# Iraq's Economy: Openness and Growth

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# ABSTRACT

This paper tried to investigate the impact of openness to trade on the economic growth of Iraq. To do that, we used annual time-series data from the period of 1980 to 2014 and the economic growth variable was regressed on the openness variable with a set of control variables; government expenditure, industry investments value, oil utilization value per capita, capital inflow and an interaction variable of capital inflow with structural dummy of 2003 and dummies for the effect of 1991 gulf war, 2003 US invasion to Iraq and 2003 transition to democratic government after overthrown of Saddam's reign as well. We also employed the Ordinary Least Square (OLS) method for the estimation. The result of this research showed a support to the growing number of empirical researches for different economies, which confirmed the positive and significant relationship between economic growth and openness to trade. Another major finding is that the 1991 Kuwait War and the invasion of Iraq by the US in 2003 have largely and negatively affected the Iraqi economic growth. Moreover, the structural changes after Saddam's reign as from 2003 have a positive impact on the economic grow path of Iraq. The study also finds that foreign capital investment imposes a positive impact on the economy after the infrastructural changes made as from 2003.

**Keywords:** openness and growth of Iraq, Iraq's economy growth.

# ÖZ

Bu tez Irak'ın ekonomisinin büyümesindeki ticari açılımındaki etkilerini araştırmayı amaçlar. Bunun için 1980-2014 dönemine ait yıllık zaman-serisi verilerini ve kontrol verileri ekonominin gelişimdeki düşüşü baz alınmıştır. Kontrol verileri; hükümet harcamaları, sanayi yatırım değerleri, kapitaya göre yağ kullanımı, anapara akımı ve 2003 yılının anapara akımının entekrasyonu ile 1991 yılında meydana gelen Körfez Savaşı'nın etkileri vede 2003 Amerika'nın Irak işgali ve Saddam döneminden sonra demokrasi hükümetine geçiş olarak belirlenmiştir. Aynı zamanda araştırma için OLS yöntemi olan Sıradan Az Kare (SAK) baz alınmıştır. Bu araştırmanın sonucu gösterdi ki büyümekte olan farklı ekonomiler emperikal araştırma desteğini almaktadırlar; buda ekonominin büyümesinde ve ticaretin açılımında olumlu ve önemli ilişki göstermektedir. Diğer bir başka bulgu ise 1991 yılındaki Kuveyt Savaşı ve 2003 yılındaki Amerika'nın Irak'ı işgal etmesi Irak ekonomisinin büyümesinde olumsuz etki yaratmıştır. Bunun yanısıra Saddam dönemi sonundaki yönetsel değişiklikler 2003 yılından itibaren Irak ekonomisinin büyümesine yol açmıştır. Bu araştırma sonucu aynı zamanda gösterir ki 2003 yılından sonra yapılan altyapı degişiklikleri ile yabancı anapara yatırımı ekonominin gelişiminde olumlu etki göstermiştir.

**Anahtar Kelimeler:** Irak'taki açılım ve büyüme, Irak ekonomisinin büyümesi.

*To my beloved Family*

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First and foremost, my deepest gratitude is for Almighty Allah for his countless blessings and generosity that he made me capable to complete this journey successfully. Second and most importantly, I would like to pay my thanks to my supervisor Prof. Dr. Sevin Uğural and co-supervisor Assoc. Prof. Dr. Gülcay Tuna Payaslıoğlu for their steady support and guidance to accomplish this study goal. I really appreciate their supportive and courageous behavior that encourages students to broad their level of knowledge.

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# Chapter 1

# INTRODUCTION

Economic growth can be seen as the sustainable increase in the productivity of an economy which helps to satisfy the ends of the individual citizens. Consistence economic growth of an economy immensely affect the income as well as employment levels, hence raise country's standard of living. When it comes to talk about a country's economy, it is always considered as one of the crucial topics among the world. Over the last decades the issue of economic growth has attracted increasing attention in both theoretical and empirical research. Several factors can be the course of economic growth, ranging from; accumulation of factors, either capital, labor or factor neutral; improvement in technology, either capital saving, labor saving or factor neutral; effective public infrastructure development; goods and services creation in the economy etc. These factors lead to an increase in the production of country's goods and services.

One important factor that often considered having a relationship with advancement and progress of a country is openness to trade. From the neo-classical economists point of view, the more open a country is to trade the more they will benefit from the trade which in turn has a positive impact on growth of countries involved. However, there is no consensus even among the economists with regards to the role of openness to trade and growth of countries, or rather there isn't necessarily a relationship between economic growth and adopting liberal or protectionist economic policy. For

instance, while trade liberalization has been proven to have major impact in the advancement most of the western liberal countries, China and Indonesia on the other way realized a huge success from adopting protectionist policy (Keith Maskus, 1998).

For decades, Iraq has faced with various up downs and critical situations. Iraq is a country whose economy has been shaped in part by a lot of conflicts for the fact that the country has been at war or in war-related crises ever since 1980. The conflicts Iraq experienced in the past have had a cumulative impact on its economy that had sharply restricted the country's development and divided the country's economy and income along sectarian and ethnic lines which in return also introduced violence and its sub-economies and divisions. A higher degree of political instability and violence has plagued Iraq over the past year and undermined its reconstruction. Endowed with abundant oil wealth, the government has failed to address problems in economic freedom that holds back private-sector development, foreign direct investment, trade, and improvements in productivity. Inefficient business and trade regulations undermine the entrepreneurial environment, preventing the diversification of the economy away from oil production. Monetary and fiscal policies are poorly enforced, and the government has difficulty in maintaining proper bookkeeping or budgetary functions. Corruption is endemic and undermines the development of a dynamic private sector. Sectarian favouritism in government bureaucracies leads to arbitrary economic policies that favour particular groups (IEF, 2015).

The economic growth can be weighed through comparison between the GDP of present and previous year. The important thing here is for a country to understand its strengths and weaknesses so as to be able to formulate effective policies that will help

achieve the growth, through analysing economic variables. In other words, looking at the scarce resources has in their disposal, countries need to select the best among available alternatives to maximize it utility from those scarce resources and achieve a desired aim. Again, in the process of this analysis other important economic problems will be assessed such unemployment and inflation etc. This analysis is mainly carried out by looking at the forces of demand, supply, of both goods, financial and labour markets. Cumulative of these and coupled with effective foreign trade policies will guarantee a country's success (Nitasha, 2015).

In current situation of Iraq, shaping a strong and effective economic policy is the biggest challenge for Iraq. Thus, this study will discuss the major economic factors that affect Iraq's economy either negatively or positively and see whether openness to is appropriate policy to adopt for the realization of economic advancement and improve people's welfare. The study is based on a brief review as well as quantitative analysis of the effect of openness to trade in economic growth of Iraq.

## 1.1 Problem Statement

Iraq has a high potential to maintain economic development with rich natural resources of oil and gas but unluckily been through very critical political and national problems that prohibited to maintain a healthy economic. Thus, analysing major economic factors such as GDP per capita, openness to trade, population and other economic indicators are worth investigating.

## 1.2 Aim of the Study

The purpose of the study is to examine the factors that directly or indirectly affect the Iraq's economic growth, and more specifically the openness to trade in search for the

policy recommendations that would help to overcome problems and maintain a faster economic growth.

## 1.3 Research Methodology

Quantitative research approach would be used to perform the regression analysis by taking all economic factors, where openness to trade is the key variable, as determinants of Iraq's economic growth to drive the end results.

## 1.4 Research Questions

All factors lead to the following research questions being formulated:

1. To determine the impact of trade openness on the Iraqi economy.
2. To investigate other factors that affect the Iraqi growth?

## 1.5 Implications of the Study

The findings of the study will help to understand the role played by trade openness (trade liberalization) and other key factors impose barriers in the economic growth of Iraq, the core reason behind its slow growth path and what policies Iraq needs to put in place for maintaining a sustainable economic growth.

## 1.6 Outline

The study is based on six chapters. Chapter 1 introduces the aim and the scope of the study. Chapter 2 discusses and reviews previous studies related to economic growth. Chapter 3 presents an overview of the Iraq economy. Chapter 4 covers methodology used to retrieve final results of the study. Chapter 5 presents the analysis and the findings of the study. Chapter 6 finalizes the study with conclusions and recommendations.

# Chapter 2

# LITERATURE REVIEW

The standards of living of the citizens are determined by a country's economic status.The living standard of citizens where there is poor economic performance is low andvice versa. There are various factors that affect a country's pace of economic growth.One of them is its trade relations with other countries. Existing researches indicatesthat many countries have liberalized their economies hoping to perform better.Arguably, there isn't necessarily a relationship between economic growth and adopting liberal or protectionist economic policy. Several factors can be the course of economic growth, ranging from;

- Accumulation of factors, either capital, labor or factor neutral.
- Improvement in technology, either capital saving, labor saving or factor neutral.
- Effective public infrastructure development.
- Goods and services creation in the economy.

Nothing from the above give a clear and straight forward claim that trade openness has any compulsory role for realizing economic growth. This claim is there in the neoclassical standard growth model, even though the model argues the 'Dead Weight Loss' in welfare may be realized in short run by putting-up trade barrier, but it does not have long-run effect on country's growth. But economist and even IMF and World Bank perceived the openness to trade to be important machinery for

engineering growth. Perhaps it is because removing trade barriers influence other factors, such as FDI to grow, but as the same time faster growth can reduce trade barrier. In this respect, one needs to be careful in sorting the causality between the two (Maskus, 1998).

To conclude the above discussion, there are two major arguments

- Protectionists or Infant Industry Hypothesis

  These are deliberate measures that are taken by central planning authority to isolate its local infant industries from competing with global market. The idea is basically shift local production into manufacturing sector and to buy local industries time to prepare for international competitions through putting higher import tariff and expensive quota, low taxes on manufacture to shift labor to manufacturing sector, over-valuing local currency to discourage primary export, controlling the FDI, expensive nationalization of foreign firms etc.

  The question now remains that, is this policy has any positive impact to grow? It not easy to give any empirical statement on this, because real world experience shows the both positive and in other places negative impacts of adopting this policy, for example China and Indonesia in the positive side, India and Pakistan in negative edge (Krueger, 1997).

- Liberalization or Export Promotion Policy

  This is the type of theory that emphasize on more open and more liberal economy. The policy could be traced back to the work of Adam Smith in 1776, which is based on the removal of trade restrictions and seizing all forms

of subsidies, unification of internal and external tax and tariffs as well as deregulation of industries and SOEs.

This policy was design to be achieved through some effective policies which includes; proper exchange rate valuation, neutralizing making export and import taxes, promoting export rather than restricting import (World Bank, 1993).

Although this policy helped in growing many nations, but it also caused some serious damages. The Japan over production for example, are now paying the price of directing its policies towards encouraging production for export and discouraging consumption (See: Trade policy and economic growth by Keith Maskus, 1998).

With these reasons therefore, we cannot rightfully say openness to trade ultimately will the country's growth.

In the empirical literature many various scholars have conducted studies to determine the impact of openness on a country's economic growth. In addition, they have also investigated various factors that may affect the economic growth of a country (Bouoiyour, J., 2003).This section of the thesis presents the detailed review of factors that affects an economy in the light of various researchers' view. Most of the researches have examined various factors that have direct or indirect influence on economic growth.

Bouoiyour (2003) adopted the co-integration and error correction to uncover the causality between international trade and Morocco's economic growth. He used the data between the periods of 1960 to 2000. He also used panel co-integration tests and

he combined error correlation and GMM estimation technique to discover the causality between those two variables. The findings proved the absence of long-run relationship. But it showed positive impact of trade on GDP in the short-run.

Other researcher such as RoberBarro (1999) has investigated the determinant of economic growth. He conducted a qualitative study of 100 countries for thirty years from 1960. Barro used secondary sources for financial data of the 100 countries which took part in the study. The findings of his work revealed some factors as being the major forces behind a rise or fall in the economy of some countries. These factors include government spending levels on literacy in a country, democracy and trade liberalization. These factors were identified as being the major forces behind economic growth and development of the sampled countries.

Burdonet.al (1999) conducted study for twenty four years for 1980-2004 on 158 countries to determine whether openness had any impact on the economic growth of these countries. Their findings confirmed that countries that engaged in open trade experienced a higher economic growth when compared to those who did not. The countries which had a substantial trade policy are likely to import high quality goods. However, the case was not the same for third-world countries. This is attributed to the non-linear relationship that exists between trade ratio, export variety and growth. Countries from various continents were included in the study. Some of these countries are United Arab Emirates (UAE), United Kingdom, Azerbaijan, China, Denmark, Vietnam, Ghana and Chad among many others. Much of the data that were used for the study was originated from the data bases of the World Bank Indicators of development. They concluded that openness impacted positively on economic growth.

Khan and Lodhi (2014) conducted a study to identify the impact of trade openness towards the economic growth of Pakistan. The main objective of the researchers was to determine how factors like financial development, trade openness and agriculture affected economic growth of Pakistan. The study was conducted from1980-2012. The study was based on the Vector Auto Aggressive (VAR) model and Error Correction Model (ECM). Their empirical results showed that there exist a long-run relationship between financial development, agriculture raw material exports, and output growth. The cointegrating equations revealed that, raw material exports, trade openness and domestic credit to private sector are positively effecting the economic growth of Pakistan, while money supply has negative impact on economic growth of Pakistan.

Ali and Abullah (2015) used Vector Error Correction Model (VECM) for the years of 1980 to 2010 to analyses the effect of trade openness policy on economic growth in Pakistan. The study found significant positive impact of trade liberalization policies on economic growth in the short-term. While in the long term, the study found that the results of trade liberalization negatively affected economic growth.

Ulasan (2012) conducted a study to determine whether there is a relationship between economic growth and openness since 1960-2000 among 103 countries. The study included countries such as Afghanistan, Burkina Faso, India and Guyana among many others. Of the 103 countries sampled, 39 of them were from the Middle Eastern region, 21 of them were from African countries while the rest came from other regions such as Eastern Europe, Asia and the Pacific. The findings of the study revealed that trade policies had significant impact on economic growth and development to an extent great. High tariffs discourage business people and vice

versa. Countries which had subsidized the tariffs levied on imported goods encouraged more people to involve in trade. This greatly improved the living standards of the people in those countries. He also found that the taxes on items traded discourage traders to engage in international trade. Also, countries which levied exceptionally high duties would not benefit from trade. Traders would often channel their commercial activities elsewhere.

Hausmann et al (2007) suggested a way to link the goods produced by a country and their growth level. The argued that, to verify the empirical relationship between this two factors one can adopt their defined index which aimed to capture the countries' export products quality. They collected a panel type of data between the periods of 1962 and 2000, the result for their regression depicted that, those countries exporting more qualitative products grow faster than those producing less quality ones. Therefore, they concluded that, even the type of good countries export is important as far as trade effect on growth in concern. Thus, export product quality have important role for trade deals.

Ahmed et al.(2008) used the new autoregressive distributed lag (ARDL) approach and Pedroni estimation procedure which also allows for heterogeneity across individual countries. He observed that trade liberalization had a positive and significant effect on financial and trade related reforms and these worked to enhance market efficiency, reduced distortions in price and fostered Africa's competitiveness and access to the global market; thus promoting inflow of capital and expansion of exports.

According to Rahim and Abedin (2014) liberalization of trade and finance policies are believed to reduce the cost and inefficiency in the production process. A decrease in

costs in these sectors, in turn, will be a positive influence on economic growth. The conclusions derived from studies of the impact of trade liberalization and financial development to economic growth in Malaysia. The study uses time series data 1970-2011 period and Granger causality analysis tools. Estimates by the analysis tools, the study found one-way causality from economic growth to financial development. As for the case of the development of trade and financial liberalization, the study found unidirectional causality, namely trade liberalization causes financial development, but financial development led to the liberalization of trade.

Upreti's study of 76 countries in years; 1995, 2000, 2005 and 2010 revealed that there are various factors behind the rise of economic growth in various countries. All the seventy six countries were from developing regions. The study was based on the data of these countries' GDP. The countries which took part in this study were from regions such as Africa, Oceania and Asia. The researcher got the list of the countries which took part in the study from the World Bank's records. A multiple Ordinary Least Squares regressions were used. The findings of the study revealed that there were some countries which recorded a steady economic growth. These countries include Angola, China, Myanmar and Nigeria (Upreti, 2015).

Feenstra and Kee, (2008) also developed a way to formulate connection between export of goods and GDP growth over time. They used a panel data from 1980 to 2000 to test the US export and economic growth nexus by adopting three staged least square estimation. The findings of this research showed a positive and significant relation of multiple export goods and average output.

Table 2.1: The following table summarizes the Literature Review.

| Author | Field of Study | Model | Findings |
|---|---|---|---|
| Ahmed, A.D., Cheng, E. and Messinis, G. (2008). | This study focuses on the effect of exports, FDI and imports on economic growth in SSA. | They used the new autoregressive distributed lag (ARDL) approach and Pedroni estimation procedure which also allows for heterogeneity across individual countries. | It is found that exports and FDI have significant impact on economic growth. Granger-type causality tests show the interrelatedness of exports, FDI, imports and income variables. |
| Ali, W, & Abdullah, A. (2015). | Determine the impact of trade openness on the economic growth of Pakistan between 1980 and 2010. | By using Vector Error Correction Model (VECM). | The researchers found out that openness in trade policies coupled with well performing institutions have greatly boosted economic growth. |
| Bouoiyour, J. (2003). | This paper examines the short-term and long-run dynamics between per-capita GDP growth and openness for 158 countries over the | They use panel co-integration tests and panel error-correction models (ECM) in-combination with GMM estimation to | The long-run coefficients indicate a positive significant causality from openness to growth and vice versa, indicating that |

| | | | |
|---|---|---|---|
| | period 1970-2009. | explore the causal relationship between these two variables. | international integration is a beneficial strategy for growth in the long term. |
| Rahim and Abedin (2014) | Liberalization of trade and finance policies are believed to reduce the cost and inefficiency in the production process. | The study uses time series data 1970-2011 period and Granger causality analysis tools. | The study found unidirectional causality, namely trade liberalization causes financial development, but financial development led to the liberalization of trade. |
| Hausmann et al. (2007) | Relationship between types of goods and economic growth. | Panel data between the period 1962 and 2000. | They concluded that even the type of good countries export is important as far as trade effect on growth in concern. Thus, export product quality have important role for trade deals |
| Ulasan, B. (2012). | Relationship between trade | The empirical investigation done | Findings indicate that many openness |

| | | | |
|---|---|---|---|
| | openness and long-run economic growth over the sample period 1960-2000 | by employing various openness measures suggested in the literature rather than relying on a few proxy variables. | variables are positively and significantly correlated with long-run economic growth. |
| RoberBarro(1999) | To determine some factors that impact on economic growth. | Secondary sources for financial data of the 100 countries | Findings revealed some factors as being the major forces behind a rise or fall in the economy of some countries. These factors include government spending levels on literacy in a country, democracy and trade liberalization. |
| Bourdon et. al (1999) | To propose an elaborated way of measuring trade openness taking into accounts two additional dimensions of countries' | A total of five-year averaged data between 1980 and 2004 for an unbalanced panel of 158 countries. | Results confirm that countries exporting higher quality products grow more rapidly. |

| | | | |
|---|---|---|---|
| | integration in world trade: quality and variety. | | |
| Khan and Lodhi (2014) | To identify the impact of trade openness towards the economic growth of Pakistan. The main objective of the researchers was to determine how factors like financial development, trade openness and agriculture affected on economic growth of Pakistan | The study was conducted from 1980-2012. The study was based on the Vector Auto Aggressive (VAR) Model and Error Correction Model (ECM). | Their Empirical results showed that there exist a long-run relationship between financial development, agriculture raw material exports, and output growth. Normalized co-integrating equations revealed that, Raw material exports, trade openness and domestic credit to private sector are positively effecting the Economic growth of Pakistan, while money supply has negative impact on Economic growth of Pakistan. |

| | | | |
|---|---|---|---|
| Upreti, P. (2015) | To identify the factors affecting economic growth in developing countries. It uses cross-country data for 76 countries from 2010, 2005, 2000, and 1995. | A multiple Ordinary Least Squares regressions were used. | The findings of the study revealed that there were some countries which recorded a steady economic growth. These countries include Angola, China, Myanmar and Nigeria. |
| Feenstra and Kee (2008) | Developed a way to formulate connection between export of goods and GDP growth over time | They used a panel data from 1980 to 2000 to test the US export and economic growth nexus by adopting three stage least square estimation | The findings of this research showed a positive and significant relation of multiple export goods and average output |

# Chapter 3

# OVERVIEW OF THE IRAQI HISTORY, ECONOMY AND POLITICS

Iraq is one of the Mesopotamian lands; it occupies a large area of alluvial plains of river Tigris as well as Euphrates. Iraq is a Middle Eastern country that majority of its inhabitants are Islamic religion followers and official language of the country is Arabic. It is bordered with Islamic republic of Iran from the east, Syria and Jordan from the west, Turkey from northern part and Saudi Arabia from the south. It covers the land area of about 433,970 sq. kilomiters. In 2014, Iraqi's population is estimated as 34,812,326 with 2.23% growth rate. The country's capital city, Baghdad, is an ancient city with population of 6,036 million inhabitants. In the history of Iraq, there have been substantial developments which affected the economic outlook of the country. In this respect, prior to an economic analysis, it is helpful to outline some of the major historical and political developments experienced in Iraq to better understand and evaluate their economic implications.

## 3.1 Historical and Political Developments

From the early times, there always existed an advanced civilization. It was recorded that, sometime after 200 B.C, the region became the ruling center of Babylonians as well as Assyrian empires. The country had been conquered by Persian Empire of Cyrus the Great in 538 B.C and by Alexandra the Great in 331 B.C... The city of Baghdad, which is the present Iraqi capital, became capital of the Islamic Caliphate after it has been expanded by the caliph Abu Jaafar Al-Mansur in 758. The country

was also conquered by Mongols around 1258, before it became a part of the Ottoman Empire in the16th century (Tripp, 2002).

Following the invasion of British to the most Mesopotamian countries during the First World War in 1920, it was given a mandate over the entire area and soon it renamed the present Iraq to Kingdom in 1922. In 1932, Iraq became independent. After the break of the Second World War, British invaded Iraq again for being Axis power ally at the early years of the war.

After the death of Ghazali, his father, King Faisal was assassinated in 1958, and this led to the beginning of military regime in the Iraq. Then the military head of state Abdul Kareem Kassim was the first person to start creating policies that will reduce the gap between poor and rich people in the country. President Kassim was also assassinated and Arif brothers' regime was out stated by junta in 1968, where Major General Ahmed Hassan Al-bakr and his second in command Saddam Hussein became a new president. They focused on rectifying damages caused by the Second World War and building strong military forces using the country's oil revenues which at that time Iraqi's GDP skyrocketed due to the raise in its major export product (oil). For instance, Iraqi's GDP per capita reached $4,200 by 1979 the, which started falling to 3,600 soon after it entered into war with Iran. By 1988 it was already down to 1,765, World Development Index, (WDI).

Table 3.1: The series of Iraqi leaders from 1958 to date

| S/N | Names leaders | Born | Died | Duration in power |
|---|---|---|---|---|
| 1 | Abd al-KarimQasim | 21/11/1914 | 09/02/1963 | 14/07/1958 until 08/02/1963 |
| 2 | Abd al-Salam Arif | 20/03/1921 | 13/04/1966 | 09/02/1963 until 13/04/1966 |
| 3 | Abd al-RahmanArif | 1916 | 24/08/2007 | 16/04/1966 until 17/07/1968 |
| 4 | Ahmed Hassan al-Bakr | 01/07/1914 | 04/10/1982 | 17/07/1968 until 15/07/1979 |
| 5 | Saddam Hussein | 28/04/1937 | 30/12/2006 | 16/07/1979 until 09/04/2003 |
| 6 | Paul Bremer(Coalition Provisional Authority) | 30/09/1941 | | 12/05/2003 until 28/06/2004 |
| 7 | AyadAllawi (Iraq Interim Government) | 31/5/1944 | | 28/06/2004 until 06/04/2005 |
| 8 | Ibrahim al-Jaafari (Iraq Interim Government) | 25/03/1947 | | 07/04/2005 until 20/05/2006 |
| 9 | NouriKamil al-Maliki | 20/06/1950 | | 20/05/2006 until 14/08/2014 |
| 10 | Haider al-Abadi | 1952 | | 14/08/2014 till now |

Source: Wikipedia.org

Saddam Hussein took over as president onthe 16th of July 1979, the regime that witnessed unforgettable event in the history of Iraq. The long unresolved issue concerning the control of Shattal-Arab, the region between the two rivers Tigris and Euphrates, broke into a dreadful war between Iraq and Iran in September 1980. The

war lasted for about eight years and about 1.5 million people were killed. The war ended in 1988 following the mediation of the United Nations(The Guardian, 2010)

Iraq troops invaded Kuwait in August 1990 following a territorial claim by the president Saddam. This act led the UN put trade sanctions on Iraq oil, unless it is in exchange for food or medicine, to force Iraq to withdraw from Kuwait. By January 1991 U.S lunched the operation "Desert Storm" which aimed at liberating Kuwait. After the attack of September 11, the U.S accused Saddam Hussein's administration of having a link with terrorist group and alleged that Iraq is in possession of weapons of mass destruction. The U.S and the UK started campaigning for the use of force on Iraq despite the unconcluded UN report of alleged existence of those weapons. (Galbraith,2007).

On 20 March 2003, the war against Iraq started which was called "Operation Iraqi Freedom". The US military forces took over the Iraqi capital Baghdad on the 9$^{th}$ of April, which marked the end of Saddam Hussein's era. After war a Coalition Provisional Authority formed by USA, and Paul Bremer was appointed as head of the Coalition Provisional Authority of Iraqi in May 2003. The reign of this government continued until 28 June, 2004 when sovereignty returned to the country and an interim government was appointed. On 30 January 2005, the first general elections took place and the new constitution passed, allowing for parliamentary elections. By January 2006, the result of the elections was announced and Shiite sect Nuri Al-Maliki became the prime minister until August 14, 2014.(Watkins et al,2015).

## 3.2 The General Economic Outlook of Iraq

Iraq is one of the Middle Eastern countries that have a great potential to achieve a more diversified economy. However, due to miss-management and lack of competence of its leaders the country is far from what it could have achieved.

While important sectors such as agriculture, services and other industrial activities have a very small share in the countries earnings, oil sector on the other hand serves as the major source of the country's revenue, implying that Iraq's economy is dependent mainly on oil.

With the nationalization of oil by the law No.69 by Ba'th party in 1972, the oil production revenue of the country increased substantially because the low ended acquisition of foreign companies on oil revenues and returned ownership to the Iraqi government. Since then, the country had a total control of its oil resources and thus had the opportunity to strengthen its economy through the oil wealth. Even though, at some points Iraqi economy had been one of the biggest economies not only in the region but in the world, in general wrong economic policies, corruption and miss-management, religious and tribal conflicts as well as a series of wars led to unfortunate interruption for its potential development (Looney 2006).

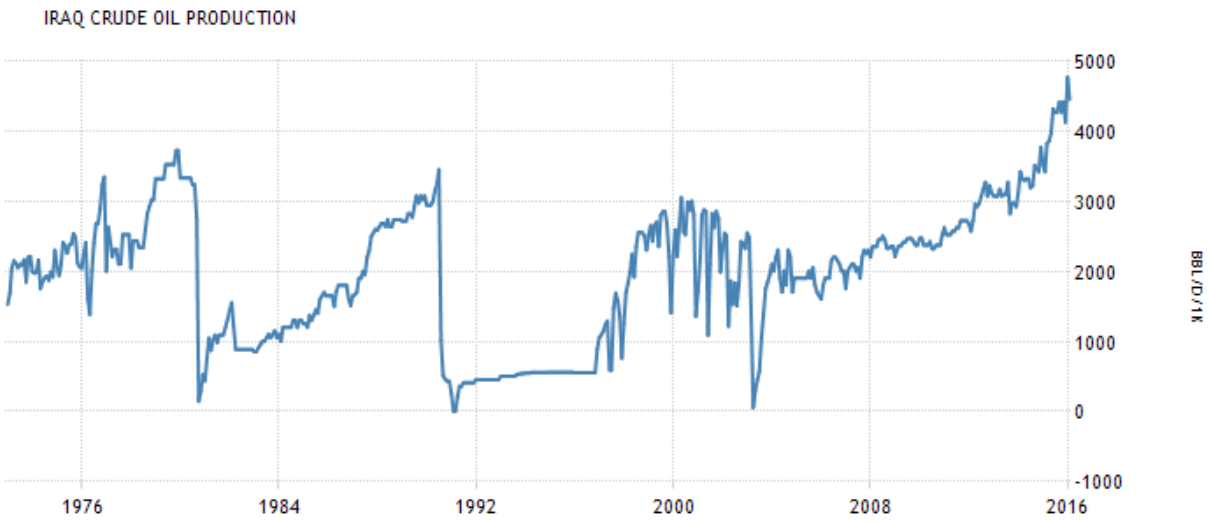


Figure 1: Iraq crude oil production (1973 – 2016)
Source: Trading Economics.com

With the increase in price of oil in 1970s, new establishments took place: new relatively heavy sub manufactory sectors were expanded like, the petrochemical industry, automotive industry and military industry, also some new ones, such as machine assembling factories were established. New infrastructural facilities such as schools, roads, hospitals and homes were built. At that time Iraq recorded a remarkable improvement in terms of growth, for instance between 1970 and early 1980s, the average GDP growth was 10 per cent, which is exceptionally huge if we compare with the rest of the world. For instance, in 1970 the real GDP stood at 9.9 billion US dollars, but by the beginning of 1980 it increased to 27 billion US dollars (World Development Index).

However, unfortunately, despite this remarkable growth of the economy, the industrial sector was able to absorb only 8 per cent of the country's labor force, meaning that the country solely depended on foreign skilled and unskilled labor.

Moreover, the focus on investing more Military sector by the Ba'th government, much like depending on oil, did not help in absorbing unemployment (Yaphe 2007).

Table 3.2: Average share of sectors in GDP 1960-2009

| Sectors | 1960-1970 (%) | 1971-1985 (%) | 1986-1999 (%) | 1999-2009 (%) |
|---|---|---|---|---|
| Agriculture | 55.09 | 29.43 | 37.24 | 41.09 |
| Petroleum/Industry | 11.83 | 39.92 | 39 | 27.14 |
| Construction | 4.83 | 4.05 | 1.80 | 0.07 |
| Whole Sale/Retail | 12.76 | 15.47 | 13.98 | 14.49 |
| Services | 15.49 | 11.13 | 10.89 | 15.55 |

Source: CBN Data Base 2009

The agricultural sector, was the second most important sector as it accounted for 17 per cent of the country's GDP in 1980 and absorbed more than 30 per cent of the Iraq's labor force in that year. By 1989 the share declined to less than 5 per cent, which resulted in lack of food security in the country. For instance, after 1980s, one fourth of Iraqi import was food materials (CIA data, 2003)

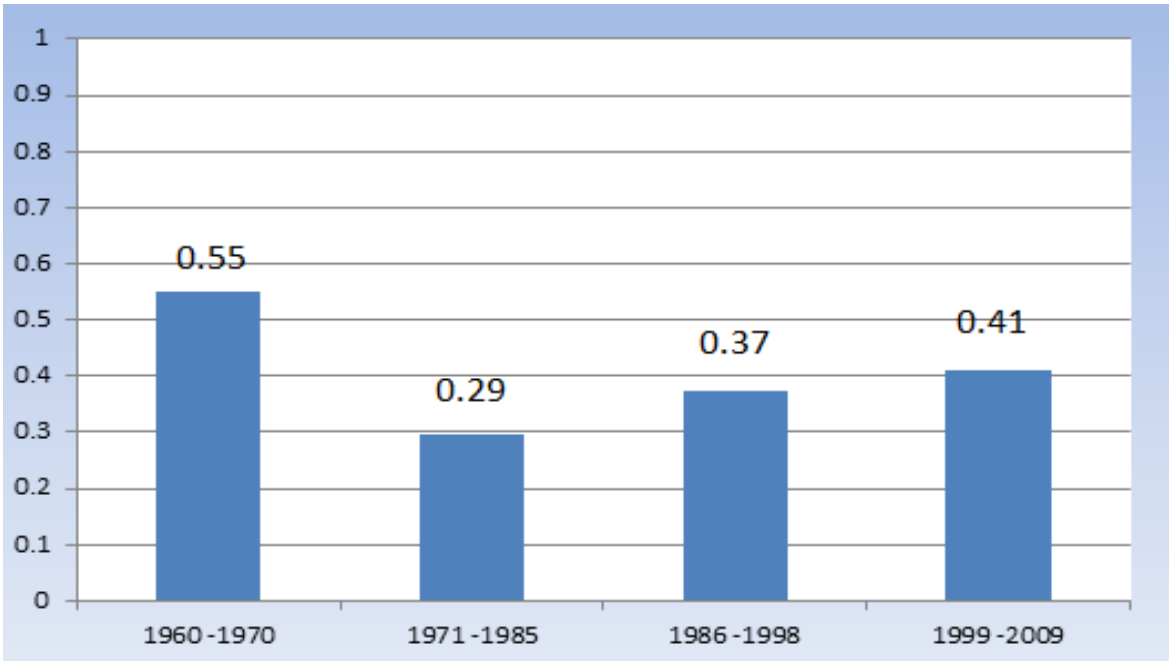

Figure 2: Iraq's Agriculture Average share in GDP (CBN Data Base 2009)

After the end of the war with Iran the economy of Iraq start recouping, having recorded the rise GDP per capita to $2,304 1n 1989, but with economic sanction it dropped woefully to just $938. The diseases increased, infant mortality rate from 50 in 1990 to 133 in 2001, life expectancy decreased also (World Fact book, 2009).

Iraq's GDP was $38 billion in 1989, but after the Gulf War and the siege which put on, Iraq's GDP decreased by 70 percent until 1996, and this led to deterioration of the economic situation. After the UN resolution No.986, which Saddam Hussein agreed to terms, Iraq economy was recover gradually. For instance, the GDP increased from $10.6 billion in 1996 to $33 billion in 2000, which means it increased by 211 per cent. (Central Intelligence Agency, 2004).

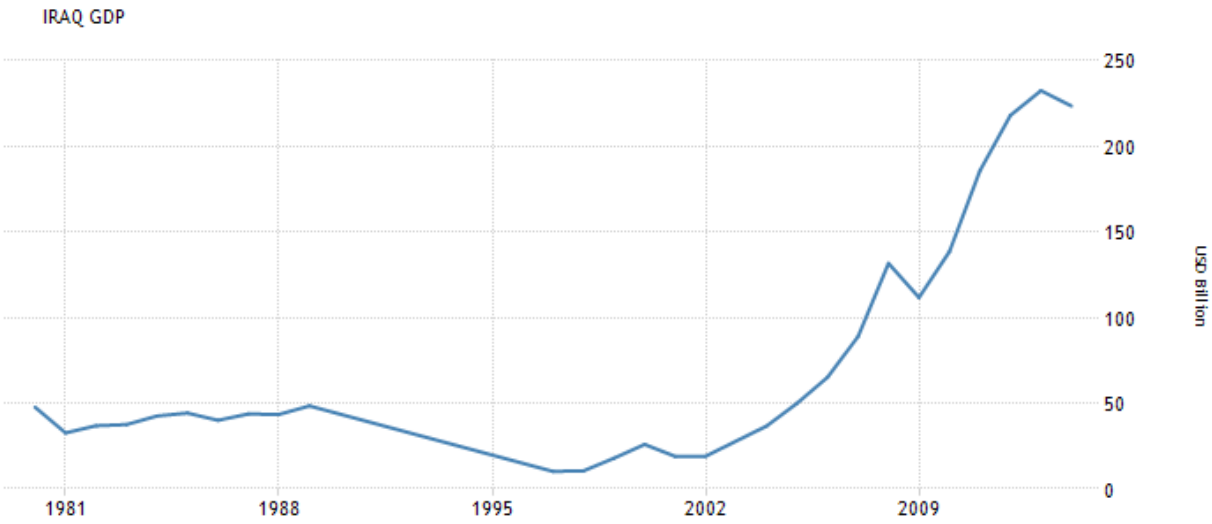

Figure 3: GDP of Iraq (1980 – 2014)
Source: Trading Economics.com

### 3.2.1 Iraq's Economy after Saddam's Reign

With the overthrown of Hussein's dictatorship and with the establishment of modern democracy in Iraq which was perceived to be the only solution for the country (Crocker 2004),Iraq experienced a structural change not only in its economy but also in its institutional infrastructures and government policies. For instance, after 2003, Iraq started to receive capital inflows from abroad with the initiation of foreign investment in Iraq. For instance, Iraqi government revised the law of investment NO.13 in 2006 to attract more foreign investment (Alalemya, 2011). In this regard, the question is how the shift from a dictator regime to a more outward oriented democratic regime affected the Iraq's economy. While Iraq was expected to show a substantial improvement with a more open economy in this new era as economic literature suggested, the impacts are unclear and there has been not much research that investigated this issue. In this section therefore, it is helpful to review series of economic developments after Saddam.

While the supply of power has improved, other public services remained as before, some even worst. Public health has declined due to the long time unrest and current insecurity, government failed to revive the dilapidated public sectors and develop private sectors. For example, it is able to improve the performance of private sector to only 35 per cent in 2011 from 31 per cent in 2004.

The agricultural sector that once was a major employment provider is now as its worst state, and the manufacturing and assembling industries that once existed were now barely anywhere to be found. Apart from energy sector no western Foreign Direct Investment exists now, except in the Kurdish region. There is no new investment, no good banking system to facilitate or provide loan for investment, people still keep the cash in their houses and pockets (Al-Basri, and Al-Sebahi 2013, Ryan 2010).

More so, according to World Bank data on good governance, Iraqi situation is worse than Algeria, Iran, Jordan, Egypt, Turkey and Saudi Arabia, in terms of following rule of law, which can translated by the level of instability in the country (IMP). Therefore, despite the previous decade's increase in oil prices, the state failed in improving the welfare of Iraqi people (World Bank).

Now, we are going to analyze this in more detail using regression to see if opening up the Iraqi's economy and if after Saddam's era makes a positive impact on the economic performance of the country.

# Chapter 4

# RESEARCH METHODOLOGY

This chapter summarizes the data and methodology used in the process of conducting the research work. The chapter is very crucial as it explains the data, methodology used as well as the diagnostic test(s) involved in the estimation procedure of the analysis.

## 4.1 The Data

The effect of trade openness on economic growth of Iraq is studied over a period of 34 years starting from 1980 till 2014 using annual data which is the most updated data available for the country. Based on the economic theory as explained in detail in Chapter 2, more open or liberalized economies are expected to have faster economic growth imposing a positive relationship between openness (OPN), financial inflow (CNF)and growth (GDPG). However, other economic fundamentals also affect the growth of a developing country. These include basically, population growth, monetary and fiscal policies, development of sectors other than the agricultural sector. Especially, a good conduct of the monetary and fiscal policies, increase in foreign investment and thus the development of manufacturing industry sector other than the agricultural sector or the primary product of export of a developing country are important in the process of growth and development. Based on the availability of data, the included control variables are government expenditures (GE) to capture the effect of the fiscal policy, oil use per capita (OUSE) (kilogram per capita) as a proxy to capture the development of other productive sectors and population growth (POP)

which is expected to capture the impact of increase in labor force and finally the manufacturing industry per capita (IND) which comprises of value added in mining, manufacturing, construction, electricity, water and gas. We have included three dummy variables two of which are impulse dummies for 1991 (D91) and 2003 (D2003) to capture the effect of the Gulf War and the Iraq Freedom War (US invasion of Iraq) respectively: D91 take the value of 1 for 1991 and zero otherwise while D2003 equals 1 for 2003 and zero otherwise . The third dummy is a structural change dummy variable (DS2003) (2003 transition to democratic government after overthrown of Saddam's reign) that takes the value of 0 before 2003 and 1 as from 2003 inclusive until the end of the sample. The structural dummy variable will capture the effect of structural changes with regard to the infrastructural investments and economic policy changes of the government as well other political changes in ruling the country. All data are extracted from World Bank's World Development Index (WDI) and "Kushnirs" website,(www.kushnirs.org). One of the key explanatory variables is openness (OPN) which is calculated as the ratio of total exports and imports per capita within the GDP per capita. The other key variable is capital or financial inflow (CNF) which is the foreign direct investment. It should be noted here that foreign direct investment before 2003 was very unstable. Therefore, in order to be able to measure its possible impact over the sample period, an interaction variable (CSD2003) was constructed with the structural dummy variable (DS2003). This variable CSD2003 is expected to have a positive as FDI have become stable after Saddam's reign. The dependent variable is the growth rate of GDP per capita which is used as a measure of economic performance of Iraq for the period analyzed.

## 4.2 Methodology

In order to estimate the relationship between trade openness and economic development in Iraq, we will employ the Ordinary Least Square (OLS) will be estimation method to see the impact of the openness variable and other control variables on Iraq's economic growth over the sample period. By doing that we will be able to assess whether shifting the economy to be more open to trade and investment has actually helped in boosting economic growth as suggested by the theory. The model is presented in Log-Log form as below;

$$GDPG_t = \beta_0 + \beta_1 GE_t + \beta_2 OPN_t + \beta_3 INDP + \beta_4 OUSE + \beta_5 POPG + \beta_6 CNF_t +$$

$$\beta_7 CSD03 + \beta_8 D91 + \beta_9 D2003 + \beta_{10} DS2003 + \varepsilon_t \qquad (eq\ 1)$$

where $\varepsilon_t$ is stochastic error that meets the assumptions of the classical linear regression model. All variables are expressed as the changes in the logarithms of the variables. Therefore the coefficients will be interpreted in percentages.

## 4.3 Unit Root Tests

For us to run a regression with time-series data, we first need to conduct a stationarity test to avoid running a spurious regression, otherwise the assumptions of the classical linear regression model will not be valid and the estimates will be biased. The aim is to ensure that all series are stationary. A time series is said to be weakly stationary when the mean variance and covariance across time of a series is not time dependents. The covariance value depends only on distance not the actual time at which the series are recorded. These conditions will be expressed as follows; (see D. Gujarati, "Basic Econometrics, 2009, 5th ed. Page 740)

Constant mean : $E(Y_t) = \mu$ ($eq2$)

Constant variance: $var(Y_t) = \sigma^2$ ($eq3$)

Covariance: $\gamma^k = E(Y_t - \mu)(Y_{t+K} - \mu)$ *(eq4)*

Unit root test is conducted to see whether the series are stationary or not. One commonly used test is the Augmented Dickey Fuller test (ADF) by (Dickey, 1976 and Fuller, 1979). The test equation can be presented in most general form that as

$$\Delta Y_t = \alpha + \beta t + \delta_1 Y_{t-1} + \sum_{i=1}^{m} \alpha \Delta Y_{t-i} + \varepsilon_t \quad \textit{(eq5)}$$

Where $\varepsilon_t$ is the white noise error term, α is the intercept term, β is the coefficient for the trend. The inclusion of the lagged values of $\Delta Y_t$ captures any serial correlation in the error term. The lag order can be determined by the Akaike information criteria (AIC). The augmented Dickey-Fuller test can be carried out in three versions as without both trend and constant or with trend variable only or with both trend and constant. The null hypothesis is $\delta = 0$, meaning the series $Y_t$ is non stationary indicating the presence of unit root and the alternative hypothesis is $\delta < 0$ that the time series is stationary. If the coefficient $\delta$ is significant at conventional levels of significance, the null hypothesis will be rejected. The tau values for the coefficients under the null hypothesis are shown by Dickey and Fuller (1979) to follow tau-statistics and the critical values constructed accordingly.

# Chapter 5

# EMPIRICAL RESULTS

As we stated in chapter 4, the main objective of this study is to investigate the impact of openness on the Iraqi economy. In the model, we also included other variables associated with economic growth. The first step is to conduct the unit root tests for each time series which are presented in Table 5.1 below.

Table 5.1: The ADF unit root test results

| Variables | ADF test statistics |
|---|---|
| GDPG | -4.765091 |
| GE | -2.981113 |
| INDP | -8.745235 |
| OPN | -4.613368 |
| POPG | -3.058830 |
| OUSE | -4.943628 |
| CNF | -8.816614 |

Note: Critical values for the tau-statistics at 1%, 5% and 10% level of significance are -3.646, -2.954, and -2.616 respectively.

We have also conducted the ADF tests for the levels of the variables which indicated that all the series had unit root which are not presented here to save space. Then we proceeded in taking the first difference of all the variables. From the above table, we observe that all the variables become stationary in their first differences. For a

potential high degree of multicollinearity problem, the correlation matrix is produced that is shown in Table 5.2.

Table 5.2: Correlation matrix

| | GE | OPN | INDP | OUSE | POPG | CNF |
|---|---|---|---|---|---|---|
| GE | 1.00 | 0.18 | -0.21 | -0.26 | 0.07 | 0.07 |
| OPN | | 1.00 | 0.01 | 0.09 | 0.24 | 0.11 |
| INDP | | | 1.00 | 0.37 | 0.07 | 0.34 |
| OUSE | | | | 1.00 | -0.15 | 0.33 |
| POPG | | | | | 1.00 | -0.06 |
| CNF | | | | | | 1.00 |

Source: Researchers estimation.

As we can see from the above table, the highest correlation value is 0.37 between oil use and industry index, next is 0.34 between capital inflow and the industry index followed by 0.33 between capital inflow and oil use. The correlation coefficients between all other explanatory variables are very low. These results do not seem to lead to a high degree of multicollinearity problem which will be further checked when the model is estimated.

## 5.1 The Regression Results

The model to be estimated is represented by (eq. 1) in Chapter 4 for which the estimates are presented in table 5.3 below. As seen from the table, all variables are highly significant except the capital inflow variable (CNF) which can only be considered to be marginally significant at 10.7%. The coefficient is also negative and very small. However, its interaction with the structural dummy variable (CSD2003) is highly significant and positive. This is indicative of the positive impact of FDI after

the Saddam reign. Government expenditure as expected imposes a positive on economic growth. The openness variable also has a positive impact on Iraqi economic growth. Development of the manufacturing industry has a highly significant effect on economic growth. In developing countries, the more open is the country, higher is the development of its manufacturing sector which is an indicator of growing path of its economy. This is because such countries are dependent on export of their primary commodity and thus, the development of a manufacturing sector plays an important role in the development process of their economies. (For detailed explanation see International Economics, 7th ed. 2010 by Appleyard, Field, Cobb, pp.421)

Table 5.3: Regression Result (Dependent Variable: GDP Growth)

| Variables | Coefficient | t-statistic | *p*-value |
|---|---|---|---|
| GE | 0.079362*<br>(0.0409) | 1.9375 | 0.0651 |
| OPN | 0.280661***<br>(0.0598) | 4.6937 | 0.0001 |
| IND | 0.345047***<br>(0.0236) | 14.595 | 0.0000 |
| OUSE | -0.873618***<br>(0.1015) | -8.6044 | 0.0000 |
| POPG | -18.66352***<br>(5.3159) | -3.5109 | 0.0019 |
| CNF | -0.002598<br>(0.0015) | -1.6773 | 0.1070 |
| CSD03 | 0.007598** | 2.7159 | 0.0123 |

| | | | |
|---|---|---|---|
| | (0.0028) | | |
| D91 | -32.95056***<br>(7.5621) | -4.3573 | 0.0002 |
| D2003 | -45.75110***<br>(5.2668) | -8.6868 | 0.0000 |
| DS2003 | 16.77452***<br>(2.6913) | 6.2329 | 0.0000 |
| Constant | 55.64258<br>(13.4654) | 4.1323 | 0.0004 |
| F-statistic | 51.10433 | | 0.0000 |
| R-square | 0.9569 | | |
| Log likelihood | -108.0742 | | |

Note: (***), (**), (*)means significant and 1%, 5% and 10%respectively.The numbers in bracket are robust HAC standard errors.

As opposed to the theory and our expectations, the population variable and the energy use variables are significant but negative. This indicates that some specific country characteristics are important here and should be interpreted with care; population increase imposing a negative impact on economic growth may indicate that most labor is unskilled or not productive in Iraq. The energy use variable, on the other hand, indicates that more energy used affects economic growth negatively, which might be the result of the government policy that oil is sold to public and firms at a very low price. The war dummies of D91 and D2003 also are negative as expected while the 2003 structural dummy variable indicates that after Saddam, the country entered into fast growing path of 16.8% per year on average. From the correlation matrix presented in table 5.2, capital inflow appeared to be correlated with industry

and oil use. Therefore, we checked whether estimations would differ significantly after deletion of this variable. It is observed that the significance, sign and the coefficients of other variables do not change indicating that the correlation of capital inflow with these two variables does not lead to dangerous degree of multicollinearity problem. The F-statistics of the model is also highly significant indicating that the explanatory variables are jointly highly significant. The Jarque-Bera (JB) test statistics for the residuals of the model is 1.203 with a p-value of 0.547 and thus, one cannot reject he null hypothesis that residuals are normally distributed. Some other variants of the model with inclusion of lagged variables for some variables have shown that the estimates are robust to small changes. The detailed interpretation of the estimated model is presented below.

## 5.2 Interpretation of the Estimated Model

The explained variable is Gross Domestic Product Growth (GDPG) estimated against

1) The government expenditure per capita (GE) is found significant at 0.06 level of significance, which means that 1% increase in government expenditure will lead to an average of 0.08% increase in economics growth per year. This variable imposes a positive impact on economic growth which is compatible to our expectation.

   Over the sample period, the Iraqi government made investment on infrastructure and other consumer goods in order to improve the lives of citizens. For instance, most of the expenditures of the government are on infrastructural investment such as schools, hospitals and roads that provide free services to public increasing their standard of living.

2) The openness variable which is our key variable was also found highly significant having a positive coefficient of0.28. This means that a 1% increase

in openness will result in 0.28% increase in GDPG. Openness had an important role in raising the economic growth per capita since Iraq is heavily dependent mainly on oil export revenue and on export of some agricultural products. In term of import, because of the low tariffs imposed on the import of goods and other products at all the borders, there is a large demand to import products, which create many job and businesses in Iraq, especially in cities that share borders with neighboring countries.

3) The industry per capita was also found highly significant with a positive coefficient of 0.345. There are many important industrial sectors in Iraq such as oil industry, the petrochemicals, electrical industry, the pharmaceutical industry, automobile industry, agricultural industry and many other industries. Over the sample period, 1% increase in the production value of these is found to lead to an average increase of per capita GDP by 0.35%. Thus, the development of such manufacturing sector is clearly contributing to the economic growth of Iraq.

4) The oil usage per capita was also estimated highly significantly. However, with a negative coefficient contrary to what we expected initially. The coefficient was (-0.874), which means that1% increase in oil consumption per person will lead to approximately an average of 0.88% decrease in GDPG. The energy use in Iraq may have a negative impact on GDPG, due to uneconomical and over-consumption of electricity and oil. For instance, Iraqi citizens have the behavior of not paying electricity bills. The Iraqi government also has a scheme of selling half a barrel of oil to each family during autumn and winter at a very cheap price to be used for heating and cooking. Therefore,

the non-payment of bills and the government policy of low sale price of oil may explain the negative impact on the country's revenue generation.

5) The population growth was estimated to be highly significant with a negative large coefficient of 18.66. The notion of whether population has negative or positive impact to an economy is not new in the field of economics, which is still a debatable issue. (Krueger, 1997). However, most economists come to a consensus that a sizable and active population affects growth positively, whereas unskilled and inactive population will undermine the growth process. Over the last ten years, when the Iraqi government raised the salaries of employees, many people left their villages and farming in order to get a job in the government sector. This policy may have had a negative impact on the agricultural sector increasing the burden on government as well.
6) The capital inflow variable was not significant at conventional levels or may be interpreted as only to be marginally but negatively significant at 10.7% level. We expected the FDI to have a positive and significant impact on economic growth. However, as the FDI was highly fluctuating during Saddam's rule of the government, which imposed a negative impact over the whole sample period. In order to be able to observe the relation of FDI and economic growth after the Saddam's period, the interaction term is constructed as CSD03 which was estimated to be highly significant and positive although the coefficient is a small value. During the rule of Saddam Hussein's regime, there was no desire for foreign investment in Iraq due to the instability and the failed repressive policies which was followed by the regime. But after the end of Saddam Hussein's regime in 2003, large number of foreign companies in all areas made investment in Iraq, especially in the

safe areas where security and stability prevail. For instance, the amount of foreign direct investment increased from USD 515.3 million in 2005, to USD 4,781.8 million in 2014. (World Data Bank, 2015).

7) Dummy variable of 1991 gulf war was highly significant with a coefficient of -32.95which means that gulf war, which started on 2nd August 1991 and lasted till 28th February 1991 have negatively affected economic growth by an annual average of about 33%. The dummy variable of 2003 representing the US invasion of Iraq was also statistically highly significant and negative. The coefficient (-45.75) means that the invasion, which started fully on the 19th March 2003 and lasted till 1st April 2003, has affected the Iraqi GDPG negatively by 45.2% on average.
8) The structural dummy variable of 2003 representing the change of government structure after overthrown of Saddam Hussein's reign was also found highly significant with a positive coefficient of 16.77. This means that the change of the government structure has led the GDPG to increase with an annual average 16.8%. This happened on 12th July 2003, when the governing council was formed to govern Iraq which lasted until 1st June 2004, where after the Interim government was formed to lead the nation.

We will provide the conclusion and policy recommendations that could be deduced from this research work in the next chapter.

# Chapter 6

# CONCLUSION AND POLICY RECOMMENDATION(S)

The conclusion and policy recommendation that derived from the above econometric model are presented below;

## 6.1 Conclusion

As we stated previously, the main objective of this study is to investigate the impact of openness on the Iraqi economy. To do that, the economic growth variable(GDPG) was regressed on the openness variable (OPN) with a set of control variables; government expenditure per person (GE), industry investments value per capita (INDP), oil utilization value per capita (OUSE), capital inflow (CNF) and an interaction variable of capital inflow with structural dummy of 2003 (CSD03) and dummies for the effect of 1991 gulf war, 2003 US invasion to Iraq and 2003 transition to democratic government after overthrown of Saddam's reign as well.

The research question of the thesis is whether there a relation between economic growth and openness in Iraq? Based on the regression analysis the answer is yes which is in support of the growing number of empirical researches for different economies that confirm this positive relationship. Also another major finding is that the 1991 Kuwait War and the invasion of Iraq by the US in 2003 have largely and negatively affected the Iraqi economic growth. Moreover, the structural changes after Saddam's reign as from 2003 have a positive impact on the economic grow path of

Iraq. The study also finds that foreign capital investment imposes a positive impact on the economy after the infrastructural changes made as from 2003.

## 6.2 Limitations of the Study

The regression results are based on a small sample with 33 observations to estimate ten explanatory variables. Also, it is well documented in the literature that when openness increases economic growth, higher production and thus income level induces higher trade of goods and services which implies the presence of bidirectional link between economic growth and openness. This bidirectional relationship causes endogeneity bias problem. Also, lagged values of the openness variable may be affecting today's growth. Thus, most empirical studies use VAR framework to address these technical problems. However, in this study, this has not been possible due to limited data available for Iraq as VAR type of models require long time series as the model consumes degrees of freedom. (Andersen and Babula, 2008). Another problem is related with the definition of the openness variable as there is no universally accepted way of measuring how trade could affect economic growth as highlighted by Andersen and Babula (2008). Therefore, the estimation results and their interpretation should be taken with caution keeping these points in mind. Yet, the empirical analysis enhanced our understanding on the importance of openness especially to politically unstable economy like Iraq and the strong negative impact of wars on economy which opens a gap for future research when data accumulates.

## 6.3 Policy Recommendation(s)

It is commonly known in the literature of international trade that the more open is the country and free is trade between countries the larger will be the benefit for the countries involved in it. It is also empirically proven that the developing countries benefit more from the international trade, because their demand or supply of goods

and services cannot influence the world prices (Broda, Greenfield, and Weinstein, 2006).

Iraq is a developing country which suffered lot of from the series of wars in its history and with the current prevalence of violence in so many parts of the country, a policy of free flows of trade will help to achieve a faster economic growth and rectify some damages.

Iraq, being one of the countries that is heavily dependent on oil and some agricultural products, but most of the revenues coming from oil export, will benefit from engaging in trade with such important endowments. On the other hand, increase of imports will be beneficial to consumers since there is a big desire to imported products; consumers are enjoying more choices of goods and services. Also, the imports of intermediary goods encourage the development of the manufacturing sector which will create many jobs and businesses in the country, especially in cities that share borders with neighbouring countries. In this respect, policies that encourage export of domestically manufactured goods should be encouraged by the government by a policy of export promotion. Such a policy will help the manufacturing sector to develop faster to avoid the dependence of the country on oil exportation only. Therefore, it is important for the Iraqi government to continue a policy of easing foreign capital investment that will help to promote the development of the manufacturing sector.

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# APPENDICES

## Appendix A: The Estimation Modle

Dependent Variable: GDPG
Method: Least Squares
Date: 07/11/16 Time: 17:10
Sample (adjusted): 1981 2014
Included observations: 34 after adjustments
HAC standard errors & covariance (Bartlett kernel, Newey-West fixed bandwidth = 4.0000)

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 55.64258 | 13.46537 | 4.132272 | 0.0004 |
| GE | 0.079362 | 0.040961 | 1.937487 | 0.0651 |
| OPN | 0.280661 | 0.059795 | 4.693739 | 0.0001 |
| INDP | 0.345047 | 0.023641 | 14.59554 | 0.0000 |
| OUSE | -0.873618 | 0.101532 | -8.604360 | 0.0000 |
| POPG | -18.66352 | 5.315870 | -3.510905 | 0.0019 |
| CNF | -0.002598 | 0.001549 | -1.677288 | 0.1070 |
| CSD03 | 0.007598 | 0.002798 | 2.715855 | 0.0123 |
| D91 | -32.95056 | 7.562121 | -4.357317 | 0.0002 |
| D2003 | -45.75110 | 5.266761 | -8.686762 | 0.0000 |
| DS2003 | 16.77452 | 2.691293 | 6.232883 | 0.0000 |

| | | | |
|---|---|---|---|
| R-squared | 0.956932 | Mean dependent var | 6.228286 |
| Adjusted R-squared | 0.938207 | S.D. dependent var | 28.42109 |
| S.E. of regression | 7.064955 | Akaike info criterion | 7.004363 |
| Sum squared resid | 1148.013 | Schwarz criterion | 7.498186 |
| Log likelihood | -108.0742 | Hannan-Quinn criter. | 7.172771 |
| F-statistic | 51.10433 | Durbin-Watson stat | 1.986645 |
| Prob(F-statistic) | 0.000000 | | |

## Appendix B: The Unit Root Tests for the Variables

Null Hypothesis: GDPG has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=8)

| | | t-Statistic | Prob.* |
|---|---|---|---|
| Augmented Dickey-Fuller test statistic | | -4.765091 | 0.0005 |
| Test critical values: | 1% level | -3.646342 | |
| | 5% level | -2.954021 | |
| | 10% level | -2.615817 | |

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GDPG)
Method: Least Squares
Date: 07/11/16 Time: 17:29
Sample (adjusted): 1982 2014
Included observations: 33 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| GDPG(-1) | -0.846230 | 0.177590 | -4.765091 | 0.0000 |
| C | 5.741391 | 5.130689 | 1.119029 | 0.2717 |

| | | | |
|---|---|---|---|
| R-squared | 0.422784 | Mean dependent var | 0.843303 |
| Adjusted R-squared | 0.404164 | S.D. dependent var | 37.40880 |
| S.E. of regression | 28.87600 | Akaike info criterion | 9.622590 |
| Sum squared resid | 25848.52 | Schwarz criterion | 9.713288 |
| Log likelihood | -156.7727 | Hannan-Quinn criter. | 9.653107 |
| F-statistic | 22.70609 | Durbin-Watson stat | 2.078696 |
| Prob(F-statistic) | 0.000042 | | |

Null Hypothesis: GE has a unit root
Exogenous: Constant
Lag Length: 2 (Automatic - based on SIC, maxlag=8)

| | | t-Statistic | Prob.* |
|---|---|---|---|
| Augmented Dickey-Fuller test statistic | | -2.981113 | 0.0478 |
| Test critical values: | 1% level | -3.661661 | |
| | 5% level | -2.960411 | |
| | 10% level | -2.619160 | |

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GE)
Method: Least Squares
Date: 07/11/16 Time: 16:48
Sample (adjusted): 1984 2014
Included observations: 31 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| GE(-1) | -1.036841 | 0.347803 | -2.981113 | 0.0060 |
| D(GE(-1)) | -0.137087 | 0.263399 | -0.520454 | 0.6070 |
| D(GE(-2)) | -0.024163 | 0.160771 | -0.150297 | 0.8816 |
| C | 6.157108 | 7.279294 | 0.845839 | 0.4051 |

| | | | |
|---|---|---|---|
| R-squared | 0.621564 | Mean dependent var | 1.497770 |
| Adjusted R-squared | 0.579516 | S.D. dependent var | 59.83826 |
| S.E. of regression | 38.80197 | Akaike info criterion | 10.27473 |
| Sum squared resid | 40651.00 | Schwarz criterion | 10.45976 |
| Log likelihood | -155.2584 | Hannan-Quinn criter. | 10.33505 |
| F-statistic | 14.78211 | Durbin-Watson stat | 2.102100 |
| Prob(F-statistic) | 0.000007 | | |

Null Hypothesis: OPN has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=8)

| | | t-Statistic | Prob.* |
|---|---|---|---|
| Augmented Dickey-Fuller test statistic | | -4.613368 | 0.0008 |
| Test critical values: | 1% level | -3.646342 | |
| | 5% level | -2.954021 | |
| | 10% level | -2.615817 | |

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(OPN)
Method: Least Squares
Date: 07/11/16 Time: 16:51
Sample (adjusted): 1982 2014
Included observations: 33 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| OPN(-1) | -0.798175 | 0.173014 | -4.613368 | 0.0001 |
| C | -2.308151 | 5.916928 | -0.390093 | 0.6991 |

| | | | |
|---|---|---|---|
| R-squared | 0.407075 | Mean dependent var | -1.333438 |
| Adjusted R-squared | 0.387948 | S.D. dependent var | 43.41924 |
| S.E. of regression | 33.96849 | Akaike info criterion | 9.947435 |
| Sum squared resid | 35769.60 | Schwarz criterion | 10.03813 |
| Log likelihood | -162.1327 | Hannan-Quinn criter. | 9.977952 |
| F-statistic | 21.28316 | Durbin-Watson stat | 2.025563 |
| Prob(F-statistic) | 0.000065 | | |

Null Hypothesis: INDP has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=8)

| | | t-Statistic | Prob.* |
|---|---|---|---|
| Augmented Dickey-Fuller test statistic | | -8.745235 | 0.0000 |
| Test critical values: | 1% level | -3.646342 | |
| | 5% level | -2.954021 | |
| | 10% level | -2.615817 | |

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INDP)
Method: Least Squares
Date: 07/11/16 Time: 16:53
Sample (adjusted): 1982 2014
Included observations: 33 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| INDP(-1) | -1.403574 | 0.160496 | -8.745235 | 0.0000 |
| C | 7.975151 | 9.893818 | 0.806074 | 0.4263 |

| | | | |
|---|---|---|---|
| R-squared | 0.711572 | Mean dependent var | 2.223408 |
| Adjusted R-squared | 0.702268 | S.D. dependent var | 103.9313 |
| S.E. of regression | 56.70994 | Akaike info criterion | 10.97247 |
| Sum squared resid | 99696.52 | Schwarz criterion | 11.06317 |
| Log likelihood | -179.0457 | Hannan-Quinn criter. | 11.00298 |
| F-statistic | 76.47913 | Durbin-Watson stat | 2.240959 |
| Prob(F-statistic) | 0.000000 | | |

Null Hypothesis: OUSE has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=8)

| | | t-Statistic | Prob.* |
|---|---|---|---|
| Augmented Dickey-Fuller test statistic | | -4.943628 | 0.0003 |
| Test critical values: | 1% level | -3.646342 | |
| | 5% level | -2.954021 | |
| | 10% level | -2.615817 | |

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(OUSE)
Method: Least Squares
Date: 07/11/16 Time: 16:59
Sample (adjusted): 1982 2014
Included observations: 33 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| OUSE(-1) | -0.881829 | 0.178377 | -4.943628 | 0.0000 |
| C | 3.974390 | 2.668269 | 1.489501 | 0.1465 |

| | | | |
|---|---|---|---|
| R-squared | 0.440831 | Mean dependent var | -0.006455 |
| Adjusted R-squared | 0.422794 | S.D. dependent var | 19.23469 |
| S.E. of regression | 14.61338 | Akaike info criterion | 8.260444 |
| Sum squared resid | 6620.076 | Schwarz criterion | 8.351141 |
| Log likelihood | -134.2973 | Hannan-Quinn criter. | 8.290961 |
| F-statistic | 24.43946 | Durbin-Watson stat | 1.946337 |
| Prob(F-statistic) | 0.000025 | | |

Null Hypothesis: POPG has a unit root
Exogenous: Constant
Lag Length: 3 (Automatic - based on SIC, maxlag=8)

| | | t-Statistic | Prob.* |
|---|---|---|---|
| Augmented Dickey-Fuller test statistic | | -3.058830 | 0.0408 |
| Test critical values: | 1% level | -3.670170 | |
| | 5% level | -2.963972 | |
| | 10% level | -2.621007 | |

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(POPG)
Method: Least Squares
Date: 07/11/16 Time: 17:04
Sample (adjusted): 1985 2014
Included observations: 30 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| POPG(-1) | -0.112310 | 0.036717 | -3.058830 | 0.0052 |
| D(POPG(-1)) | 1.332937 | 0.169721 | 7.853712 | 0.0000 |
| D(POPG(-2)) | -0.777685 | 0.260570 | -2.984556 | 0.0063 |
| D(POPG(-3)) | 0.394274 | 0.182018 | 2.166134 | 0.0400 |
| C | 0.312688 | 0.100886 | 3.099421 | 0.0047 |

| | | | |
|---|---|---|---|
| R-squared | 0.873890 | Mean dependent var | 0.015869 |
| Adjusted R-squared | 0.853713 | S.D. dependent var | 0.097575 |
| S.E. of regression | 0.037320 | Akaike info criterion | -3.587569 |
| Sum squared resid | 0.034819 | Schwarz criterion | -3.354036 |
| Log likelihood | 58.81353 | Hannan-Quinn criter. | -3.512859 |
| F-statistic | 43.31008 | Durbin-Watson stat | 2.189805 |
| Prob(F-statistic) | 0.000000 | | |

Null Hypothesis: CNF has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=8)

| | | t-Statistic | Prob.* |
|---|---|---|---|
| Augmented Dickey-Fuller test statistic | | -8.816614 | 0.0000 |
| Test critical values: | 1% level | -3.646342 | |
| | 5% level | -2.954021 | |
| | 10% level | -2.615817 | |

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(CNF)
Method: Least Squares
Date: 07/11/16 Time: 17:02
Sample (adjusted): 1982 2014
Included observations: 33 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| CNF(-1) | -1.429687 | 0.162158 | -8.816614 | 0.0000 |
| C | 31.95406 | 134.5314 | 0.237521 | 0.8138 |

| | | | |
|---|---|---|---|
| R-squared | 0.714897 | Mean dependent var | -3.215479 |
| Adjusted R-squared | 0.705700 | S.D. dependent var | 1423.950 |
| S.E. of regression | 772.4845 | Akaike info criterion | 16.19579 |
| Sum squared resid | 18498700 | Schwarz criterion | 16.28649 |
| Log likelihood | -265.2306 | Hannan-Quinn criter. | 16.22631 |
| F-statistic | 77.73268 | Durbin-Watson stat | 2.250974 |
| Prob(F-statistic) | 0.000000 | | |