The impact of foreign Aid on economic growth in Palestine Economy: Evidence from an ARDL model

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ABSTRACT

This Thesis examines the link between Physical capital, saving, aid and Economic Growth for the Palestinian Economy. Bounds testing approaches as well as ARDL techniques are conducted for analyzing a growth model over the period 1993Q1-2013Q4. The results suggest that the physical investment is an important driver for economic growth in both the long and short- terms of the Palestinian economy. The findings also display that saving and aid don not have any impact on output growth in either the long or short- term periods whereas labor force has positive influence on economic growth in the case of the Palestinian Economy.

Keywords: Economic Growth, Aid, ARDL, Corruption, Palestinian Economy

ÖZ

Bu tez ampirik olarak Filistin ekonomisindeki ekonomik büyüme ile uluslararası ekonomik yardımlaşma ve tasarruflar arasındaki uzun ve kısa dönemli ilşkiyi otoregresif dağıtılmış gecikme test ile ölçer (ARDL.). Otoregresif dağıtılmış gecikme testi kullanılarak 1993Q1 ile 2013Q4 yılları arasında Filisti'nin ekonomik büyümesi incelenmiştir. Ampirik bulgular sermaye yatırımlarının hem uzun hemde kısa dönemli ekonomik büyüme üzerinde etkili olduğu belirlenmiştir. Bulgular ayrıca uluslararası ekonomik yardımlaşma ve tasarrufların ekonomik büyüme üzerinde hiçbir etkisi olmadığı ıspatlanmıştır. Bunun paralelinde Filistin ekonomisinde emek ve iş gücü'nün ekonomik büyümeyi positif yönde etkilediği bulunmuştur.

Anahtar kelimeler: Ekonomik büyüme; otoregresif dağıtılmış gecikme testi (ARDL); yolsuzluk, Filistin ekonomisi, uluslararası ekonomik yardımlaşma

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LIST OF ABBREVIATIONS

PLO: Palestinian Liberation Organization

PA: Palestinian Authority

WB&G: West Bank & Gaza

OPT: Occupied Palestine Territory

GDP: Gross Domestic Product

IMF: International Monetary Fund

WB: World Bank

NGO: Non-Governmental Organization

IDF: Israeli Defense Forces

DOP: Declaration of Principles

OECD: Organization for Economic Co-operation and Development

OLS: Ordinary Least Square

1R&D: Research and Development

DAC: Development Assistance committee

ODA: Official Development Assistance

OA: Official Assistance

CPIA: Country Policy and Institutional Assessment

TIM: Temporary International Mechanism

Chapter 1

INTRODUCTION

One of the most difficult challenges to achieve in the Middle East is a development of the economic growth, due to different reasons as they considered as third-countries by depending on other developed countries products such as U.S, U.K and China, which the Middle East represents a perfect market for especially nowadays. Many Middle-eastern countries depend on foreign aid in their day-to-day transactions, especially after the spread of many conflicts in such countries, such as Iraq, Syria, and Palestine, in addition to countries with internal conflicts such as Lebanon and Egypt. These conflicts resulted in a reduction in economic growth and an increase of the amount of many forms of foreign aid coming into the country.

Palestine or (WB&G) which is located in a strategic place between Syria, Lebanon and Egypt with a population of over 4.42million covers an accumulated area of 27,009sq.km, in which West Bank covers an area of 5,844sq.km and Gaza covers an area of 365sq.km. Palestine has an active age structure of 57% (15-64years) and a dependency age structure of 70% (0-14years) and 5% (65years and above).

Palestine enjoys many arable land and natural resources with natural gas that mainly exists in the Gaza strip. Others include minerals, soils, wood and metals. However, due to the Israeli occupation, Palestine has no control over some of these natural resources, and is unable to use or recycle them. This has considerably weakened the

Palestinian economy, and has slowed down its growth. Palestine's main source of revenue is taxation and foreign aid. Another major source is olives. Approximately 80,000 Palestinian families profit from it. In addition, olive trees cover approximately 48% of agricultural land in Palestine according to UN statistics. They contribute to an estimate of 14% of the Palestinian economy. Around 93% of this olive is used in producing oil.

The Palestinian-Israeli conflict had a great impact on the amount of aid reaching Palestine, due to the damages it inflicted on the Palestinian infrastructure, and on the social and economic aspects. In spite of the huge amounts of foreign aid to Palestine, the Palestinian economy nowadays suffers from several restrictions and is in desperate need of reconstruction. Despite the considerable improvements in the standards of living in Palestine, the fruitful implementations in the economy and security, and the ease of goods and labour movement between Palestine and Israel, Palestine has not been able to become economically independent and the economy has not developed as expected despite the huge amounts of incoming foreign aid. It is worth noting that this kind of aid is conditional upon the political status among the donor countries and the Palestinian-Israeli conflict. In addition, Israel enforced policies concerning the access of land and resources, imports and exports limitations, and trade flows. Consequently, the Palestinian authority will continue in depending on aid coming from donor countries in the day-to-day fiscal needs.

1.1 Aim of Study

This Thesis examines the link between Physical capital, saving, aid and Economic Growth for the Palestinian Economy. Bounds testing approaches as well as ARDL

techniques are conducted for analysing a growth model over the period 1993Q1-2013Q4.

Actually, it leans to explain how the various variables used (real GDP, level of investments, employment rate, domestic savings and level of foreign aid), are essential in stating the impact of aid in Palestine. The aim of this thesis is to give:

1. An overview of the concept of foreign aid and its relation with economic growth.

2. To observe the reasons and impacts of foreign aid on the economy of Palestine.

3. The roles of the projects lead by the NGO's, organizations and other charities in developing the economy.

4. To propose potential ways of investigating the dilemma which foreign aid generates such as economic regression, unemployment, and the increase of the social stratifications.

1.2 Methodology and Data

The data gotten for this thesis work are based on time series. It is for a period of 20 years, which is from 1993-2013. They are calculated quarterly and are based on five variables. They include real GDP (CAP), level of investments (KR), employment rate (L), domestic savings (SAV) and level of foreign aid (AID).

1.3 Findings of this Thesis

The results suggest that the physical investment is an important driver for economic growth in both the long and short- terms of the Palestinian economy. The findings also display that saving and aid don not have any impact on output growth in either

the long or short- term periods whereas labor force has positive influence on economic growth in the case of the Palestinian Economy.

1.4 Structure of the Study

This thesis is categorized as follows: The first chapter is an introductory and a brief Summary of the dissertation, the second chapter reviews the relevant literature on aid and economic growth nexus and presents the recent evidence on both the impacts of aid on economic growth; the third chapter contains an overview of the Palestinian economy. Chapter four explains methodology, data and describes the theoretical modelling, chapter five presents the regression model and the empirical results; chapter 6 concludes and gives some recommendations and suggestions for further studies.

Chapter 2

LITERATURE REVIEW

2.1 Foreign Aid Overview

Many countries where conflicts occurred attract foreign aid in order to achieve economic recovery. However, countries differ in the level of aid they receive and how it is allocated depending on the gravity of the county's situation, the amount of aid, the level of corruption, and whether it is meant for specific goals or not. Palestine is one the countries that receive huge amounts of aid from donor communities, such as the US and European countries. Nevertheless, it is considered a third-world country, and suffers from deficiency in human and natural resources especially after the wars it had, it had lost a huge amount of land and resources, and still it cannot control its own borders or collecting its own imports and exports taxes, quotas and others. On the other hand, due to lately agreements with the Israeli side especially the Oslo accords, and the Paris protocol. Palestinians economy became more limited and weaker. The Palestinian economy has gone through structural changes over the past 10 years; after growing in the 1999, it deteriorated after the second Intifada. Unemployment rates increased, trade deteriorated in all economic sectors, and the Palestinian economy dependence on that of Israel enlarged dramatically. In addition, the West Bank and Gaza strip (WB&G) have witnessed severe conflicts in the years between 2002 and 2013. In 2011, it was the third largest recipient of humanitarian aid, and in 2012 it was considered a fragile state. The table

1.A, 1.B and 1.C below shows the top ten government donors of humanitarian assistance to Palestine during the period of 2000-2011 in US million dollars, whereas table 2 shows several ODA data and the level of humanitarian aid received by different recipient countries in 2011.

Table 1. A: Level of humanitarian aid received from different countries from 2000 to 2003.

2000	US$ M	2001	US$ M	2002	US$ M	2003	US$ M
US	71.2	US	96.2	US	114.4	EU	135.4
EU	49.3	EU	81.2	EU	104	US	127.9
Japan	31.5	UK	53.2	UK	58.2	UK	53.4
UK	29.3	Germany	28	Norway	55.4	Germany	43.5
Netherlands	26.8	Sweden	26.4	Sweden	41.7	Sweden	42.6
Norway	20.8	Netherlands	24.6	Germany	38.3	Norway	38.1
Sweden	20.3	Norway	24.4	France	31.2	France	34.8
Germany	18	France	21.4	Netherlands	22.0	Netherlands	20.7
France	10.7	Japan	15.7	Spain	17.4	Spain	17.1
Canada	10.5	Denmark	14.7	Italy	17.1	Switzerland	16.7

Table 1. B: Level of humanitarian aid received from different countries from 2004 to 2007.

2004	US$M	2005	US$M	2006	US$M	2007	US$M
EU	151	EU	133.8	EU	176.6	EU	168.6
US	125	Sweden	43.9	Germany	74.7	US	89.6
UK	67.2	UK	35	Japan	63.4	Germany	75.7
Sweden	55.1	Germany	34.9	US	61.2	Sweden	58.9
Germany	45.7	France	31.3	Sweden	60.1	Norway	54.5
France	43.7	Netherlands	23.8	France	50	UK	47.2
Norway	40.5	Japan	22.6	UK	45.6	Canada	43.8
Netherlands	33.3	Spain	18.8	Netherlands	43.1	Italy	43.2
Switzerland	23.8	Norway	18.4	Norway	31.7	France	39.2
Spain	23.4	Switzerland	17.3	Italy	27.4	Netherlands	39

Table 1. C: Level of humanitarian aid received from different countries from 2008 to 2011.

2008	US$ M	2009	US$ M	2010	US$M	2011	US$ M
EU	180	US	315.3	EU	197.2	US	280.7
Sweden	71.1	EU	204.2	US	89.9	EU	206.4
Germany	55	UK	99.2	UK	78.1	UK	82.8
Norway	54.6	Sweden	75	Sweden	76.4	Sweden	76.4
Spain	53	Spain	70.2	Germany	58.8	Germany	57.5
Netherlands	51.8	Germany	59.3	France	44.2	France	43
France	42	Norway	58.6	Spain	38.6	Norway	39.6
Canada	38.9	France	52	Norway	37.4	Spain	34.9
Italy	33.4	Italy	40.1	Italy	35.9	Canada	34.3
UK	27.3	Canada	39.9	Netherlands	34.9	Italy	31.9

DATA D. I.(2011).
http://www.globalhumanitarianassistance.org/countryprofile/palestineopt#tab-donors. Retrieved July 26, 2014, from http://www.globalhumanitarianassistance.org/.

Table 2: level of humanitarian aid received by different recipient countries in 2011

Recipient Countries	ODA as % of GNI (2011)	Total ODA (2011) US$m	Share of total global ODA to recipient countries (2011)	International humanitarian assistance (2011) US$m	Share of humanitarian assistance to recipient countries (2011)
Pakistan	1.59%	3,213	3.54%	1,426	12.01%
Somalia	Null	985	1.09%	1,107	9.32%
West Bank & Gaza Strip	Null	2,357	2.60%	849	7.15%
Afghanistan	38.35%	6,490	7.16%	771	6.49%
Ethiopia	Null	3,508	3.87%	682	5.74%
Sudan	1.81%	1,074	1.19%	562	4.73%
Kenya	7.12%	2,476	2.73%	537	4.52%
Haiti	23.69%	1,703	1.88%	534	4.49%
South Sudan	Null	1,085	1.20%	483	4.06%
Congo, Dem. Rep.	17.20%	2,298	2.54%	442	3.72%
Iraq	2.15%	1,871	2.06%	299	2.52%
Chad	5.54%	468	0.52%	261	2.20%
Yemen	1.50%	403	0.44%	223	1.88%

SOURCE: Development Initiatives based on OECD DAC, UN OCHA FTS and World Bank data.

Burnside and Dollar, (2000:864) investigates in their research the relation among foreign aid, economic policies and growth of per capita GDP. They argued that foreign aid impacts growth but it depends on the conditions of the policies of the recipient countries. They concluded that average foreign aid has had small effect on economic growth, even though, it has had a positive effect on economic growth were good policy environment been implemented. Moreover, they investigated the tendency to allocate aid in countries with good policies, and concluded that there is no correlation in bilateral aid whereas multilateral aid favours good policies. Donor countries are more inclined to providing aid to small and poor countries due to their increased ability in grow and develop. Palestine, for example, witnessed lot of wars and conflicts with Israeli settlers; a lot of Palestinians lost their homes, lands, families and jobs, and were left with no source of income. Approximately, 80,000 Palestinians receive European aid every year. A main problem in this matter is the fact that it supports the political agenda of the Oslo peace process and that it is not meant to end the occupation. Even though donor funding was meant to help Palestinians, it did not necessarily achieve that goal. Much of the aid did not help the Palestinians to achieve a steady economic development due to their lack of control over water, electricity, and their lands. This Issue started from the beginning of Oslo accords in 1993, Palestinian Authority (PA) had no control over natural resources, the Palestinian society depended mainly on farming, and a huge part of their income was due to exports from farming and various kinds of food. The problem was that much of the foreign aid did not support the agricultural sector, due to the contradictions between the Oslo accords and this sector; the Oslo efforts focused more on providing food and money to the people rather than on resolving the main problem and advancing the agriculture industry. On the other hand, since 1993

donor interference in their affairs increased, and donor's agenda was imposed on local societies.

2.2 The Concept of Aid

Aid is seen as the flow of resources from developed into developing countries. As per the Development Assistance Committee (DAC) of the Organization for Economic Cooperation and Development (OECD), foreign aid is defined as projects and programs, financial flows, deliveries of goods, technical assistance and commodities that are designed to promote economic development and welfare (hence excluding aid for military or other non-development purposes), and are provided as either grants or subsidized loans.

Aid flows are categorized by the Development Assistance Committee (DAC) into three main classes. The largest of those is the Official Development Assistance (ODA), which consists of aid supplied by donor governments to poor countries. The second one is the Official Assistance (OA), in which governments provide aid to countries where income per capita is higher than $9,000 such as Cyprus and Israel. Lastly, Private Voluntary Assistance, which comes in the form of grants from Non-Governmental Organizations (NGO's), foundations and charities.

Burnside and Dollar, (2000) argued about how to make foreign aid more effective. In recipient countries, governments implementing good economic policies will be able to achieve significant economic growth and attain more benefits from aid than distorted governments with distorted policies.

Collier and Dollar, (2000) see that if the governments in recipient countries improve institutional environments and economic policies, more people can be lifted out of poverty with the same amount of aid. Moreover, if the donor countries target poorer countries, and allocate aid more efficiently, they will better contribute in reducing poverty. If the governments and the donor countries bear these responsibilities, it will be possible to equate the marginal cost of poverty reduction.

Collier and Dollar, (2001) believe that foreign aid can accelerate the process of poverty reduction in the developing world wherever exist good environments for households and firms to save and invest.

Collier and Dollar, (2002) examine the effectiveness of aid in decreasing poverty levels. They study the correlation among aid, policy and growth, and conclude that aid is subject to diminishing returns, whereas absorptive capacity depends on the level of policy and institutions as measured by the World Bank's annual rating, the Country Policy and Institutional Assessment (CPIA). They find that poverty reduction depends on the level of poverty and on the distribution of income. Then they estimate a poverty-efficient allocation of aid between countries, which would maximize the reduction in poverty for a pre-given budget of aid.

Collier and Hoeffler, (2002) said that countries where civil wars occurred attract policy advice and aid. In post-conflict wars, recipient countries absorb normal aids in the first three years, whereas during the first decade, they absorb double than normal-level aid. They argue that aid allocation tend to reduce the risk of conflict and enhance the peace process. Post-conflict countries develop different priorities from

other developing countries, mainly because of the severity of some problems such as atypically high inflation. They find that aid is more effective in increasing growth in post-conflict situations. In addition, the priorities for improving policies are, in order, social policies, sectoral policies, and macro policies.

2.3 Aid, Development and Growth

Usually, foreign aid is given to countries in need in order to achieve economic growth in these recipient countries by enhancing the infrastructure and its various sectors, such as technology, education, and the health system, to supply sufficient amounts of food during hardships, or to revive the economy after the occurrence of economic crises. The level of economic growth of the recipient country is an indicator of the efficiency of aid. The recipient countries' response to aid varies from one country to another and is dependent on the economy of the country. There are many factors affecting both aid and growth. Hence, it is misinforming to deduce a simple correlation between them. The relationship connecting aid, growth, and development is dependent upon the recipient country's implemented policies, geography, level of corruption, the time frame, the amount of aid and where it is directed, and the problems aid is trying to resolve.

Aid and growth can be positively related, very poorly related, and have a conditional relationship. This conditional relationship is contingent on the circumstances of the recipient country, the strategies of the donors, and the domains which aid is sponsoring. Donors increasingly believe that aid is much more efficient in countries with healthy policies, and are therefore more inclined towards supporting such countries.

2.4 Forms of Aid

Foreign assistance from external resources to countries of low income and conflicts come in various forms. They are intended to achieve goals such as economic development or political or social goals. We present some of these forms.

2.4.1 Bilateral and Multilateral Support

Bilateral aid is provided directly by donor countries to aid-recipient countries. It usually represents the largest share of aid directed to recipient countries. Multilateral aid is channelled via international organizations, such as the International Monetary Fund (IMF), the United Nations (UN), the European Union (EU) and the World Bank, which in turn, administrate aid and allocate them in recipient countries. Bilateral aid is often based on self-interest. In Palestine, most foreign assistance has been provided under conditions, the requirement to act differently. If donor countries have interests in progressing the Israeli occupation or increasing the number of settlements, their aid will often work contrary to the Palestinians' interests.

1. Bilateral Aid

Palestine is one of the most countries that received bilateral aid since 1993, considering the population number and its capacity, James Philips -the senior Research fellow for Middle Eastern Affairs at The Heritage Foundation- argued in his article "Promoting Peace? Re-examining U.S. Aid to the Palestinian Authority, Part II" the following: "Since the signing of the 1993 Oslo peace accords, the U.S. has showered over $4 billion in bilateral aid on the Palestinians, who are one of the world's largest per capita recipients of international foreign aid. From FY 2008 until this year, annual U.S. bilateral aid to the West Bank and Gaza has averaged over

$600 million, according to the Congressional Research Service. In FY 2011, this bilateral aid is set at $550 million, including $400 million in Economic Support Funds and $150 million for training and equipping Palestinian Authority security forces."

Bilateral aid arrangements are usually dependent upon the political and economic statuses of the donor country. They are prone to change at any time and are therefore classified as short-term assistance. Recipient countries are often required to adjust their internal policies according to donor countries' interests, even when these policies are not related to aid. Hence, one of the main disadvantages of bilateral aid is that donor countries are inclined to interfere with the recipient's political and economic policies. Bilateral aid is distinct from multilateral in that it can be used as a tool for advancing peace processes, and possibly maintaining security in the recipient country. One example of how bilateral aid interferes in the recipient's policy is the United State's aid to Palestine in 2006 through USAID agencies. In 2006, the Palestinians elected their own government "Hamas". The results of the elections were considered hostile to western interests, so the foreign aid to the Palestinian Authority ceased to exist (RLFPalestine, 2011). The US has supported the Palestinian Authority since 1993 to advance the peace process. This aid was intended to sustain major goals for the US congress. To provide humanitarian needs to the Palestinians, to encourage self-governance and steadiness in the West Bank in order to promote the two-state solution and improve the coexistence with Israel, and to reduce the acts of terrorism against Israel.

2. Multilateral Aid

Among the channels of multilateral aid are the non-governmental organizations (NGOs) and the United Nations (UN). They play an important role in diminishing the pressure of foreign aid reduction by pooling aid proficiently. Therefore, they act as long-term reliable resources of aid.

Unlike bilateral aid, multilateral aid is not inclined towards changing the policies of the recipient countries and do not try to impose unrelated conditions on them. Due to years of aid-related efforts, multilateral aid agencies, like the NGOs and the UN, are usually known to the countries they function in. They recognize the need of the regions they operate in, and are able to best allocate the received funds.

Coordination and networking are among the most essential factors of success as believe by the Palestinian NGO Network, one of the chief sectors of the NGO sector in Palestine. Unlike other NGOs, the Non-Governmental Organizations in Palestine face a lot of pressure and deal with many problems due to the Israeli occupation and the Israeli defence forces (IDF). Consequently, the environment in which they function is much more challenging. In 1967, 47 years ago, NGOs were first launched in Palestine. The numbers of NGOs in Palestine between 1966 and 1987 are illustrated in Table 3. Up to this day, the role of these NGOs covers a wide range of sectors, agriculture and environment, human rights, sport, education, social services, culture, economic development, women and child, health, prisoners, and centres of studies. The Palestinian Economic Policy Research Institute (MAS) and the NGO Development centre provide statistics on PNGOs. In 2004, the number of PNGOs was 1,230, and elevated to about 2,130 in 2009. Whereas in 2010 there was an

estimated number of 2,400 PNGOs. There was a simultaneous international interest in the Palestinian regions by well-known world organizations, the UN, and various international NGOs. Due to the need to deal with damaged infrastructure inflicted by the occupation, unlike NGOs in other Arab or developing countries, the Palestinian civil organizations surpassed their capability and function. Actually, the Palestinian people are challenging with primary problems due to the shortage in essential daily needs.

NGO employees consist of 57.5% female and 42.5% male, among them 88% are born in Palestine and 82% have a Palestinian passport. After the Oslo Accords, the number of NGOs in Palestine has increased dramatically. Today, some support the idea of NGOs and foreign aid, whereas others argue against it. One major impact of NGO's effect is on the Private Sector Many Palestinian firms in the private sector face challenges with operating their business and recruiting Palestinians. This is a result of what is known as the NGOization of developing economies, which is described as the introduction of large amounts of foreign aid that make it possible for non-governmental organizations to offer inflated salaries to their educated employees. Such salaries are twice or three times what the Palestinian private sector can afford. This makes labour more expensive and makes it difficult for the private sector to recruit Palestinians, which in turn obstructs the development of an independent Palestinian economy (RLFPalestine, 2011). The flow of financial aid from donor countries and the NGOs created "bubble cities" such as Ramallah, which are focused on consumption and presenting an image of prosperity, that in turn give the impression of an independent state while masking the oppression and control of the occupation at the same time.

2.4.1 The Palestinian Non-Governmental Organizations' Network (PNGO)

The Palestinian non-governmental organizations' network was founded in September 1993. It aimed to developing organization, consultation and collaboration between constituent organizations of the network that function in distinct developmental sectors. The Israeli occupation segregated the West Bank and Gaza into two separate regions for security reasons. Consequently, the PNGO resumed their job through its two offices in the West Bank and in Gaza, which are administered by two Coordination Committees elected by the general assembly representing PNGO members. The PNGO perform its activities through different committees functioning in the five major sectors: health, democracy and human rights, women and children, rehabilitation and agriculture. The PNGO accepts any NGO as long as it satisfies their criteria. The role of the PNGO is to set up general guidelines and manage the work of the NGOs. However, it has power over the NGOs. Nowadays, PNGO consists of 135 NGOs in the West Bank and Gaza Strip. They operate in various developmental fields along the WB&G. It is the responsibility of the PNGO general assembly to endorsing the PNGO annual managerial and financial reports, which are organized by the PNGO coordination office in cooperation with the Steering Committee.

Table 3: Numbers of NGOs in Palestine between 1966 and 1987

Name of the City	No. of NGOs till the end of 1966	No. of NGOs till the end of 1987
Jerusalem includes: Ram Allah, Bethlehem, Jericho	41	111
Nablus includes: Jenin, Tulkaram	21	66
Hebron	17	33
Gaza	Unknown	62

SOURCE: (Abla, 2003)

2.4.2 Humanitarian Aid and Development Assistance

Humanitarian assistance is thought of as the types of aid and activities that are intended to offer basic human needs, to save lives, to relieve anguish and to preserve and defend human dignity throughout and after natural and unnatural disasters, in addition to avoiding and reinforcing readiness for the manifestation of such crises. Extended conflicts produce complicated emergencies, and therefore adversely affect civilians in direct and indirect manners. The principal aim of humanitarian aid in regions of direct conflict is to protect civilians and to guarantee the essential needs for their survival: water, hygiene, nutrition, shelter, and health care. The main concern of these assistances is to diminish the extent of conflict, to help evacuated civilians and ease their suffering, and to arrange for rehabilitation. In addition, they

offer development assistance such as renovating the infrastructure of the country in conflict, its organizations, and economy, which is vital in speeding up the peace process. These forms of aid guarantee the developing of the country, and prevent it from going back into conflict. They are distinct from other types of foreign aid in that they should respect certain principles. Humanity; such as rescuing civilians and easing their pain, impartiality; which includes working without any form of discrimination, neutrality; that is not to favour sides but to treat all equally, and independence; the independence of humanitarian goals from their political, economic, or military counterparts in the country of conflict.

The financial aid is directed mainly through UN agencies, UNRWA, and NGOs. This kind of humanitarian aid is aimed towards the following:

1. Water and Sanitation

One of the major problems of Palestine's insecure living is water deficiency. It has always also contributed to the current conflicts in the Middle East. Many Palestinians suffer from limited water supply; approximately 50% receive less than 60 litres of water per capita per day, the amount recommended by the World Health Organization (WHO). Among the causes of water shortage and sanitation systems impairment are the present conflicts and violence.

2. Education

According to the latest statistics of the Palestinian Central Bureau of Statistics (PCBS) in 2012, the total literacy rate in Palestine is 95.6%. During the academic year 2013/2014, the number of students in UNRWA schools has reached 282,784.

Foreign aid contributes to education in Palestine through educational projects, scholarships, and subsidized education fees.

3. Agriculture

Before the Oslo Accords, the Palestinian economy depended greatly on agriculture, especially in exports. In addition, agriculture was major source of profit for Palestinians. However, the farming sector was greatly affected after the Oslo Accords that allowed Palestinians to work in Israel and in Israeli settlements. Thousands of Palestinians left their lands for these job opportunities because of higher salaries that resulted from Israeli economic policies. On the other hand, Israel exploited the Palestinian lands for alleged security reasons, such as for building the apartheid wall. Most of the fertile land and natural resources exist in area C, constituting around 62% of West Bank land. Israel illegally took control of this area after the Oslo Accords. Agriculture received only 1.41% of total foreign aid during the years 1994-2000, whereas during 2000-2006 the amount of aid dedicated for this sector has decreased to about 0.74%. This is because the Oslo Accords and its annexes do not guarantee support for this sector from donor countries. At the same time, donor countries are not interested in advancing the agricultural domain in Palestine.

2.5 Sources of Aid

Palestine receives aid from various resources: international institutions (such as the UN), Arab countries, western and East-Asian countries (such as the US and Japan). We briefly elaborate on the aid from some of these countries:

❖ European Union

The Palestinian economy is in desperate need for cash, effort, and systematic execution in order to heal and sustain the economic system. The EU created the temporary international mechanism (TIM) for the aim of financially supporting Palestine. The humanitarian aid provided by the European Union to Palestine is among the highest of all resources. Since the year 2000, the European Commission's Humanitarian Aid and Civil Protection Department (ECHO) have supported Palestine with €700 million in the form of humanitarian aid in order to provide the people with the fundamental necessities. In 2014, the amount of funds reached €31.6 million, from which over two million Palestinians profited. Approximately a quarter of that amount was distributed to legal support and to humanitarian cooperation.

❖ United States

The United States is the primary supplier of bilateral development aid to Palestine. Since the year 1994, it has contributed $4.2 billion for projects in many fields, education, water and infrastructure, the private sector, authority and democracy, health and humanitarian aid.

❖ Germany

Germany has always been loyal to assisting the Palestinian territories, and its Government is one of the biggest bilateral contributors. Germany provides about 20% of the EU contribution to Palestine, a total annual estimate of 480 million Euros. In 2012, the Federal Government donated an estimated total of 150 million Euros to Palestine, approximately 74 million Euros of which were dedicated to bilateral program, whereas the remainder was in the form of donation to the EU. The

bilateral programs function in the sectors of development cooperation (more than 46 million Euros), humanitarian assistance (around 15 million Euros), civilian crisis prevention (8.3 million Euros), culture and education (4.8 million Euros). In 2013, the amount of bilateral development cooperation increased by 9 million Euros, going up to 55 million Euros.

❖ Norway

Norway was one of the countries that strongly supported the establishment of a Palestinian state, which was a product of the negotiations between the PLO and Israel. It also took a major role in Norway plays a prominent role in reinforcing Palestine as chair of the Ad Hoc Liaison Committee (AHLC), Local Development Forum (LDF) and the Joint Liaison Committee (JLC). Since the Oslo Accords in 1993, the Norwegian government has been financially supporting the Palestinian Authorities. In recent years, the annual Norwegian development aid to Palestine has been approximately 600 million Norwegian Krone (NOK), an equivalent of 95.8 million US dollars. Table 4.A, 4.B and 4.C below shows the amount of aid given by the Norwegian government to Palestine and the Middle-Eastern countries during the years 1993-2013.

Table 4. A: Amount of aid given by the Norwegian government to Palestine and the Middle-Eastern countries during the years 1993-1999.

Year	1993	1994	1995	1996	1997	1998	1999
Middle-East Countries	67.6	130.5	355.8	392.1	405.2	487.6	516.5
Palestine	46.5	89.7	254.4	325.1	289.6	302.8	216.8

Table 4. B: Amount of aid given by the Norwegian government to Palestine and the Middle-Eastern countries during the years 2000-2006.

Year	2000	2001	2002	2003	2004	2005	2006
Middle-East Countries	509.3	558.1	663.9	940.7	640.3	751.1	952.3
Palestine	245.7	338.7	406.8	379.2	362.8	476.7	562.9

Table 4. C: Amount of aid given by the Norwegian government to Palestine and the Middle-Eastern countries during the years 2007-2013.

Year	2007	2008	2009	2010	2011	2012	2013
Middle-East Countries	912.7	905.5	845.2	892.3	906.9	1 086.3	1 680.3
Palestine	621.9	660.8	628.7	661.9	628.4	623.3	631.9

SOURCE: (Norwegian Aid Statistics, 2013)

According to Tables 4.A, 4.B and 4.C, the total aid in the years 1993-2013 to all Middle Eastern countries (Bahrain, Saudi Arabia, Palestine, Israel, Syria, Egypt, Jordan, Iraq, Iran, Oman, Yemen, Kuwait, Qatar, Lebanon, and United Arab Emirates) has reached approximately 14.6002 billion NOK (2.3321 billion US dollars). On the other hand, Palestine alone received more than half of the

aforementioned sum, a total estimate of 8.7548 billion NOK (1.3968 billion US dollars).

❖ Netherland

Making sure that the Palestinian people have sufficient access to food, shelter, education, and medical care is among the priorities of the Dutch government. The Netherlands is a crucial partner of UNRWA, the UN agency for humanitarian assistance to Palestine, and donates an annual amount of $15 million to the UNRWA budget. Moreover, it cooperates with international partners like the UNICEF and the Palestinian Red Crescent Society (PRCS) by channelling through them funds dedicated for humanitarian aid for the Palestinian people. The Netherlands sponsors a number of small humanitarian programs; it invests in programs that engage in purchasing agricultural products from farmers of low income and distributing them to poor families in the Gaza strip. The total contribution of the Netherlands to Palestine has reached $20 million a year for humanitarian assistance.

❖ Arab Countries

Many Arab leaders have pledged to provide financial support to Palestine since the Israel's aggression against the West Bank and Gaza. The last of which was in 2014 when the Arab League promised $100 million of monthly aid after the Israeli offensive on Gaza. In 2002, around two dozen Arab countries took part in contributing nearly $660 million to the Palestinian annual budget. However, very few of these countries delivered a small part of their promise. Although Israel transfers approximately $100 million monthly taxes to the Palestinian authorities on imported goods, there have been times when Israel cut off these payments during conflicts.

Chapter 3

AN OVERVIEW OF THE PALESTINIAN ECONOMY

3.1 Brief History of the Palestinian Economy

Palestine used to define the land located between the Mediterranean Sea and the Jordan River. The land of 27,009km, which Successive been invaded, controlled and occurred under the rule of Assyrian, Persian, Greek, Roman, Byzantines, Arab Muslims, and Ottoman, before it was administered by Britain under a mandate after the World War one in 1922, known nowadays as Palestine (West Bank, Gaza Strip and Occupied Palestine). Palestine has been the focus of many nations and armies because it apart from the site of a strategic link between Africa and Asia, Palestine is bordered by three seas of the Mediterranean, Red and dead Sea which are the gateway to the Palestinians to move through Asia, Europe and Africa. Palestine has a great importance because it paved the three religions of the Islamic, Christian and Jewish, where the destination of pilgrims from all over the world. The cause of the religious was the first excuse and reason that made Palestine a target of invaders and colonizers. Palestinians have suffered from many wars and invasions through many eras, and perhaps, most recently the Israeli occupation. Palestine has witnessed a lot of changes and crises in its economy and economic strategies, due to the political conflicts inside the region. During the British mandate, Palestine had an independent currency, the Palestinian pound, to manage its economic trades. After the Israeli occupation, the Israeli New Shekel (NIS) has replaced the Palestinian pound.

Palestine is considered a poor country, and its economy has always been growing very slowly. Before the famous handshake between the Palestinians and the Israeli's (Oslo Accord) in 1993, Palestine's slow economic growth was largely due to the fact that very little effort was invested into building the infrastructure. Palestine had no airports, harbors, or even control over its borders. It has very few resources and almost no industry. It greatly depends on foreign aid to keep its economy stable. The Palestinians had very narrow capability to work, manufacture and make a salary, and the single factor that is repelling starvation and disease is the urgent humanitarian aid originating from foreign donor countries. Nowadays, the official unemployment rate in the occupied Palestinian territories is 26.2%. However, unofficial unemployment rates are a lot higher. It might seem that this kind of humanitarian assistance is a blessing for the Palestinian people, but in fact, the best it offers is support to ensure a minimum standard of livelihood and restricting additional misfortune. Nevertheless, the assistance is actually co-opted by Israel as a source of income that assists finance the Israeli occupation.

Palestinians are obliged to purchase from Israeli or international corporations and pay customs to Israel whenever they import commodities using foreign aid money (73% of all imports to the occupied Palestinian territories originate from Israel). In fact, even when goods from Arab countries such as Jordan and Egypt are accessible at lower costs, administrative barriers on the transfer of products and customs oblige the Palestinians to purchase the more expensive Israeli goods.

Therefore, foreign assistance to the OPT adequately maintains the status in which Palestinians are a population of consumers who are incapable of manufacturing or competing with the Israeli economy. The government of Israel, along with many

Israeli companies, garners the revenue, while the international community takes charge of the payments. The Palestinians' critical need became an advantage to encourage the welfare of their occupiers.

The economy in the West Bank and Gaza is weaker than expected; in 2013, deficits reached $1.4 billion. The instability of the Palestinian-Israeli conflict can be seen in the extremely slow Palestinian economic growth in spite of the increasing donor aid to the Palestinian authority (growth increased by only 1.5%). Donor money is directed towards covering wages and pensions instead of reducing the deficit. In fact, according to the IMF, the Palestinian Authority (PA) spends 17% of the GDP on salaries.

3.2 Overview of the Palestinian Political Situation

The idea, which began in 1879 when the first Zionist Congress in Basel led by Theodor Herzl (Austrian Zionist leader), Switzerland to get the document of the Ottoman Empire, to ensure international giving to them the land of Palestine a national home for them. Which were rejected by Sultan Abdul Hamid II, followed by the illegal immigration of Jews, especially after many of them are subjected to torture, murder and arson in Europe during the World War I, until, Balfour declaration of establishment a home for the Jewish in Palestine, and I quote "His Majesty's government view with favour the establishment in Palestine of a national home for the Jewish people, and will use their best endeavours to facilitate the achievement of this object, it being clearly understood that nothing shall be done which may prejudice the civil and religious rights of existing non-Jewish communities in Palestine, or the rights and political status enjoyed by Jews in any other country" (HistoryLearningSite.co.uk, 2005). Since the declaration supported

the Zionists idea in establishing a national home for them in Palestine, many Zionists started an illegal immigration to Palestine, building settlements, and starting violence (with the emergence of many Zionist gangs) and strengthen their presence.

This growing violence accumulated in what is known by (Al-Nakba) The Catastrophe in 1948, a massive war built on ethnical cleanliness started by armed Zionist gangs (Haganah, the Irgun Zvai Leumi and Stren Gang), at least 750,000 Palestinian were expelled from their homes, more than 33 massacres committed and 531 Palestinian town had destroyed. This led to convert the Zionist impossible dreams to a reality by establishing the state of Israel (OP), and gives west Bank to Jordan, Gaza to Egypt. In that time, Palestinians found themselves as refugees without any national or international identity in some surrounding countries, Lebanon, Jordan, Syria and Egypt. In 1964, was the beginning of the wake up of the Palestinians, by establishing the Palestinian liberation organization (PLO) in Egypt with its famous chairman Yasir Arafat (1969-2004). In its earlier establish the PLO was unarmed organization, however the continuous killing from the Zionists forced the PLO to defend itself and arm itself especially after the second war Zionists established in 1967 which Israel occupied the West Bank and Gaza (WB&G) in that period. Well, I will discuss more about PLO and about the political issue the Palestinians faced, however this can gave us a quick looking at the Palestinians history, as Palestine been always related to the political conflicts more than economical conflicts until 1993 when both sides (PLO and Israelis) agreed to sit on one table, to figure a solution for the peace process building on economic factors. Palestine had many political and economic agreements with Israel; among the most important of these are the Oslo Accords I and II, the Paris Protocol, the Gaza-Jericho

Agreement, the Hebron Accord, WYE River Memorandum, Sharm El-Sheik Memorandum and Camp-David Summit.

1. Oslo Accord I

The Oslo Accord I is known as the declaration of principles on interim self-government arrangements (DOP). It aimed at preparing an outline that facilitates the resolution of the Palestinian-Israeli conflict. Discussions regarding the agreements, a development of the Madrid Conference of 1991, were secretly carried out in Oslo, Norway hosted by the Fafo institute, and completed on 20 August 1993. The Accords were afterwards officially signed at a public ceremony in Washington, DC on 13 September 1993. They included a number of points. Israel recognized the Palestine Liberation Organization (PLO) as Palestine official representative, the PLO disowned the use of violence and recognized Israel's right to exist. They agreed that Palestine governs Gaza and Jericho by 2000. A temporary period of five years would ease Israeli retreat from other, unspecified regions of the West Bank.

Oslo outlined a peace process with a two-phase schedule. During a five-year temporary phase, Oslo visualized a sequence of systematic measures to develop confidence and alliance. Palestinians would patrol the territories they controlled, collaborate with Israel in the struggle against terrorism, and modify the parts of the Palestine Liberation Organization (PLO) charter that called for Israel's annihilation. Israel would withdraw almost completely from Gaza and in steps from parts of the West Bank. An elected Palestinian Authority would administer the regions from which Israel retreated (Oxfam, 2013).

After the five-year interim period, representatives would next decide on an ultimate peace agreement to settle the most problematic issues: final borders, security, Jerusalem, whether the Palestinians would have an independent state, Israeli settlements in the West Bank and Gaza, and Palestinian refugees' right to land and property left behind when they were forced to leave the land.

2. Oslo Accord II

The Oslo Accord II was signed in Washington, USA, between representatives of the Palestinian people and Israel in September 24, 1995. It succeeded the Oslo Agreement signed two years earlier, and acted as a prolongation of the frail peace process of the Middle East. Oslo II handled the issues of the West Bank, security, Palestinian elections, transfer of land and civil power from Israel to Palestine, commerce terms between the two states, and the liberation of the Palestinian would be composed of 82 members. Elections would be carried out 22 days after Israel pulls out of an agreed-upon number of regions. The subject of dominance over land was handled by splitting the West Bank into three sectors, A, B, and C. Sector A would be under Palestinian rule. It included the cities of Ramallah, Qalqilya, Tulkarim, Nablus, Bethlehem, and Jenin. Sector B would consist of regions where Palestine is responsible of civil issues and Israel takes control over security matters. Sector C would be under Israeli dominance, but there would be an ongoing transfer of a 6-month period. It included all uninhabited regions, the Israeli settlements, and the military installations. Likewise, because a Jewish community lived in the city of Hebron which contains important religious locations, it was partitioned into A, B, and C sectors.

3. Paris Protocol

Nowadays, the sole legal scheme that adjusts the Palestinian-Israeli economic relations is the Paris Protocol and respective extensions, which offer customs union between two distinct customs regions. Nonetheless, this legal scheme does not supply the adequate canopy of the Palestinian-Israeli relation in light of Israel's insufficient execution of the Protocol. Several Israeli infringements of the Paris Protocol consist of limitations on internal and external movement and deferment of the transport of clearance returns to the Palestinian National Authority (PNA).

The chief document administering economic relations between Israel and the Occupied Palestinian Territories, signed as an economic appendix to the Oslo accord, grants Israel widespread authority over Palestinian commerce, to the point of constructing a quasi-customs union. Consequently, it regards trade between Israel and Occupied Palestine as internal rather than international trade. However, the Protocol grants Palestine sovereignty over certain goods, described on lists A1, A2 and B (Palestine Liberation Organization, 2014). Lists A1 and A2 mainly include food products, and apply to narrow quantities of goods; whereas list A1 covers exclusively products imported from other Arab countries. List B covers particular other goods; quantities are not restricted, but the goods are obliged to meet Israeli standards. In addition, Palestine is permitted to assign customs duties to goods other than the aforementioned lists. This marks the differences in the relationship between Israel and Occupied Palestine in terms of a full customs union.

The Paris Protocol created a customs semi-union, afterwards known as a joint customs envelope, based on three main principles:

1. Free exchange of goods between both sides without any customs or non-customs hurdles.

2. Both sides will approve a consolidate tariff whilst the PNA conserve the right to lay down customs and terms of a restricted list of strategic goods (lists A, B, and C).

3. According to the Revenue Sharing principle in customs clearance, the Israeli Customs Authority will perform the clearance of goods imported from Palestine based on the joint tariff, and will then transport the revenue to the PNA.

The Paris Protocol recognizes the existence of two parties inhabiting the same region that have contrasting interests and preferences every now and then. The Protocol concluded a perception of the advancement of the Palestinian economy that highlighted free movement of products and labour, and therefore there were no economic restrictions. It was anticipated that free commerce with Israel would reinforce growth, and that the preservation of labor movement to Israel should have created plenty of employment. The Protocol contained many new items. The new Palestinian Authority should have enhanced public sector enterprise to be sponsored by a new agreement on profit sharing from import taxes and an effective tax system. The contribution of both the public and private sectors in the Palestinian economy were crucial for development. The emerging banking system would supply financial intermediation under the supervision of the Palestinian Monetary Authority, an embryo central bank. Funds originating in donor countries should have helped

finance the necessary infrastructure. Israel imposes a customs union on the occupied Palestinian territories, and only products transported between Israel and the OPT are spared the customs while only Israel gets to heap customs. On the other hand, Israeli's commitment to approve Palestinian labour to pass into Israel smoothly to work there remains deficient. Israel's destruction of the Palestinian economy and the cruel restrictions on the transport of people and commodities greatly contribute to turning the Palestinian economy into a hostage to the Israeli one. Consequently, the notion of no economic restrictions was the foundation for the Protocol's economic strategy. Nevertheless, in reality, the creators of the Protocol were not successful in accomplishing their goals.

3.3 Palestine in Figures

The country had faced a lot of demographic changes during the periods under the Ottoman Empire until 1948, also after 1948 until present days, which played a major role in the debates and policies that have shaped the area.

The population of Palestine was a mix of Arab majority (Muslims, Christians and Jewish), on the other hand, the region had witnessed an increase in the Zionist (Jewish) immigrants during the last decades of the 19th century and early decades of the 20th century. This increase was due to several reasons such as:

❖ A key reason was the absence of a legitimate Palestinian government to deter the illegal Jewish immigrant. Because of being under the British mandate.

❖ Another major cause of the Jewish immigration to Palestine is what the Jewish people had suffered from apartheid, violence, and torture such as "the Holocaust" in the European countries especially during both the world war one and two.

❖ In addition, British government has worked to open the doors of illegal immigrations and allow them to move to Palestine. Also, secured their lives and help them through housing, money, and weapons they need.

❖ Fourthly and finally, Jews were practicing their full freedom in Palestine just the opposite treats they had in Europe which encouraged them to live and immigrate to the land which always considered as the cradle of religions.

Back to numbers, Palestinian's population were estimated by 1,300,000 in 1948, were Jews just around 600,000 (Guardian). This indicates the small number of Jews population in Palestine despite the increasing number of migrations. This population had already been changed after the British mandate and the establishment of the Israeli colonialism (state) in 1948 until nowadays, countless of illegal Zionist immigrations into the country from all over the world, followed by the displacement of many Palestinians from their homes and lands outside their own country which shaped the region in recent days. The Palestinian's/Israeli's demography today is divided into three main areas, Occupied Palestine (under the control of Israelis), West Bank (under the control of the Palestinian authority) and Gaza (under the control of the Palestinian's second party Hamas). Both OP and WB areas are divided into two demographics, Arabs (Muslims, Christians and Jewish), and Zionist Jews. On the other hand, Gaza does not have this variety as the whole population from Arabs Muslim majority and Christian minority. As per the Israeli statistical bureau, the population in OP is estimated by 8.18 million, in which 6.135 million Jewish residents (including Jewish in WB settlements), the Arabs Palestinians population in OP is estimated by 1.694 million and the other 345,000 are non-Arab Christians or other nationalities. In contrast, the population in WB&G was about 4.42 million, in

which the estimated population in WB was 2.72 and in Gaza was 1.7 as per the last statistics in 2013. The 4.42 population in WB&G are 2.24 million males and the other 2.18 million are females. The Palestinian's population is a young one as the percentage of the individuals under the age of 14 is 40% of the total population, and 2.9% of the total population are 65 and over. Well, the birth rate is 32.6 births per 1000 people, and the death rate is 3.6 deaths per 1000 people (Jerusalem Post, 2013).

3.3.1 Refugee Camps

According to UNRWA, the number of the Palestinian refugee camps in total is around 58 camps, in which 27 inside West Bank and Gaza strip (WB&Gs), the other 31 camps are in Jordan, Lebanon and Syria. According to the Palestinian bureau of statistics, 44.6% of the residencies of the Palestinian's territories are refugees. In which, 19.4% of the refugees are in the West Bank and 25.2% in Gaza strip (UNRWA, palestine-refugees).

3.3.2 Poverty

In 2013, the poverty rate in Palestine reached approximately 25.8% divided as 17.8% in the west bank and 38.8% in Gaza, according to the Palestinian Central Bureau of Statistics. In addition, 12.9% of Palestinians live in deep poverty (UNRWA, 2009).

3.3.3 Corruption

The word corruption is one of the main problems the country faces during the last 20 years, it is affecting the Palestine badly. It was and still carried by the Politicians in the first place and in the hands of some parties in the country which it has been corrupted and used many forms of corruptions to use it for their own interests. As always been since the PA took a major responsibility on Palestine territory and since Yasser Arafat took place as a president and Mahmud Abbas after him, they used the power to control the Palestinian Investment Fund, especially with the lack of

transparency and the absence of Accountability. Corruption in Palestinian Authority (PA) affected the Palestinian economy in many ways, such as the misspent of the foreign aid received from donor countries and Invest them in Investments serve their interest not the interest of the Palestinians in General. The focus of the PA always was on security leaving the growth and development programs behind.

Chapter 4

DATA, MODEL AND METHODOLOGY

4.1 Data

The data which will be used in this research between the period (1993-2013), 20 years which is divided to quarterly data. It is based on five variables which are gross domestic product per capita (CAP), level of aid (AID), level of investments (KR), employment rate (L) and gross domestic savings (SAV). These variables are used to measure the level of aid and how did it affected the country's economy and the standards of living of Palestine. In this research work, I try to recognize how aid affects economic growth, investment and increase money meant for improvement economy.

4.2 Model

In this study, I will adopt the frameworks introduced Jones [1998],by Mankiw et al. (1992), Philip Michael Kargbo (2012) to investigate the role of foreign aid on economic growth.

$$\text{LnCAP}_t = a_0 + a_1 T + a_2 \text{LnKR}_t + a_3 \text{LnL}_t + a_4 \text{LnSAV}_t + a_5 \text{LnAID}_t + u_t$$

Where CAP is the GDP measured per capita, KR is the level of investment, L which refers to the employment rate in the country, SAV is the domestic savings for the country, AID is level of aid coming to the country from outside other donor countries. Also, It should be explained that a_0, a_1, a_2, a_3, a_4 and a_5 are estimated

parameters, u_t is serially uncorrelated random disturbance term; and *Ln* denotes the natural logarithm.

4.3 Methodology

The concept of Cointegration which has played a vital role in Time series studies in the mid-1980s. This methodology points out three important steps such as the stationary point, the spurious regression and the Error-correction mechanism. Variables as time-Series are assumed to be stationary; however, if there is a non-stationary result (trend), a major problem cause serious problems called spurious results in regression.

Many studies have put forward various methods to test for Cointegration when series are non-stationary. They include the Residual-based Engle Granger test (1987), the Maximum Likelihood based Johansen test (1988), the Johnson and Juselius tests and the Bounds test for level relationship which is the methodology for this research work which was developed by Pesaran et al. The Bounds test is run under the Auto Regressive Distribution Lag (ARDL) model and possesses the various merits which makes it essential in the sense that it can be applied with a mix-ordered regressors, either I(1) or I(0) and to small finite sample. The ARDL model takes sufficient numbers of lags to capture the data-generating process in general-to-specific modelling. It allows us to derive an Error-Correction model (ECM) by simple linear transformation. ARDL is essential for long-run relationships, short-run dynamics and estimation of the equilibrium condition.

Chapter 5

DATA ANALYSIS AND RESULTS

5.1 Correlation Matrix

Table 5 illustrates correlation coefficients of the variables at the natural logarithm. The pairwise correlations between GDP and the variables are reasonably high. It is worth emphasizing that we expect to have low correlation among the explanatory variables, as well as high correlation between the dependent (GDPC, the ratio of GDP to population) and the explanatory variables. It is important to mention that saving variable is not correlated with GDP at the reasonable score[1].

Table 5: Estimated Correlation Matrix of Variables

	LNGDPC	LNKGDP	LNL	LS	LNAID
LNGDPC	1.0000	.46005	.48878	.22382	.64865
LNKGDP	.46005	1.0000	.090624	-.26071	.89573
LNL	.48878	.090624	1.0000	.32081	.15209
LS	.22382	.26071	.32081	1.0000	.31790
LNAID	.64865	.89573	.15209	.31790	1.0000

---

[1] One of the assumptions of the classical linear regression model is that no independent variable has a perfect linear relationship with any of the other independent variables (see Guajarati, 1999).

5.2 Unit Root Test

The corresponding critical values of the ADF test for 76 numbers of observations at the 5 percent significance levels are obtained from Mackinnon (1991)[2], which are reported by MFIT 4.1. It is worth noting that the intercept and trend terms are added to the ADF equations[3]. I chose the Schwarz Bayesian Criterion for optimum lags in Table 6. Results of ADF tests reveal that LNGDPC, LNKGDP, LS and LNAID are integrated of order I (1) and LNL is integrated of order zero, I (0).

Table 6: Unit root tests

Variables	Test Statistics and Critical Values				Integration levels
	Levels		1st differences		
	ADF	C.V. (5%)	ADF	C.V. (5%)	
LNGDPC	-1.9639 (1)	-2.8986	-6.1036 (1)	-2.8986	I(1)
LNKGDP	-.78623 (1)	-2.8986	-5.4973 (0)	-2.8986	I(1)
LNL	-3.1290 (4)	-2.8986	-6.3899 (0)	-2.8986	I(0)
LS	-1.1176 (0)	-2.8986	-5.2534 (1)	-2.8986	I(I)
LNAID	-1.3706 (2)	-2.8986	-3.5780 (2)	-2.8986	I(I)

Note: The estimated coefficients significant at conventional level (10%, 5%, 1)

Table 7 shows that F-statistics that exceed the upper bound of critical value band, so we can reject the null hypothesis of no long-term relationship between the variables

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[2] James G. MacKinnon, "Critical Values for Cointegration Tests," In RF Engle and CWJ Granger (eds.), *Long-run Economic Relationships: Readings in Cointegration* (Oxford: Oxford University Press, 1991), pp. 267–76.

[3] The numbers in the parentheses indicate that zero, one, two and four augmentations are necessary to be sufficient in ADF tests to secure lack of auto-correlation of the error terms with regard to the variables.

in the model. The F-statistics confirms that based on the model, there exist an equilibrium relationship between GDP per capita and its elements.

Table 7: F-Statistic Results for ARDL Models

F-Statistic Variables	F-Stat	Column F 95%		Column W 95%	
		I(0)	I(1)	I(0)	I(1)
F(LNGDPC, LNKGDP, LNL, LNAID,)	4.7534	2.85	4.05	14.2	20.24

In the following step, I estimate the coefficients of the long-term relationships and find their error-correction terms. Table 8 and 9 present long-run and short-run estimates as well as error-correction coefficients respectively. As can be seen from the Table 8, the error-correction terms (coefficients) are statistically significant for the model. Its coefficient is almost -0.11. This means that the disequilibrium occurring due to a shock is totally corrected in 1 quarter period at the rates of 11 percent.

Table 8: Estimation for long-run.

Autoregressive Distributed Lag Estimates			
ARDL(1,1,1,0) selected based on Schwarz Bayesian Criterion			
**			
Dependent variable is LNGDPC			
79 observations used for estimation from 1994Q2 to 2013Q4			
**			
Regressor	Coefficient	Standard Error	T-Ratio[Prob]
LNGDPC(-1)	.89185	.042413	21.0277[.000]
LNKGDP	.28582	.10974	2.6045[.011]
LNKGDP(-1)	-.36948	.11367	-3.2504[.002]
LNL	.79062	.14466	5.4655[.000]
LNL(-1)	-.51710	.16527	-3.1289[.003]
LNAID	-.014874	.022527	-.66028[.511]
C	.52904	.42742	1.2378[.220]
**			
R-Squared	.94695	R-Bar-Squared	.94253
S.E. of Regression	.044975	F-stat. F(6, 72)	214.2156[.000]
Mean of Dependent Variable 5.9365		S.D. of Dependent Variable	.18761
Residual Sum of Squares	.14564	Equation Log-likelihood	136.5990
Akaike Info. Criterion	129.5990	Schwarz Bayesian Criterio	121.3059
DW-statistic	1.2292	Durbin's h-statistic	3.6983[.000]
**			

Notes: t-statistics are in parentheses and diagnostic pass at the 5 percent, or 1 percent level of significance. It is worth stressing that unreported diagnostic suggests that the evident misspecification do exist at the 5 percent level of significance for some criteria.

In the long-run relationship, capital, and labor are statistically significant at least 5% level. However saving and aid has no positive impact on economic growth of Palestine. Saving is already drop from the equation due to insignificance, so I can conclude that Saving and aid have no influence on Palestinian economic growth. In the short run period, saving and aid are also found insignificant whereas the labor and physical capital have positive impact.

Table 9: Estimation for short-run: Error correction representation for the selected ARDL model

ARDL(1,1,1,0) selected based on Schwarz Bayesian Criterion			
***			
Dependent variable is dLNGDPC			
79 observations used for estimation from 1994Q2 to 2013Q4			
***			
Regressor	Coefficient	Standard Error	T-Ratio[Prob]
dLNKGDP	.28582	.10974	2.6045[.011]
dLNL	.79062	.14466	5.4655[.000]
dLNAID	-.014874	.022527	-.66028[.511]
dC	.52904	.42742	1.2378[.220]
ecm(-1)	-.10815	.042413	-2.5500[.013]
***			
R-Squared	.58353	R-Bar-Squared	.54882
S.E. of Regression	.044975	F-stat. F(4, 74)	25.2200[.000]
Mean of Dependent Variable	.1490E-3	S.D. of Dependent Variable	.066957
Residual Sum of Squares	.14564	Equation Log-likelihood	136.5990
Akaike Info. Criterion	129.5990	Schwarz Bayesian Criterion	121.3059
DW-statistic	1.2292		
***			
R-Squared and R-Bar-Squared measures refer to the dependent variable			
dLNGDPC and in cases where the error correction model is highly			
restricted, these measures could become negative.			

Chapter 6

CONCLUSION, RECOMMENDATIONS AND SUGGESTIONS

6.1 Conclusion

This thesis examines the relationship between aid, saving and the economic growth for the case of the Palestinian economy over the period 1993Q1–2013Q4. Due to the mixed-integration level of the variables (a mix of I (0) and I (1), which are found in the series), the ARDL approach has been employed to carry out this investigation.

The results suggest that the physical investment is an important driver for economic growth in both the long and short- terms of the Palestinian economy. The findings also display that saving and aid don not have any impact on output growth in either the long or short- term periods whereas labor force has positive influence on economic growth in the case of the Palestinian Economy. Error-correction modeling was used to confirm the existence of a stable long-term relationship and approve a deviation from the long-term equilibrium following a short-term shock, which is corrected by almost 11 percent after each quarter.

6.2 Recommendations and suggestions

Palestine considered as one of the most countries receives high level of foreign aid during the last twenty years, especially after the Oslo process. The majority of this foreign aid given to the Palestinian Authority under a specific programs yield by the

donor countries to keep ongoing the peace process with the Israeli's under two state solution. Foreign aid is conditional with the nature of the policies implemented in the country and imposed by the donors, in which no matter how these programs are successful. On the other hand, Israel has a major control over the Palestinians borders, agric culture and every aspect of life, at the same time donor countries did not challenge any of these blockading policies over West Bank and Gaza strip (WB&Gs). Therefore, they knew that they are investing in failed projects, which cannot be feasible without the free movement of goods and people.

REFERENCES

Abu Toameh, K. (2013). National-News/Palestinian-population-in-W-Bank-Gaza-about-45-million-319569. Retrieved from http://www.jpost.com/National-News/Palestinian-population-in-W-Bank-Gaza-about-45-million-319569.

Burnside, C., & Dollar, D. (2000): Aid, Policies, and Growth, *the American Economics Review*, 847-868.

Collier, P., & Dollar, D. (2002): Aid allocation and poverty reduction, *European Economic Review*, 1475-1500.

Collier, P., & Hoeffler, A. (2002): Aid, Policy and Growth in Post-Conflict Societies, *World Bank working paper* 2902, 2-20.

Collier, P., & Dehn, J. (2001): Aid, Shocks, and Growth, World Bank, 1-20.

Couldrey, M., & Morris, T. (2006): Forced Migration Review, Refugee studies center, 5-44.

Curtis, M. (2013): The unsurprising corruption of the Palestinian authorities.

Denis, J. (2001): Palestine and Palestinians: A very political economy: peace building and foreign aid in the West Bank and Gaza, The Middle East Journal, Vol.55, No. 2.

Farmer, P. (2013): Rethinking Foreign Aid, Council on Foreign Relations.

Hever, S. (2005): The economy of the occupation, The Alternative Information center, 3-15.

Joffe, A. (2011): Who oversees foreign aid to Palestine, Gatestone Institute.

Kanafani, N., & Al- Bothen, S. (2008): The political economy of food aid to Palestine, 5-10.

Khalidi, R., & Taghdisi-Rad, S. (2009): The economic dimensions of prolonged occupation continuity and change in Israeli policy toward the Palestinian economy, 1-29.

MacKinnon, J. (1991): Long-run Economic Relationships: Readings in Cointegration, Oxford: Oxford University Press, 76-267.

Nakhleh, K. (2014): Oslo: Replacing Liberation with Economic Neo-Colonialism, Al-Shabaka Commentary, 1-2.

Norwegian Aid Statistics. (2013). Retrieved August 3, 2014, from http://www.norad.no/en: http://www.norad.no/en/tools-and-publications/norwegian-aid-statistics.

Oxfam. (2013). */files/oxfam-oslo-20-factsheet.pdf*. Retrieved from http://www.oxfam.org/sites/www.oxfam.org/files/oxfam-oslo-20-factsheet.pdf.

Pipes, D. (2007): Fund the Palestinians? Bad Idea, Daniel Pipes Middle East Form.

Palestine Liberation Organization. (2014). *etemplate.php?id=48*. Retrieved from http://www.nad-plo.org/etemplate.php?id=48.

Radelet, S. (2006): A Premier on Foreign Aid, Center for Global Development, 2-16.

RLFPalestine, K. v. (Director). (2011). *DONOR OPIUM, the impact of international aid to Palestine* [Motion Picture].

Stotsky, S. (2008): Does Foreign Aid Fuel Palestinian Violence, Middle East Forum, 23-30.

Tartir, A., & Bahour. S., & Abdelnour, S. (2012): Defeating dependency, creating a resistance economy, Al Shabka, 1-4.

UNRWA. (n.d.). *palestine-refugees*. Retrieved from http://www.unrwa.org.

UNRWA. (2009). *Poverty in the occupied Palestinian territory.* UNRWA.

Zanotti, J. (2014): U.S. Foreign Aid to the Palestinians, *Congressional Research Service*, 1-24.

APPENDIX

Appendix: Data Analysis

```
                    Unit root tests for variable LNGDPC
      The Dickey-Fuller regressions include an intercept but not a trend
*****************************************************************************
**
 75 observations used in the estimation of all ADF regressions.
 Sample period from 1995Q2 to 2013Q4
*****************************************************************************
**
        Test Statistic      LL          AIC         SBC         HQC
 DF         -1.5009       96.4998      94.4998     92.1823     93.5745
 ADF(1)     -1.9357       99.7518      96.7518     93.2756     95.3638
 ADF(2)     -1.6900      100.2168      96.2168     91.5818     94.3661
 ADF(3)     -1.7179      100.2876      95.2876     89.4939     92.9742
 ADF(4)     -1.6076      100.3375      94.3375     87.3851     91.5615
*****************************************************************************
**
 95% critical value for the augmented Dickey-Fuller statistic =  -2.9001
 LL  = Maximized log-likelihood      AIC = Akaike Information Criterion
 SBC = Schwarz Bayesian Criterion    HQC = Hannan-Quinn Criterion


                    Unit root tests for variable LNGDPC
     The Dickey-Fuller regressions include an intercept and a linear trend
*****************************************************************************
**
 75 observations used in the estimation of all ADF regressions.
 Sample period from 1995Q2 to 2013Q4
*****************************************************************************
**
        Test Statistic      LL          AIC         SBC         HQC
 DF         -1.2530       96.5051      93.5051     90.0288     92.1170
 ADF(1)     -1.8371       99.8911      95.8911     91.2562     94.0404
 ADF(2)     -1.5625      100.3003      95.3003     89.5066     92.9870
 ADF(3)     -1.6046      100.3910      94.3910     87.4385     91.6149
 ADF(4)     -1.4357      100.4094      93.4094     85.2982     90.1707
*****************************************************************************
**
 95% critical value for the augmented Dickey-Fuller statistic =  -3.4696
 LL  = Maximized log-likelihood      AIC = Akaike Information Criterion
 SBC = Schwarz Bayesian Criterion    HQC = Hannan-Quinn Criterion




                    Unit root tests for variable LNGDPC
      The Dickey-Fuller regressions include an intercept but not a trend
*****************************************************************************
**
 78 observations used in the estimation of all ADF regressions.
 Sample period from 1994Q3 to 2013Q4
*****************************************************************************
**
        Test Statistic      LL          AIC         SBC         HQC
 DF         -1.5392      101.6396      99.6396     97.2829     98.6962
 ADF(1)     -1.9639      104.8768     101.8768     98.3417    100.4617
*****************************************************************************
**
 95% critical value for the augmented Dickey-Fuller statistic =  -2.8986
 LL  = Maximized log-likelihood      AIC = Akaike Information Criterion
 SBC = Schwarz Bayesian Criterion    HQC = Hannan-Quinn Criterion


                    Unit root tests for variable LNGDPC
```

```
      The Dickey-Fuller regressions include an intercept and a linear trend
********************************************************************************
**
 78 observations used in the estimation of all ADF regressions.
 Sample period from 1994Q3 to 2013Q4
********************************************************************************
**
         Test Statistic     LL          AIC          SBC          HQC
 DF         -1.2957       101.6485      98.6485      95.1135      97.2334
 ADF(1)     -1.8793       105.0392     101.0392      96.3258      99.1524
********************************************************************************
**
 95% critical value for the augmented Dickey-Fuller statistic =  -3.4673
 LL  = Maximized log-likelihood     AIC = Akaike Information Criterion
 SBC = Schwarz Bayesian Criterion   HQC = Hannan-Quinn Criterion




                 Unit root tests for variable DGDPC
     The Dickey-Fuller regressions include an intercept but not a trend
********************************************************************************
**
 74 observations used in the estimation of all ADF regressions.
 Sample period from 1995Q3 to 2013Q4
********************************************************************************
**
         Test Statistic     LL          AIC          SBC          HQC
 DF         -5.9309        96.2309      94.2309      91.9269      93.3118
 ADF(1)     -5.3615        97.0547      94.0547      90.5986      92.6760
 ADF(2)     -4.1879        97.0553      93.0553      88.4472      91.2170
 ADF(3)     -4.0341        97.2999      92.2999      86.5397      90.0021
 ADF(4)     -3.0517        97.8582      91.8582      84.9460      89.1008
********************************************************************************
**
 95% critical value for the augmented Dickey-Fuller statistic =  -2.9006
 LL  = Maximized log-likelihood     AIC = Akaike Information Criterion
 SBC = Schwarz Bayesian Criterion   HQC = Hannan-Quinn Criterion




                 Unit root tests for variable DGDPC
     The Dickey-Fuller regressions include an intercept and a linear trend
********************************************************************************
**
 74 observations used in the estimation of all ADF regressions.
 Sample period from 1995Q3 to 2013Q4
********************************************************************************
**
         Test Statistic     LL          AIC          SBC          HQC
 DF         -5.9190        96.4518      93.4518      89.9957      92.0732
 ADF(1)     -5.3424        97.2678      93.2678      88.6597      91.4295
 ADF(2)     -4.1593        97.2694      92.2694      86.5092      89.9716
 ADF(3)     -4.0326        97.5557      91.5557      84.6435      88.7984
 ADF(4)     -3.0568        98.1038      91.1038      83.0395      87.8868
********************************************************************************
**
 95% critical value for the augmented Dickey-Fuller statistic =  -3.4704
 LL  = Maximized log-likelihood     AIC = Akaike Information Criterion
 SBC = Schwarz Bayesian Criterion   HQC = Hannan-Quinn Criterion




                 Unit root tests for variable DGDPC
     The Dickey-Fuller regressions include an intercept but not a trend
********************************************************************************
**
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```
 77 observations used in the estimation of all ADF regressions.
 Sample period from 1994Q4 to 2013Q4
******************************************************************************
**
        Test Statistic     LL          AIC          SBC          HQC
 DF        -6.0406      101.1064     99.1064      96.7626      98.1689
 ADF(1)    -5.4985      102.0375     99.0375      95.5218      97.6312
******************************************************************************
**
 95% critical value for the augmented Dickey-Fuller statistic =  -2.8991
 LL  = Maximized log-likelihood     AIC = Akaike Information Criterion
 SBC = Schwarz Bayesian Criterion   HQC = Hannan-Quinn Criterion



                  Unit root tests for variable DGDPC
     The Dickey-Fuller regressions include an intercept and a linear trend
******************************************************************************
**
 77 observations used in the estimation of all ADF regressions.
 Sample period from 1994Q4 to 2013Q4
******************************************************************************
**
        Test Statistic     LL          AIC          SBC          HQC
 DF        -6.0399      101.4229     98.4229      94.9072      97.0167
 ADF(1)    -5.4903      102.3506     98.3506      93.6629      96.4756
******************************************************************************
**
 95% critical value for the augmented Dickey-Fuller statistic =  -3.4681
 LL  = Maximized log-likelihood     AIC = Akaike Information Criterion
 SBC = Schwarz Bayesian Criterion   HQC = Hannan-Quinn Criterion




                  Unit root tests for variable DGDPC
     The Dickey-Fuller regressions include an intercept but not a trend
******************************************************************************
**
 78 observations used in the estimation of all ADF regressions.
 Sample period from 1994Q3 to 2013Q4
******************************************************************************
**
        Test Statistic     LL          AIC          SBC          HQC
 DF        -6.1036      102.9210     100.9210     98.5643      99.9776
******************************************************************************
**
 95% critical value for the augmented Dickey-Fuller statistic =  -2.8986
 LL  = Maximized log-likelihood     AIC = Akaike Information Criterion
 SBC = Schwarz Bayesian Criterion   HQC = Hannan-Quinn Criterion



                  Unit root tests for variable DGDPC
     The Dickey-Fuller regressions include an intercept and a linear trend
******************************************************************************
**
 78 observations used in the estimation of all ADF regressions.
 Sample period from 1994Q3 to 2013Q4
******************************************************************************
**
        Test Statistic     LL          AIC          SBC          HQC
 DF        -6.1098      103.2210     100.2210     96.6859      98.8058
******************************************************************************
**
 95% critical value for the augmented Dickey-Fuller statistic =  -3.4673
 LL  = Maximized log-likelihood     AIC = Akaike Information Criterion
 SBC = Schwarz Bayesian Criterion   HQC = Hannan-Quinn Criterion
```

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```
                      Unit root tests for variable LNKGDP
        The Dickey-Fuller regressions include an intercept but not a trend
******************************************************************************
**
 75 observations used in the estimation of all ADF regressions.
 Sample period from 1995Q2 to 2013Q4
******************************************************************************
**
        Test Statistic      LL          AIC          SBC          HQC
 DF          -.31248      98.2797      96.2797      93.9622      95.3543
 ADF(1)      -.64081     102.7719      99.7719      96.2957      98.3839
 ADF(2)      -.52403     103.4707      99.4707      94.8357      97.6200
 ADF(3)      -.59079     103.8297      98.8297      93.0360      96.5164
 ADF(4)      -.55146     103.8417      97.8417      90.8893      95.0657
******************************************************************************
**
 95% critical value for the augmented Dickey-Fuller statistic =  -2.9001
 LL  = Maximized log-likelihood      AIC = Akaike Information Criterion
 SBC = Schwarz Bayesian Criterion    HQC = Hannan-Quinn Criterion


                      Unit root tests for variable LNKGDP
      The Dickey-Fuller regressions include an intercept and a linear trend
******************************************************************************
**
 75 observations used in the estimation of all ADF regressions.
 Sample period from 1995Q2 to 2013Q4
******************************************************************************
**
        Test Statistic      LL          AIC          SBC          HQC
 DF         -2.2867      101.1434      98.1434      94.6671      96.7554
 ADF(1)     -3.3557      108.4034     104.4034      99.7684     102.5527
 ADF(2)     -3.0938      108.4043     103.4043      97.6106     101.0909
 ADF(3)     -3.6717      110.6448     104.6448      97.6923     101.8687
 ADF(4)     -3.8727      111.4662     104.4662      96.3550     101.2275
******************************************************************************
**
 95% critical value for the augmented Dickey-Fuller statistic =  -3.4696
 LL  = Maximized log-likelihood      AIC = Akaike Information Criterion
 SBC = Schwarz Bayesian Criterion    HQC = Hannan-Quinn Criterion


                      Unit root tests for variable LNKGDP
        The Dickey-Fuller regressions include an intercept but not a trend
******************************************************************************
**
 78 observations used in the estimation of all ADF regressions.
 Sample period from 1994Q3 to 2013Q4
******************************************************************************
**
        Test Statistic      LL          AIC          SBC          HQC
 DF          -.44206     103.5104     101.5104      99.1537     100.5669
 ADF(1)      -.78623     108.2673     105.2673     101.7323     103.8522
******************************************************************************
**
 95% critical value for the augmented Dickey-Fuller statistic =  -2.8986
 LL  = Maximized log-likelihood      AIC = Akaike Information Criterion
 SBC = Schwarz Bayesian Criterion    HQC = Hannan-Quinn Criterion
```

```
                    Unit root tests for variable LNKGDP
        The Dickey-Fuller regressions include an intercept and a linear trend
*****************************************************************************
**
 78 observations used in the estimation of all ADF regressions.
 Sample period from 1994Q3 to 2013Q4
*****************************************************************************
**
         Test Statistic       LL          AIC          SBC          HQC
 DF         -2.2082       106.0138     103.0138      99.4788     101.5987
 ADF(1)     -3.2666       113.3624     109.3624     104.6490     107.4756
*****************************************************************************
**
 95% critical value for the augmented Dickey-Fuller statistic =  -3.4673
 LL  = Maximized log-likelihood      AIC = Akaike Information Criterion
 SBC = Schwarz Bayesian Criterion    HQC = Hannan-Quinn Criterion




                    Unit root tests for variable DKGDP
        The Dickey-Fuller regressions include an intercept but not a trend
*****************************************************************************
**
 74 observations used in the estimation of all ADF regressions.
 Sample period from 1995Q3 to 2013Q4
*****************************************************************************
**
         Test Statistic       LL          AIC          SBC          HQC
 DF         -5.2967       101.1564      99.1564      96.8523      98.2373
 ADF(1)     -4.9088       101.8496      98.8496      95.3935      97.4709
 ADF(2)     -3.5647       102.1521      98.1521      93.5440      96.3139
 ADF(3)     -3.3737       102.2133      97.2133      91.4531      94.9155
 ADF(4)     -3.5500       102.9168      96.9168      90.0046      94.1594
*****************************************************************************
**
 95% critical value for the augmented Dickey-Fuller statistic =  -2.9006
 LL  = Maximized log-likelihood      AIC = Akaike Information Criterion
 SBC = Schwarz Bayesian Criterion    HQC = Hannan-Quinn Criterion




                    Unit root tests for variable DKGDP
        The Dickey-Fuller regressions include an intercept and a linear trend
*****************************************************************************
**
 74 observations used in the estimation of all ADF regressions.
 Sample period from 1995Q3 to 2013Q4
*****************************************************************************
**
         Test Statistic       LL          AIC          SBC          HQC
 DF         -5.2801       101.3515      98.3515      94.8954      96.9728
 ADF(1)     -4.8715       102.0132      98.0132      93.4051      96.1750
 ADF(2)     -3.5121       102.3457      97.3457      91.5856      95.0479
 ADF(3)     -3.3285       102.4094      96.4094      89.4972      93.6520
 ADF(4)     -3.5049       103.1124      96.1124      88.0482      92.8955
*****************************************************************************
**
 95% critical value for the augmented Dickey-Fuller statistic =  -3.4704
 LL  = Maximized log-likelihood      AIC = Akaike Information Criterion
 SBC = Schwarz Bayesian Criterion    HQC = Hannan-Quinn Criterion




                    Unit root tests for variable DKGDP
        The Dickey-Fuller regressions include an intercept but not a trend
```

```
****************************************************************************
**
 77 observations used in the estimation of all ADF regressions.
 Sample period from 1994Q4 to 2013Q4
****************************************************************************
**
        Test Statistic     LL        AIC        SBC        HQC
 DF         -5.4283     106.0795   104.0795   101.7357   103.1420
 ADF(1)     -5.1068     106.9343   103.9343   100.4186   102.5280
****************************************************************************
**
 95% critical value for the augmented Dickey-Fuller statistic =  -2.8991
 LL  = Maximized log-likelihood      AIC = Akaike Information Criterion
 SBC = Schwarz Bayesian Criterion    HQC = Hannan-Quinn Criterion



                   Unit root tests for variable DKGDP
     The Dickey-Fuller regressions include an intercept and a linear trend
****************************************************************************
**
 77 observations used in the estimation of all ADF regressions.
 Sample period from 1994Q4 to 2013Q4
****************************************************************************
**
        Test Statistic     LL        AIC        SBC        HQC
 DF         -5.3954     106.2649   103.2649    99.7492   101.8587
 ADF(1)     -5.0606     107.0951   103.0951    98.4075   101.2201
****************************************************************************
**
 95% critical value for the augmented Dickey-Fuller statistic =  -3.4681
 LL  = Maximized log-likelihood      AIC = Akaike Information Criterion
 SBC = Schwarz Bayesian Criterion    HQC = Hannan-Quinn Criterion




                   Unit root tests for variable DKGDP
     The Dickey-Fuller regressions include an intercept but not a trend
****************************************************************************
**
 78 observations used in the estimation of all ADF regressions.
 Sample period from 1994Q3 to 2013Q4
****************************************************************************
**
        Test Statistic     LL        AIC        SBC        HQC
 DF         -5.4973     107.9472   105.9472   103.5905   105.0038
****************************************************************************
**
 95% critical value for the augmented Dickey-Fuller statistic =  -2.8986
 LL  = Maximized log-likelihood      AIC = Akaike Information Criterion
 SBC = Schwarz Bayesian Criterion    HQC = Hannan-Quinn Criterion




                   Unit root tests for variable DKGDP
     The Dickey-Fuller regressions include an intercept and a linear trend
****************************************************************************
**
 78 observations used in the estimation of all ADF regressions.
 Sample period from 1994Q3 to 2013Q4
****************************************************************************
**
        Test Statistic     LL        AIC        SBC        HQC
 DF         -5.4734     108.1091   105.1091   101.5741   103.6940
****************************************************************************
**
 95% critical value for the augmented Dickey-Fuller statistic =  -3.4673
 LL  = Maximized log-likelihood      AIC = Akaike Information Criterion
```
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```
             SBC = Schwarz Bayesian Criterion     HQC = Hannan-Quinn Criterion




                           Unit root tests for variable DKGDP
            The Dickey-Fuller regressions include an intercept but not a trend
 ***************************************************************************
 **
  78 observations used in the estimation of all ADF regressions.
  Sample period from 1994Q3 to 2013Q4
 ***************************************************************************
 **
          Test Statistic      LL           AIC          SBC          HQC
  DF        -5.4973       107.9472     105.9472     103.5905     105.0038
 ***************************************************************************
 **
  95% critical value for the augmented Dickey-Fuller statistic =  -2.8986
  LL  = Maximized log-likelihood      AIC = Akaike Information Criterion
  SBC = Schwarz Bayesian Criterion    HQC = Hannan-Quinn Criterion




                           Unit root tests for variable DKGDP
            The Dickey-Fuller regressions include an intercept and a linear trend
 ***************************************************************************
 **
  78 observations used in the estimation of all ADF regressions.
  Sample period from 1994Q3 to 2013Q4
 ***************************************************************************
 **
          Test Statistic      LL           AIC          SBC          HQC
  DF        -5.4734       108.1091     105.1091     101.5741     103.6940
 ***************************************************************************
 **
  95% critical value for the augmented Dickey-Fuller statistic =  -3.4673
  LL  = Maximized log-likelihood      AIC = Akaike Information Criterion
  SBC = Schwarz Bayesian Criterion    HQC = Hannan-Quinn Criterion


 I(1)




                           Unit root tests for variable LNL
            The Dickey-Fuller regressions include an intercept but not a trend
 ***************************************************************************
 **
  75 observations used in the estimation of all ADF regressions.
  Sample period from 1995Q2 to 2013Q4
 ***************************************************************************
 **
          Test Statistic      LL           AIC          SBC          HQC
  DF        -2.0224       118.4723     116.4723     114.1548     115.5469
  ADF(1)    -2.8779       122.9766     119.9766     116.5004     118.5886
  ADF(2)    -2.0313       125.6580     121.6580     117.0230     119.8073
  ADF(3)    -2.2459       126.3860     121.3860     115.5923     119.0726
  ADF(4)    -3.1290       130.6706     124.6706     117.7181     121.8945
 ***************************************************************************
 **
  95% critical value for the augmented Dickey-Fuller statistic =  -2.9001
  LL  = Maximized log-likelihood      AIC = Akaike Information Criterion
  SBC = Schwarz Bayesian Criterion    HQC = Hannan-Quinn Criterion



                           Unit root tests for variable LNL
            The Dickey-Fuller regressions include an intercept and a linear trend
```

```
*****************************************************************************
**
 75 observations used in the estimation of all ADF regressions.
 Sample period from 1995Q2 to 2013Q4
*****************************************************************************
**
        Test Statistic      LL          AIC          SBC          HQC
 DF         -1.8687     119.1196     116.1196     112.6433     114.7315
 ADF(1)     -2.7111     123.3890     119.3890     114.7541     117.5383
 ADF(2)     -1.8699     126.1419     121.1419     115.3482     118.8286
 ADF(3)     -2.0846     126.8656     120.8656     113.9131     118.0895
 ADF(4)     -2.9554     130.9328     123.9328     115.8216     120.6941
*****************************************************************************
**
 95% critical value for the augmented Dickey-Fuller statistic =  -3.4696
 LL  = Maximized log-likelihood      AIC = Akaike Information Criterion
 SBC = Schwarz Bayesian Criterion    HQC = Hannan-Quinn Criterion




                      Unit root tests for variable DL
      The Dickey-Fuller regressions include an intercept but not a trend
*****************************************************************************
**
 74 observations used in the estimation of all ADF regressions.
 Sample period from 1995Q3 to 2013Q4
*****************************************************************************
**
        Test Statistic      LL          AIC          SBC          HQC
 DF         -5.3294     117.2658     115.2658     112.9617     114.3466
 ADF(1)     -6.1254     121.6137     118.6137     115.1576     117.2350
 ADF(2)     -3.6609     121.8478     117.8478     113.2396     116.0095
 ADF(3)     -2.4997     123.6451     118.6451     112.8849     116.3473
 ADF(4)     -3.2753     126.4960     120.4960     113.5838     117.7387
*****************************************************************************
**
 95% critical value for the augmented Dickey-Fuller statistic =  -2.9006
 LL  = Maximized log-likelihood      AIC = Akaike Information Criterion
 SBC = Schwarz Bayesian Criterion    HQC = Hannan-Quinn Criterion




                      Unit root tests for variable DL
    The Dickey-Fuller regressions include an intercept and a linear trend
*****************************************************************************
**
 74 observations used in the estimation of all ADF regressions.
 Sample period from 1995Q3 to 2013Q4
*****************************************************************************
**
        Test Statistic      LL          AIC          SBC          HQC
 DF         -5.3926     117.8640     114.8640     111.4079     113.4854
 ADF(1)     -6.1734     122.2519     118.2519     113.6438     116.4137
 ADF(2)     -3.6788     122.5079     117.5079     111.7478     115.2101
 ADF(3)     -2.5289     124.2572     118.2572     111.3450     115.4998
 ADF(4)     -3.3057     127.1569     120.1569     112.0927     116.9400
*****************************************************************************
**
 95% critical value for the augmented Dickey-Fuller statistic =  -3.4704
 LL  = Maximized log-likelihood      AIC = Akaike Information Criterion
 SBC = Schwarz Bayesian Criterion    HQC = Hannan-Quinn Criterion




                      Unit root tests for variable DL
      The Dickey-Fuller regressions include an intercept but not a trend
```

```
****************************************************************************
**
 77 observations used in the estimation of all ADF regressions.
 Sample period from 1994Q4 to 2013Q4
****************************************************************************
**
         Test Statistic     LL        AIC         SBC         HQC
 DF          -5.4494      122.7716    120.7716    118.4278    119.8341
 ADF(1)      -6.3899      127.7127    124.7127    121.1970    123.3065
****************************************************************************
**
 95% critical value for the augmented Dickey-Fuller statistic =  -2.8991
 LL  = Maximized log-likelihood      AIC = Akaike Information Criterion
 SBC = Schwarz Bayesian Criterion    HQC = Hannan-Quinn Criterion


                      Unit root tests for variable DL
      The Dickey-Fuller regressions include an intercept and a linear trend
****************************************************************************
**
 77 observations used in the estimation of all ADF regressions.
 Sample period from 1994Q4 to 2013Q4
****************************************************************************
**
         Test Statistic     LL        AIC         SBC         HQC
 DF          -5.4920      123.3876    120.3876    116.8719    118.9814
 ADF(1)      -6.4230      128.3792    124.3792    119.6916    122.5042
****************************************************************************
**
 95% critical value for the augmented Dickey-Fuller statistic =  -3.4681
 LL  = Maximized log-likelihood      AIC = Akaike Information Criterion
 SBC = Schwarz Bayesian Criterion    HQC = Hannan-Quinn Criterion


I(0)




                     Unit root tests for variable LNAID
      The Dickey-Fuller regressions include an intercept but not a trend
****************************************************************************
**
 75 observations used in the estimation of all ADF regressions.
 Sample period from 1995Q2 to 2013Q4
****************************************************************************
**
         Test Statistic     LL        AIC         SBC         HQC
 DF          -1.9736      93.0345     91.0345     88.7170     90.1092
 ADF(1)      -2.0191     101.2328     98.2328     94.7566     96.8448
 ADF(2)      -2.0060     101.2351     97.2351     92.6001     95.3844
 ADF(3)      -2.1065     103.5208     98.5208     92.7271     96.2075
 ADF(4)      -2.0935     103.6235     97.6235     90.6710     94.8474
****************************************************************************
**
 95% critical value for the augmented Dickey-Fuller statistic =  -2.9001
 LL  = Maximized log-likelihood      AIC = Akaike Information Criterion
 SBC = Schwarz Bayesian Criterion    HQC = Hannan-Quinn Criterion


                     Unit root tests for variable LNAID
     The Dickey-Fuller regressions include an intercept and a linear trend
****************************************************************************
**
 75 observations used in the estimation of all ADF regressions.
 Sample period from 1995Q2 to 2013Q4
****************************************************************************
**
```

```
           Test Statistic      LL          AIC         SBC         HQC
  DF           .24852       93.4684     90.4684     86.9921     89.0804
  ADF(1)      -.64108      101.2332     97.2332     92.5982     95.3825
  ADF(2)      -.63681      101.2361     96.2361     90.4424     93.9227
  ADF(3)     -1.1131       103.6698     97.6698     90.7173     94.8938
  ADF(4)     -1.2595       103.9014     96.9014     88.7902     93.6627
 ***************************************************************************
 **
 95% critical value for the augmented Dickey-Fuller statistic = -3.4696
 LL  = Maximized log-likelihood      AIC = Akaike Information Criterion
 SBC = Schwarz Bayesian Criterion    HQC = Hannan-Quinn Criterion




                 Unit root tests for variable LNAID
       The Dickey-Fuller regressions include an intercept but not a trend
 ***************************************************************************
 **
 78 observations used in the estimation of all ADF regressions.
 Sample period from 1994Q3 to 2013Q4
 ***************************************************************************
 **
           Test Statistic      LL          AIC         SBC         HQC
  DF          -1.5818       94.5714     92.5714     90.2147     91.6280
  ADF(1)      -1.3706      102.3943     99.3943     95.8592     97.9791
 ***************************************************************************
 **
 95% critical value for the augmented Dickey-Fuller statistic =  -2.8986
 LL  = Maximized log-likelihood      AIC = Akaike Information Criterion
 SBC = Schwarz Bayesian Criterion    HQC = Hannan-Quinn Criterion




                 Unit root tests for variable LNAID
       The Dickey-Fuller regressions include an intercept and a linear trend
 ***************************************************************************
 **
 78 observations used in the estimation of all ADF regressions.
 Sample period from 1994Q3 to 2013Q4
 ***************************************************************************
 **
           Test Statistic      LL          AIC         SBC         HQC
  DF           .12462       94.7757     91.7757     88.2406     90.3605
  ADF(1)      -.77101      102.4732     98.4732     93.7598     96.5864
 ***************************************************************************
 **
 95% critical value for the augmented Dickey-Fuller statistic =  -3.4673
 LL  = Maximized log-likelihood      AIC = Akaike Information Criterion
 SBC = Schwarz Bayesian Criterion    HQC = Hannan-Quinn Criterion




                 Unit root tests for variable DAID
       The Dickey-Fuller regressions include an intercept but not a trend
 ***************************************************************************
 **
 74 observations used in the estimation of all ADF regressions.
 Sample period from 1995Q3 to 2013Q4
 ***************************************************************************
 **
           Test Statistic      LL          AIC         SBC         HQC
  DF          -4.0623      100.6250     98.6250     96.3210     97.7059
  ADF(1)      -3.5300      100.6687     97.6687     94.2126     96.2901
  ADF(2)      -2.1620      102.4052     98.4052     93.7971     96.5670
  ADF(3)      -2.1349      102.4578     97.4578     91.6977     95.1600
  ADF(4)      -1.8885      102.5025     96.5025     89.5903     93.7451
```

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```
*******************************************************************************
**
 95% critical value for the augmented Dickey-Fuller statistic = -2.9006
 LL  = Maximized log-likelihood      AIC = Akaike Information Criterion
 SBC = Schwarz Bayesian Criterion    HQC = Hannan-Quinn Criterion


                        Unit root tests for variable DAID
     The Dickey-Fuller regressions include an intercept and a linear trend
*******************************************************************************
**
 74 observations used in the estimation of all ADF regressions.
 Sample period from 1995Q3 to 2013Q4
*******************************************************************************
**
          Test Statistic     LL          AIC         SBC         HQC
 DF         -4.2679        101.5852     98.5852     95.1291     97.2065
 ADF(1)     -3.7171        101.6297     97.6297     93.0215     95.7914
 ADF(2)     -2.3438        103.3562     98.3562     92.5960     96.0584
 ADF(3)     -2.3193        103.4248     97.4248     90.5126     94.6675
 ADF(4)     -2.0857        103.4451     96.4451     88.3809     93.2282
*******************************************************************************
**
 95% critical value for the augmented Dickey-Fuller statistic =  -3.4704
 LL  = Maximized log-likelihood      AIC = Akaike Information Criterion
 SBC = Schwarz Bayesian Criterion    HQC = Hannan-Quinn Criterion




                        Unit root tests for variable DAID
     The Dickey-Fuller regressions include an intercept but not a trend
*******************************************************************************
**
 78 observations used in the estimation of all ADF regressions.
 Sample period from 1994Q3 to 2013Q4
*******************************************************************************
**
          Test Statistic     LL          AIC         SBC         HQC
 DF         -4.8739        101.4295     99.4295     97.0728     98.4861
*******************************************************************************
**
 95% critical value for the augmented Dickey-Fuller statistic =  -2.8986
 LL  = Maximized log-likelihood      AIC = Akaike Information Criterion
 SBC = Schwarz Bayesian Criterion    HQC = Hannan-Quinn Criterion




                        Unit root tests for variable DAID
     The Dickey-Fuller regressions include an intercept and a linear trend
*******************************************************************************
**
 78 observations used in the estimation of all ADF regressions.
 Sample period from 1994Q3 to 2013Q4
*******************************************************************************
**
          Test Statistic     LL          AIC         SBC         HQC
 DF         -5.0161        102.1612     99.1612     95.6261     97.7460
*******************************************************************************
**
 95% critical value for the augmented Dickey-Fuller statistic =  -3.4673
 LL  = Maximized log-likelihood      AIC = Akaike Information Criterion
 SBC = Schwarz Bayesian Criterion    HQC = Hannan-Quinn Criterion




                        Unit root tests for variable DSCU
```

```
       The Dickey-Fuller regressions include an intercept but not a trend
*******************************************************************************
**
 75 observations used in the estimation of all ADF regressions.
 Sample period from 1995Q2 to 2013Q4
*******************************************************************************
**
        Test Statistic      LL          AIC          SBC          HQC
 DF        -1.0573        -1421.8      -1423.8      -1426.2      -1424.8
 ADF(1)    -2.0883        -1408.4      -1411.4      -1414.8      -1412.7
 ADF(2)    -2.4363        -1407.1      -1411.1      -1415.7      -1413.0
 ADF(3)    -2.4007        -1407.1      -1412.1      -1417.9      -1414.4
 ADF(4)    -1.4356        -1400.6      -1406.6      -1413.5      -1409.3
*******************************************************************************
**
 95% critical value for the augmented Dickey-Fuller statistic =  -2.9001
 LL  = Maximized log-likelihood     AIC = Akaike Information Criterion
 SBC = Schwarz Bayesian Criterion   HQC = Hannan-Quinn Criterion


                    Unit root tests for variable DSCU
     The Dickey-Fuller regressions include an intercept and a linear trend
*******************************************************************************
**
 75 observations used in the estimation of all ADF regressions.
 Sample period from 1995Q2 to 2013Q4
*******************************************************************************
**
        Test Statistic      LL          AIC          SBC          HQC
 DF        -.96148        -1421.7      -1424.7      -1428.2      -1426.1
 ADF(1)    -2.0530        -1408.4      -1412.4      -1417.0      -1414.2
 ADF(2)    -2.4179        -1407.1      -1412.1      -1417.9      -1414.4
 ADF(3)    -2.3836        -1407.0      -1413.0      -1420.0      -1415.8
 ADF(4)    -1.3363        -1400.5      -1407.5      -1415.6      -1410.8
*******************************************************************************
**
 95% critical value for the augmented Dickey-Fuller statistic =  -3.4696
 LL  = Maximized log-likelihood     AIC = Akaike Information Criterion
 SBC = Schwarz Bayesian Criterion   HQC = Hannan-Quinn Criterion




                    Unit root tests for variable DSCU
       The Dickey-Fuller regressions include an intercept but not a trend
*******************************************************************************
**
 79 observations used in the estimation of all ADF regressions.
 Sample period from 1994Q2 to 2013Q4
*******************************************************************************
**
        Test Statistic      LL          AIC          SBC          HQC
 DF        -1.1176        -1495.8      -1497.8      -1500.2      -1498.7
*******************************************************************************
**
 95% critical value for the augmented Dickey-Fuller statistic =  -2.8981
 LL  = Maximized log-likelihood     AIC = Akaike Information Criterion
 SBC = Schwarz Bayesian Criterion   HQC = Hannan-Quinn Criterion




                    Unit root tests for variable DSCU
     The Dickey-Fuller regressions include an intercept and a linear trend
*******************************************************************************
**
 79 observations used in the estimation of all ADF regressions.
 Sample period from 1994Q2 to 2013Q4
```

```
********************************************************************************
**
        Test Statistic     LL          AIC          SBC          HQC
 DF       -.98840        -1495.6      -1498.6      -1502.1      -1500.0
********************************************************************************
**
 95% critical value for the augmented Dickey-Fuller statistic = -3.4666
 LL  = Maximized log-likelihood       AIC = Akaike Information Criterion
 SBC = Schwarz Bayesian Criterion     HQC = Hannan-Quinn Criterion




                   Unit root tests for variable DDSCU
      The Dickey-Fuller regressions include an intercept but not a trend
********************************************************************************
**
 74 observations used in the estimation of all ADF regressions.
 Sample period from 1995Q3 to 2013Q4
********************************************************************************
**
        Test Statistic     LL          AIC          SBC          HQC
 DF       -4.7655        -1392.2      -1394.2      -1396.6      -1395.2
 ADF(1)   -3.7055        -1391.8      -1394.8      -1398.3      -1396.2
 ADF(2)   -3.5390        -1391.7      -1395.7      -1400.3      -1397.6
 ADF(3)   -5.2325        -1383.5      -1388.5      -1394.2      -1390.8
 ADF(4)   -2.8474        -1376.7      -1382.7      -1389.6      -1385.4
********************************************************************************
**
 95% critical value for the augmented Dickey-Fuller statistic =  -2.9006
 LL  = Maximized log-likelihood       AIC = Akaike Information Criterion
 SBC = Schwarz Bayesian Criterion     HQC = Hannan-Quinn Criterion




                   Unit root tests for variable DDSCU
      The Dickey-Fuller regressions include an intercept and a linear trend
********************************************************************************
**
 74 observations used in the estimation of all ADF regressions.
 Sample period from 1995Q3 to 2013Q4
********************************************************************************
**
        Test Statistic     LL          AIC          SBC          HQC
 DF       -4.7451        -1392.2      -1395.2      -1398.7      -1396.6
 ADF(1)   -3.6865        -1391.8      -1395.8      -1400.4      -1397.6
 ADF(2)   -3.5226        -1391.7      -1396.7      -1402.4      -1399.0
 ADF(3)   -5.2318        -1383.3      -1389.3      -1396.2      -1392.1
 ADF(4)   -2.8342        -1376.6      -1383.6      -1391.7      -1386.9
********************************************************************************
**
 95% critical value for the augmented Dickey-Fuller statistic =  -3.4704
 LL  = Maximized log-likelihood       AIC = Akaike Information Criterion
 SBC = Schwarz Bayesian Criterion     HQC = Hannan-Quinn Criterion




                   Unit root tests for variable DDSCU
      The Dickey-Fuller regressions include an intercept but not a trend
********************************************************************************
**
 76 observations used in the estimation of all ADF regressions.
 Sample period from 1995Q1 to 2013Q4
********************************************************************************
**
        Test Statistic     LL          AIC          SBC          HQC
 DF       -4.8297        -1429.0      -1431.0      -1433.4      -1432.0
```

```
 ADF(1)     -3.7478       -1428.6       -1431.6       -1435.1       -1433.0
 ADF(2)     -3.5780       -1428.5       -1432.5       -1437.2       -1434.4
****************************************************************************
**
 95% critical value for the augmented Dickey-Fuller statistic = -2.8996
 LL  = Maximized log-likelihood     AIC = Akaike Information Criterion
 SBC = Schwarz Bayesian Criterion   HQC = Hannan-Quinn Criterion


                    Unit root tests for variable DDSCU
      The Dickey-Fuller regressions include an intercept and a linear trend
****************************************************************************
**
 76 observations used in the estimation of all ADF regressions.
 Sample period from 1995Q1 to 2013Q4
****************************************************************************
**
        Test Statistic     LL          AIC           SBC           HQC
 DF        -4.8182       -1429.0       -1432.0       -1435.5       -1433.4
 ADF(1)    -3.7393       -1428.5       -1432.5       -1437.2       -1434.4
 ADF(2)    -3.5735       -1428.4       -1433.4       -1439.3       -1435.8
****************************************************************************
**
 95% critical value for the augmented Dickey-Fuller statistic =  -3.4688
 LL  = Maximized log-likelihood     AIC = Akaike Information Criterion
 SBC = Schwarz Bayesian Criterion   HQC = Hannan-Quinn Criterion


                              Take this



                    Autoregressive Distributed Lag Estimates
          ARDL(1,1,1,1) selected based on Schwarz Bayesian Criterion
****************************************************************************
**
 Dependent variable is LNGDPC
 79 observations used for estimation from 1994Q2 to 2013Q4
****************************************************************************
**
 Regressor              Coefficient       Standard Error         T-
Ratio[Prob]
 LNGDPC(-1)                .87031            .039916
21.8035[.000]
 LNKGDP                    .20890            .10349
2.0185[.047]
 LNKGDP(-1)               -.41166            .10658              -
3.8625[.000]
 LNL                      1.0657             .16719
6.3739[.000]
 LNL(-1)                  -.75483            .17871              -
4.2237[.000]
 LNAID                    -.28575            .10544              -
2.7100[.008]
 LNAID(-1)                 .30350            .10025
3.0274[.003]
 C                         .29277            .49732
.58869[.558]
 T                        -.0025895          .7829E-3            -
3.3074[.001]
****************************************************************************
**
 R-Squared                   .95617   R-Bar-Squared
.95116
 S.E. of Regression          .041461  F-stat.    F( 8,  70)
190.8879[.000]
 Mean of Dependent Variable  5.9365   S.D. of Dependent Variable
.18761
```

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```
 Residual Sum of Squares       .12033   Equation Log-likelihood
144.1383
 Akaike Info. Criterion       135.1383   Schwarz Bayesian Criterion
124.4758
 DW-statistic                   1.3271   Durbin's h-statistic
3.1987[.001]
******************************************************************************
**


                             Diagnostic Tests
******************************************************************************
**
*    Test Statistics  *       LM Version          *        F Version
******************************************************************************
**
*                       *            *                 *
* A:Serial Correlation*CHSQ(   4)=  34.0470[.000]*F(   4,  66)=
12.4969[.000]
*                       *            *                 *
* B:Functional Form   *CHSQ(   1)=   5.4141[.020]*F(   1,  69)=
5.0767[.027]
*                       *            *                 *
* C:Normality         *CHSQ(   2)= 307.9095[.000]*     Not applicable
*                       *            *                 *
* D:Heteroscedasticity*CHSQ(   1)=   6.3179[.012]*F(   1,  77)=
6.6932[.012]
******************************************************************************
**
   A:Lagrange multiplier test of residual serial correlation
   B:Ramsey's RESET test using the square of the fitted values
   C:Based on a test of skewness and kurtosis of residuals
   D:Based on the regression of squared residuals on squared fitted values

                          Take this for short run


        Error Correction Representation for the Selected ARDL Model
        ARDL(1,1,1,1) selected based on Schwarz Bayesian Criterion
******************************************************************************
**
 Dependent variable is dLNGDPC
 79 observations used for estimation from 1994Q2 to 2013Q4
******************************************************************************
**
 Regressor            Coefficient        Standard Error         T-
Ratio[Prob]
 dLNKGDP                 .20890             .10349
2.0185[.047]
 dLNL                    1.0657             .16719
6.3739[.000]
 dLNAID                 -.28575             .10544              -
2.7100[.008]
 dC                      .29277             .49732
.58869[.558]
 dT                    -.0025895            .7829E-3            -
3.3074[.001]
 ecm(-1)                -.12969             .039916             -
3.2490[.002]
******************************************************************************
**
 List of additional temporary variables created:
 dLNGDPC = LNGDPC-LNGDPC(-1)
 dLNKGDP = LNKGDP-LNKGDP(-1)
 dLNL = LNL-LNL(-1)
 dLNAID = LNAID-LNAID(-1)
 dC = C-C(-1)
```

```
 dT = T-T(-1)
 ecm = LNGDPC +   1.5635*LNKGDP  -2.3967*LNL  -.13686*LNAID  -2.2575*C +
.
019967*T
******************************************************************************
**
 R-Squared                      .65589  R-Bar-Squared
.61657
 S.E. of Regression             .041461  F-stat.   F( 5,  73)
26.6850[.000]
 Mean of Dependent Variable  .1490E-3  S.D. of Dependent Variable
.066957
 Residual Sum of Squares        .12033  Equation Log-likelihood
144.1383
 Akaike Info. Criterion         135.1383  Schwarz Bayesian Criterion
124.4758
 DW-statistic                   1.3271
******************************************************************************
**
 R-Squared and R-Bar-Squared measures refer to the dependent variable
 dLNGDPC and in cases where the error correction model is highly
 restricted, these measures could become negative.




                    Autoregressive Distributed Lag Estimates
           ARDL(1,1,1,0) selected based on Schwarz Bayesian Criterion
******************************************************************************
**
 Dependent variable is LNGDPC
 79 observations used for estimation from 1994Q2 to 2013Q4
******************************************************************************
**
 Regressor              Coefficient       Standard Error         T-
Ratio[Prob]
 LNGDPC(-1)              .89185            .042413
21.0277[.000]
 LNKGDP                 .28582            .10974
2.6045[.011]
 LNKGDP(-1)             -.36948           .11367                 -
3.2504[.002]
 LNL                    .79062            .14466
5.4655[.000]
 LNL(-1)                -.51710           .16527                 -
3.1289[.003]
 LNAID                  -.014874          .022527                -
.66028[.511]
 C                      .52904            .42742
1.2378[.220]
******************************************************************************
**
 R-Squared                      .94695  R-Bar-Squared
.94253
 S.E. of Regression             .044975  F-stat.   F( 6,  72)
214.2156[.000]
 Mean of Dependent Variable  5.9365  S.D. of Dependent Variable
.18761
 Residual Sum of Squares        .14564  Equation Log-likelihood
136.5990
 Akaike Info. Criterion         129.5990  Schwarz Bayesian Criterion
121.3059
 DW-statistic                   1.2292  Durbin's h-statistic
3.6983[.000]
******************************************************************************
**
```

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```
                          Diagnostic Tests
*****************************************************************************
**
*    Test Statistics   *       LM Version       *        F Version
*****************************************************************************
**
*                       *                       *
* A:Serial Correlation*CHSQ(   4)=  31.6186[.000]*F(   4,  68)=
11.3445[.000]
*                       *                       *
* B:Functional Form   *CHSQ(   1)=   2.1503[.143]*F(   1,  71)=
1.9866[.163]
*                       *                       *
* C:Normality          *CHSQ(   2)= 300.1112[.000]*       Not applicable
*                       *                       *
* D:Heteroscedasticity*CHSQ(   1)=   6.0199[.014]*F(   1,  77)=
6.3515[.014]
*****************************************************************************
**
   A:Lagrange multiplier test of residual serial correlation
   B:Ramsey's RESET test using the square of the fitted values
   C:Based on a test of skewness and kurtosis of residuals
   D:Based on the regression of squared residuals on squared fitted values




          Error Correction Representation for the Selected ARDL Model
          ARDL(1,1,1,0) selected based on Schwarz Bayesian Criterion
*****************************************************************************
**
 Dependent variable is dLNGDPC
 79 observations used for estimation from 1994Q2 to 2013Q4
*****************************************************************************
**
 Regressor             Coefficient          Standard Error         T-
Ratio[Prob]
 dLNKGDP                    .28582               .10974
2.6045[.011]
 dLNL                       .79062               .14466
5.4655[.000]
 dLNAID                   -.014874               .022527              -
.66028[.511]
 dC                         .52904               .42742
1.2378[.220]
 ecm(-1)                  -.10815               .042413              -
2.5500[.013]
*****************************************************************************
**
 List of additional temporary variables created:
 dLNGDPC = LNGDPC-LNGDPC(-1)
 dLNKGDP = LNKGDP-LNKGDP(-1)
 dLNL = LNL-LNL(-1)
 dLNAID = LNAID-LNAID(-1)
 dC = C-C(-1)
 ecm = LNGDPC +   .77352*LNKGDP  -2.5290*LNL +   .13753*LNAID  -4.8916*C
*****************************************************************************
**
 R-Squared                     .58353   R-Bar-Squared
.54882
 S.E. of Regression            .044975  F-stat.   F(  4,  74)
25.2200[.000]
 Mean of Dependent Variable  .1490E-3   S.D. of Dependent Variable
.066957
 Residual Sum of Squares       .14564   Equation Log-likelihood
136.5990
```

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```
 Akaike Info. Criterion       129.5990   Schwarz Bayesian Criterion
121.3059
 DW-statistic                   1.2292
********************************************************************************
**
 R-Squared and R-Bar-Squared measures refer to the dependent variable
 dLNGDPC and in cases where the error correction model is highly
 restricted, these measures could become negative.




                   Autoregressive Distributed Lag Estimates
          ARDL(1,1,1,0) selected based on Schwarz Bayesian Criterion
********************************************************************************
**
 Dependent variable is LNGDPC
 79 observations used for estimation from 1994Q2 to 2013Q4
********************************************************************************
**
 Regressor              Coefficient       Standard Error        T-
Ratio[Prob]
 LNGDPC(-1)                 .89282            .039371
22.6770[.000]
 LNKGDP                     .28966            .10732
2.6991[.009]
 LNKGDP(-1)                -.32987            .10961                -
3.0096[.004]
 LNL                        .72845            .13091
5.5645[.000]
 LNL(-1)                   -.52114            .16043                -
3.2484[.002]
 DSCU                       .0000             .0000
1.3585[.179]
 C                          .28914            .20722
1.3954[.167]
********************************************************************************
**
 R-Squared                      .94797   R-Bar-Squared
.94363
 S.E. of Regression           .044544   F-stat.   F(  6,  72)
218.6178[.000]
 Mean of Dependent Variable    5.9365   S.D. of Dependent Variable
.18761
 Residual Sum of Squares       .14286   Equation Log-likelihood
137.3603
 Akaike Info. Criterion       130.3603   Schwarz Bayesian Criterion
122.0672
 DW-statistic                   1.2644   Durbin's h-statistic
3.4897[.000]
********************************************************************************
**




                              Diagnostic Tests
********************************************************************************
**
*    Test Statistics  *       LM Version        *         F Version
********************************************************************************
**
*                       *                       *
* A:Serial Correlation*CHSQ(  4)=  33.3953[.000]*F(   4,  68)=
12.4488[.000]
*                       *                       *
* B:Functional Form   *CHSQ(  1)=   4.9486[.026]*F(   1,  71)=
4.7446[.033]
*                       *                       *
```

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```
* C:Normality        *CHSQ(  2)= 275.5905[.000]*      Not applicable
*                    *                          *
* D:Heteroscedasticity*CHSQ(  1)=   6.1163[.013]*F(   1,  77)=
6.4618[.013]
***********************************************************************
**
   A:Lagrange multiplier test of residual serial correlation
   B:Ramsey's RESET test using the square of the fitted values
   C:Based on a test of skewness and kurtosis of residuals
   D:Based on the regression of squared residuals on squared fitted values




          Error Correction Representation for the Selected ARDL Model
          ARDL(1,1,1,0) selected based on Schwarz Bayesian Criterion
***********************************************************************
**
 Dependent variable is dLNGDPC
 79 observations used for estimation from 1994Q2 to 2013Q4
***********************************************************************
**
 Regressor           Coefficient      Standard Error      T-
Ratio[Prob]
 dLNKGDP               .28966           .10732
2.6991[.009]
 dLNL                  .72845           .13091
5.5645[.000]
 dDSCU                 .0000            .0000
1.3585[.178]
 dC                    .28914           .20722
1.3954[.167]
 ecm(-1)              -.10718           .039371            -
2.7223[.008]
***********************************************************************
**
 List of additional temporary variables created:
 dLNGDPC = LNGDPC-LNGDPC(-1)
 dLNKGDP = LNKGDP-LNKGDP(-1)
 dLNL = LNL-LNL(-1)
 dDSCU = DSCU-DSCU(-1)
 dC = C-C(-1)
 ecm = LNGDPC +   .37517*LNKGDP  -1.9342*LNL -.4858E-9*DSCU   -2.6978*C
***********************************************************************
**
 R-Squared                 .59148   R-Bar-Squared
.55743
 S.E. of Regression        .044544  F-stat.   F(  4,  74)
26.0611[.000]
 Mean of Dependent Variable .1490E-3  S.D. of Dependent Variable
.066957
 Residual Sum of Squares    .14286   Equation Log-likelihood
137.3603
 Akaike Info. Criterion     130.3603  Schwarz Bayesian Criterion
122.0672
 DW-statistic               1.2644
***********************************************************************
**
 R-Squared and R-Bar-Squared measures refer to the dependent variable
 dLNGDPC and in cases where the error correction model is highly
 restricted, these measures could become negative.




          Autoregressive Distributed Lag Estimates
          ARDL(1,1,1,0) selected based on Schwarz Bayesian Criterion
```

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```
*******************************************************************************
**
 Dependent variable is LNGDPC
 79 observations used for estimation from 1994Q2 to 2013Q4
*******************************************************************************
**
 Regressor            Coefficient      Standard Error          T-
Ratio[Prob]
 LNGDPC(-1)              .90724            .039697
22.8542[.000]
 LNKGDP                  .24236            .10925
2.2183[.030]
 LNKGDP(-1)             -.36733            .11020               -
3.3332[.001]
 LNL                     .79363            .13440
5.9049[.000]
 LNL(-1)                -.52118            .15821               -
3.2943[.002]
 DSCU                    .0000             .0000
.47801[.634]
 C                       .27886            .20443
1.3641[.177]
 T                      -.0011775          .6756E-3             -
1.7430[.086]
*******************************************************************************
**
 R-Squared                   .95010   R-Bar-Squared
.94518
 S.E. of Regression          .043926  F-stat.   F( 7,  71)
193.1252[.000]
 Mean of Dependent Variable  5.9365   S.D. of Dependent Variable
.18761
 Residual Sum of Squares     .13700   Equation Log-likelihood
139.0153
 Akaike Info. Criterion      131.0153  Schwarz Bayesian Criterion
121.5376
 DW-statistic                1.3352   Durbin's h-statistic
3.1577[.002]
*******************************************************************************
**


                              Diagnostic Tests
*******************************************************************************
**
*    Test Statistics  *       LM Version         *         F Version
*******************************************************************************
**
*                     *                          *
* A:Serial Correlation*CHSQ(  4)=  34.2733[.000]*F(  4,  67)=
12.8352[.000]
*                     *                          *
* B:Functional Form   *CHSQ(  1)=   4.6752[.031]*F(  1,  70)=
4.4032[.039]
*                     *                          *
* C:Normality         *CHSQ(  2)= 304.2807[.000]*      Not applicable
*                     *                          *
* D:Heteroscedasticity*CHSQ(  1)=   5.5341[.019]*F(  1,  77)=
5.8004[.018]
*******************************************************************************
**
   A:Lagrange multiplier test of residual serial correlation
   B:Ramsey's RESET test using the square of the fitted values
   C:Based on a test of skewness and kurtosis of residuals
   D:Based on the regression of squared residuals on squared fitted values
```

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```
          Error Correction Representation for the Selected ARDL Model
          ARDL(1,1,1,0) selected based on Schwarz Bayesian Criterion
*****************************************************************************
**
 Dependent variable is dLNGDPC
 79 observations used for estimation from 1994Q2 to 2013Q4
*****************************************************************************
**
 Regressor              Coefficient         Standard Error        T-
Ratio[Prob]
 dLNKGDP                  .24236                .10925
2.2183[.030]
 dLNL                     .79363                .13440
5.9049[.000]
 dDSCU                    .0000                 .0000
.47801[.634]
 dC                       .27886                .20443
1.3641[.177]
 dT                      -.0011775              .6756E-3              -
1.7430[.086]
 ecm(-1)                 -.1092763              .039697               -
2.3368[.022]
*****************************************************************************
**
 List of additional temporary variables created:
 dLNGDPC = LNGDPC-LNGDPC(-1)
 dLNKGDP = LNKGDP-LNKGDP(-1)
 dLNL = LNL-LNL(-1)
 dDSCU = DSCU-DSCU(-1)
 dC = C-C(-1)
 dT = T-T(-1)
 ecm = LNGDPC +   1.3472*LNKGDP  -2.9371*LNL -.2165E-9*DSCU   -3.0062*C +
.0
12694*T
*****************************************************************************
**
 R-Squared                      .60824   R-Bar-Squared
.56962
 S.E. of Regression             .043926  F-stat.    F( 5,   73)
22.0467[.000]
 Mean of Dependent Variable  .1490E-3    S.D. of Dependent Variable
.066957
 Residual Sum of Squares        .13700   Equation Log-likelihood
139.0153
 Akaike Info. Criterion      131.0153    Schwarz Bayesian Criterion
121.5376
 DW-statistic                   1.3352
*****************************************************************************
**
 R-Squared and R-Bar-Squared measures refer to the dependent variable
 dLNGDPC and in cases where the error correction model is highly
 restricted, these measures could become negative.




                    Autoregressive Distributed Lag Estimates
          ARDL(1,1,1,1,0) selected based on Schwarz Bayesian Criterion
*****************************************************************************
**
 Dependent variable is LNGDPC
 79 observations used for estimation from 1994Q2 to 2013Q4
*****************************************************************************
**
```

```
 Regressor              Coefficient         Standard Error         T-
Ratio[Prob]
 LNGDPC(-1)                .87611               .041737
20.9909[.000]
 LNKGDP                    .21121               .10415
2.0280[.046]
 LNKGDP(-1)               -.40838               .10735                 -
3.8042[.000]
 LNL                      1.0723                .16860
6.3600[.000]
 LNL(-1)                  -.78567               .18977                 -
4.1402[.000]
 LNAID                    -.30197               .11076                 -
2.7262[.008]
 LNAID(-1)                 .31122               .10194
3.0529[.003]
 DSCU                      .0000                .0000
.50498[.615]
 C                        .44586                .58473
.76252[.448]
 T                        -.0023016             .9718E-3               -
2.3683[.021]
********************************************************************************
**
 R-Squared                     .95633   R-Bar-Squared
.95064
 S.E. of Regression            .041684  F-stat.   F( 9,  69)
167.9006[.000]
 Mean of Dependent Variable    5.9365   S.D. of Dependent Variable
.18761
 Residual Sum of Squares       .11989   Equation Log-likelihood
144.2840
 Akaike Info. Criterion        134.2840 Schwarz Bayesian Criterion
122.4368
 DW-statistic                  1.3330   Durbin's h-statistic
3.1918[.001]
********************************************************************************
**


                              Diagnostic Tests
********************************************************************************
**
*    Test Statistics  *       LM Version        *        F Version
********************************************************************************
**
*                     *                          *
* A:Serial Correlation*CHSQ(  4)= 34.3298[.000]*F(  4,  65)=
12.4884[.000]
*                     *                          *
* B:Functional Form   *CHSQ(  1)=  6.6517[.010]*F(  1,  68)=
6.2519[.015]
*                     *                          *
* C:Normality         *CHSQ(  2)= 315.1986[.000]*     Not applicable
*                     *                          *
* D:Heteroscedasticity*CHSQ(  1)=  6.3983[.011]*F(  1,  77)=
6.7859[.011]
********************************************************************************
**
   A:Lagrange multiplier test of residual serial correlation
   B:Ramsey's RESET test using the square of the fitted values
   C:Based on a test of skewness and kurtosis of residuals
   D:Based on the regression of squared residuals on squared fitted values
```

```
              Error Correction Representation for the Selected ARDL Model
            ARDL(1,1,1,1,0) selected based on Schwarz Bayesian Criterion
*******************************************************************************
**
 Dependent variable is dLNGDPC
 79 observations used for estimation from 1994Q2 to 2013Q4
*******************************************************************************
**
 Regressor               Coefficient        Standard Error         T-
Ratio[Prob]
 dLNKGDP                     .21121              .10415
2.0280[.046]
 dLNL                        1.0723              .16860
6.3600[.000]
 dLNAID                     -.30197              .11076             -
2.7262[.008]
 dDSCU                        .0000               .0000
.50498[.615]
 dC                          .44586              .58473
.76252[.448]
 dT                        -.0023016            .9718E-3            -
2.3683[.021]
 ecm(-1)                    -.12389              .041737            -
2.9684[.004]
*******************************************************************************
**
 List of additional temporary variables created:
 dLNGDPC = LNGDPC-LNGDPC(-1)
 dLNKGDP = LNKGDP-LNKGDP(-1)
 dLNL = LNL-LNL(-1)
 dLNAID = LNAID-LNAID(-1)
 dDSCU = DSCU-DSCU(-1)
 dC = C-C(-1)
 dT = T-T(-1)
 ecm = LNGDPC +  1.5914*LNKGDP  -2.3135*LNL  -.074685*LNAID -.1932E-9*DSCU
 -3.5987*C +  .018577*T
*******************************************************************************
**
 R-Squared                    .65716   R-Bar-Squared
.61244
 S.E. of Regression           .041684  F-stat.   F( 6,  72)
22.0433[.000]
 Mean of Dependent Variable .1490E-3   S.D. of Dependent Variable
.066957
 Residual Sum of Squares      .11989   Equation Log-likelihood
144.2840
 Akaike Info. Criterion     134.2840   Schwarz Bayesian Criterion
122.4368
 DW-statistic                 1.3330
*******************************************************************************
**
 R-Squared and R-Bar-Squared measures refer to the dependent variable
 dLNGDPC and in cases where the error correction model is highly
 restricted, these measures could become negative.




                    Autoregressive Distributed Lag Estimates
           ARDL(1,1,1,1,0) selected based on Schwarz Bayesian Criterion
*******************************************************************************
**
 Dependent variable is LNGDPC
 79 observations used for estimation from 1994Q2 to 2013Q4
*******************************************************************************
**
```

```
 Regressor              Coefficient        Standard Error         T-
Ratio[Prob]
 LNGDPC(-1)                 .89575             .042230
21.2112[.000]
 LNKGDP                     .25933             .10546
2.4591[.016]
 LNKGDP(-1)                -.39675             .11071                -
3.5836[.001]
 LNL                       1.0407             .17352
5.9977[.000]
 LNL(-1)                   -.83583            .19469                 -
4.2931[.000]
 LNAID                     -.30301            .11435                 -
2.6498[.010]
 LNAID(-1)                  .26115             .10296
2.5365[.013]
 DSCU                       .0000              .0000
2.2652[.027]
 C                         1.2598             .48839
2.5794[.012]
******************************************************************************
**
 R-Squared                 .95278   R-Bar-Squared
.94739
 S.E. of Regression        .043034  F-stat.    F(  8,  70)
176.5618[.000]
 Mean of Dependent Variable  5.9365  S.D. of Dependent Variable
.18761
 Residual Sum of Squares   .12963   Equation Log-likelihood
141.1969
 Akaike Info. Criterion    132.1969  Schwarz Bayesian Criterion
121.5344
 DW-statistic              1.2423   Durbin's h-statistic
3.6330[.000]
******************************************************************************
**


                              Diagnostic Tests
******************************************************************************
**
*    Test Statistics  *      LM Version         *        F Version
******************************************************************************
**
*                       *                           *
* A:Serial Correlation*CHSQ(  4)=  30.4489[.000]*F(  4,  66)=
10.3480[.000]
*                       *                           *
* B:Functional Form   *CHSQ(  1)=   6.6576[.010]*F(  1,  69)=
6.3500[.014]
*                       *                           *
* C:Normality         *CHSQ(  2)= 321.7549[.000]*      Not applicable
*                       *                           *
* D:Heteroscedasticity*CHSQ(  1)=   6.2749[.012]*F(  1,  77)=
6.6437[.012]
******************************************************************************
**
   A:Lagrange multiplier test of residual serial correlation
   B:Ramsey's RESET test using the square of the fitted values
   C:Based on a test of skewness and kurtosis of residuals
   D:Based on the regression of squared residuals on squared fitted values




       Error Correction Representation for the Selected ARDL Model
       ARDL(1,1,1,1,0) selected based on Schwarz Bayesian Criterion
```

```
****************************************************************************
**
 Dependent variable is dLNGDPC
 79 observations used for estimation from 1994Q2 to 2013Q4
****************************************************************************
**
 Regressor              Coefficient       Standard Error          T-
Ratio[Prob]
 dLNKGDP                    .25933             .10546
2.4591[.016]
 dLNL                      1.0407             .17352
5.9977[.000]
 dLNAID                   -.30301             .11435              -
2.6498[.010]
 dDSCU                      .0000              .0000
2.2652[.026]
 dC                        1.2598             .48839
2.5794[.012]
 ecm(-1)                  -.10425             .042230             -
2.4686[.016]
****************************************************************************
**
 List of additional temporary variables created:
 dLNGDPC = LNGDPC-LNGDPC(-1)
 dLNKGDP = LNKGDP-LNKGDP(-1)
 dLNL = LNL-LNL(-1)
 dLNAID = LNAID-LNAID(-1)
 dDSCU = DSCU-DSCU(-1)
 dC = C-C(-1)
 ecm = LNGDPC +   1.3182*LNKGDP   -1.9654*LNL +    .40160*LNAID -.8610E-
9*DSCU
 -12.0844*C
****************************************************************************
**
 R-Squared                     .62929   R-Bar-Squared
.58692
 S.E. of Regression           .043034   F-stat.    F( 5,   73)
23.7654[.000]
 Mean of Dependent Variable  .1490E-3   S.D. of Dependent Variable
.066957
 Residual Sum of Squares       .12963   Equation Log-likelihood
141.1969
 Akaike Info. Criterion      132.1969   Schwarz Bayesian Criterion
121.5344
 DW-statistic               1.2423
****************************************************************************
**
 R-Squared and R-Bar-Squared measures refer to the dependent variable
 dLNGDPC and in cases where the error correction model is highly
 restricted, these measures could become negative.
```