	0.402517	0.501283	0.014115	0.4058
GDP_{UAE}	0.774854	0.697893	0.141412	0.8378
$M\_{Bahrain}$	-0.000687	0.000794	0.000007	0.5839
M_{Kuwait}	0.010930	0.009147	0.000004	0.3994
M_{KSA}	-0.015741	-0.023157	0.000241	0.6332
M_{Oman}	0.007076	0.006997	0.000005	0.9725
M_{Qatar}	-0.000489	0.000086	0.000001	0.5851
M_{UAE}	0.001162	0.000804	0.000003	0.8481
HTH_{UAE}	-0.092850	-0.082814	0.003285	0.8610
$HTH\_{Bahrain}$	-0.023302	-0.005869	0.001074	0.5948
HTH_{KSA}	0.076307	0.060736	0.001215	0.6551
HTH_{Oman}	-0.245586	-0.230565	0.009573	0.8780
HTH_{Qatar}	-0.022299	-0.013069	0.000163	0.4698
HTH_{Kuwait}	-0.081911	-0.111793	0.000589	0.2183

Cross-section random effects test equation:
Dependent Variable: LOGAIR
Method: Panel Least Squares
Date: 01/26/14 Time: 12:33
Sample: 1998 2008
Periods included: 11
Cross-sections included: 6
Total panel (balanced) observations: 66

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.024549	1.645024	0.622817	0.5373
$FDIN\_{Bahrain}$	8.38E-05	0.000265	0.316074	0.7538
$FDIN\_{Kuwait}$	-0.039696	0.045923	-0.864403	0.3931
$FDIN\_{KSA}$	-0.001218	0.036023	-0.033805	0.9732
$FDIN\_{Oman}$	-0.005778	0.013492	-0.428241	0.6710
$FDIN\_{Qatar}$	0.032012	0.015133	2.115360	0.0414
$FDIN\_{UAE}$	-0.010530	0.013570	-0.776002	0.4428
$GDP\_{Bahrain}$	0.368102	0.378732	0.971933	0.3376
GDP_{KSA}	1.409307	1.435194	0.981963	0.3327
GDP_{Kuwait}	1.136524	0.337619	3.366289	0.0018
GDP_{Oman}	0.573242	0.902130	0.635432	0.5292
GDP_{Qatar}	0.402517	0.208867	1.927140	0.0619
GDP_{UAE}	0.774854	0.445941	1.737570	0.0908
$M\_{Bahrain}$	-0.000687	0.005062	-0.135645	0.8929
M_{Kuwait}	0.010930	0.007083	1.543119	0.1315
M_{KSA}	-0.015741	0.018629	-0.844962	0.4037
M_{Oman}	0.007076	0.009069	0.780195	0.4404
M_{Qatar}	-0.000489	0.003462	-0.141334	0.8884
M_{UAE}	0.001162	0.003395	0.342227	0.7342
HTH_{UAE}	-0.092850	0.134330	-0.691207	0.4939
$HTH\_{Bahrain}$	-0.023302	0.067614	-0.344639	0.7324
HTH_{KSA}	0.076307	0.063614	1.199530	0.2382
HTH_{Oman}	-0.245586	0.154425	-1.590330	0.1205
HTH_{Qatar}	-0.022299	0.032316	-0.690021	0.4946
HTH_{Kuwait}	-0.081911	0.054340	-1.507393	0.1404

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.990415	Mean dependent var	4.742571
Adjusted R-squared	0.982694	S.D. dependent var	0.427833
S.E. of regression	0.056282	Akaike info criterion	-2.613916
Sum squared resid	0.114037	Schwarz criterion	-1.618619
Log likelihood	116.2592	Hannan-Quinn criter.	-2.220627
F-statistic	128.2734	Durbin-Watson stat	1.832345
Prob(F-statistic)	0.000000		

ABBREVIATIONS

AGADIR: Agadir Agreement in 2004 (Morocco).

AIECGC: Arab Investment Export Credit Guarantee Corporation.

AMF: Arab Monetary Fund.

AMU: Arab Maghreb Union.

APEC: Asia-Pacific Economic Cooperation.

ASEAN: Association of South East Asian Nations.

CH_4: Methane.

Co_2 : Carbon Dioxide.

EIA: Energy Information Administration (Qatar).

EKC: Environmental Kuznets Curve.

ESCWA: Economic and Social Commission for Western Asia.

EU: European Union.

FDI: Foreign Direct Investment.

FEH: Factor Endowment Hypotheses.

GAFTA: General Agreement of Free Trade Area of Arab Countries.

GCC: Gulf Cooperation Council.

GDP: Gross Domestic Production.

GHG: Green House Gas.

GFCF: Gross Fixed Capital Formation.

IMF: International Monetary Fund.

MENA: Middle East and North Africa.

MNEs: Multinational Enterprises.

NAFTA: North America Free Trade Agreement.

No_2: Nitrogen Dioxide.

OECD: Organization for Economic Cooperation and Development.

PHH: Pollution Haven Hypotheses.

SESRIC: Statistical Economics and Social Research for OIC countries.

UAE: United Arab Emirates.

UNCTAD: United Nations Conference for Trade and Development.