

*The Impact of Foreign Aid and Donations to
Palestine on Development of its Economy under
Alternative Israeli- Palestinian Economic
Interaction Regimes*

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Abstract

The main goal of the thesis is to examine whether the Palestinian economy suffers from "Dutch Disease" symptoms, and if so what are its sources. Dutch Disease has been widely used to explain why foreign development aid can be ineffective in generating economic growth, even though it can break the vicious cycle of low income, low saving, low investment, low sustainable growth and even negative growth. In most cases, the disease is due to appreciation of local currency. However, the Palestinians use the Israeli Shekel and also the Jordanian Dinar and the Egyptian Lira. Thus, the sources of the symptoms of the Dutch Disease in the Palestinian economy might be explained by the influx of foreign aid arising because of terror attacks and retaliations and the economic policy and constraints that are imposed mainly by Israel.

The theoretical and empirical efforts of the thesis to determine the causality direction between foreign aid and growth include the following:

- I. The national accounting identities are used to express the gross domestic product (GDP) in terms of foreign currency and the proportion between import and uses. I found empirically that due to the political- economic constraints in the case of the Palestinian economy, the factors mentioned above are almost entirely exogenous and, under the existing economic- political constraints, foreign development aid had only a small chance to significantly boost the tradable sectors.

- II. I separated the national accounting figures of the Palestinian economy into two sub periods, 1968 to 1993 and 1994 to 2007. In the first period the Israeli convenient policy was to employ the Palestinians in Israel rather than to encourage the development of the Palestinian economy. The first Intifada erupted in 1987 and led to years of terror attacks and retaliations and also caused a significant reduction of GDP. Over the period 1968 to 1993 the average annual foreign aid was less than 20% of that for the period 1994 to 2007. Thus, terror and the economic and political policy of Israel are the main factors for the disease in this period.

Terror clashes and economic-political constraints persisted also in the second period of post "Oslo peace accord", but in that period the foreign aid soared up to 64% of GDP in 2007. The per capita GDP in 2007 decreased to almost the same level of GDP per capita twenty years ago, unemployment soared, export (about 90% to Israel) remained relatively negligible while the weight of the tradable sectors went down and weight of the non-tradable sectors rose. These findings fit the symptoms of Dutch Disease's. The main question remains - did the unprecedented foreign aid replace the economic efforts of the Palestinians, or did the foreign aid only solve the humanitarian disaster?

III. In order to answer this previous question, I regressed the annual growth of GDP on previous, current and next year foreign aid and found that the annual GDP growth is significantly correlated only with the current year foreign aid. This finding indicates that both directions of causality hold and foreign development aid cannot boost GDP unless the political-economic constraints are removed, and Israel becomes a positive player in the Palestinian economy.

In sum, the original contribution of the thesis is four-fold. First, to the best of my knowledge, for the first time macro data of almost forty years on the Palestinian economy has been collected and analyzed. It was not an easy task, due to collection difficulties at the first Intifada period and the 1994 transfer of statistical bureaus from Israel's Central Bureau of Statistics to the Palestinian Central Bureau of Statistics. Thus, I had to also estimate data from the first Intifada period and smooth conflicting figures between 1993 and 1994.

Second, to my best knowledge this is the first work that has expressed and analyzed GDP in terms of foreign currency constraints. This approach adds a unique economic insight, since almost all sources of foreign currency are exogenous in the special case of the Palestinian economy.

Third, for the first time the Dutch Disease symptoms of the Palestinian economy and its major factors are theoretically and empirically analysed. The symptoms at the period of high foreign aid were reflected in following four observations. First, increased unemployment; second, low growth of GDP; third, an increased share of the non-

tradable sector and a decreased share of the tradable sector; and four, a decreasing proportion of exports out of GDP.

Fourth, this is the first stock market event study that analyzed the impact of terror on the two sides of the barricade (Tel Aviv Stock Exchange vs. the Palestinian Security Exchange). The main findings of this analysis are as follows. Firstly, major terror attack events significantly depressed both stock markets; secondly, the Israeli stock market is more sensitive to terror attacks; thirdly, terror attacks affect negatively both economies but the negative relative impact on the Palestinian economies is more significant.

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Abbreviations

GDI	Gross Disposable Income
GDP	Gross Domestic Product
GNI	Gross National Income
GNP	Gross National Product
NPV	Net Present Value
U.N.	United Nations

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Declaration

Declaration: "Whilst registered as a candidate for the above degree, I have not been registered for any other research award. The results and conclusions embodied in this thesis are the work of the named candidate and have not been submitted for any other academic award"

Word count: 84,828

Chapter 1: Introduction

1.1 The Structure of this Chapter

This chapter describes the research area and its academic and practical importance. This section reviews several of the major studies in this area, including studies related to the West Bank and Gaza. The second part of this chapter explores the unique background of this subject, which is critical to understanding the unique research questions and hypotheses. This section also includes basic information on the main characteristic of the Palestinian economy and the key historical events related to the Israeli-Palestinian dispute. The third section presents the research questions and the main hypotheses. The fourth section briefly presents the methodology of the study along with its empirical and theoretical shortcomings and the unique difficulties faced in obtaining reliable historical data. The final section of the introduction presents the overall structure of the thesis.

1.2 Area of Research

This thesis studies the impact of the flow of foreign currency from foreign aid and labour abroad on economic growth in the West Bank and Gaza and on the "Dutch disease" symptoms in this unique country. There is a vast body of evidence indicating that the massive flow of foreign currency from either natural resources or from abroad can lead to a regression of the industrial tradable sector relative to the non-tradable service sector. This phenomenon is referred to in the literature as "Dutch Disease"¹. This area of research has a crucial academic and practical importance, as it is relevant to the growth goals of developing countries, the aspiration for equality among nations and humanitarian and moral issues. The ability to achieve the above goals is determined by the effectiveness of international aid. Unfortunately, as many conflicting factors theoretically and empirically impact the effectiveness of foreign aid, it is difficult to reach a final conclusion regarding the expected effectiveness of donations. The problems of growth and inequality among nations have been among the most important

¹ The term "Dutch Disease" appears in the literature following the deterioration of the Dutch Industrial sector following the influx of petroleum dollars from the North Sea. Chapter 3 reviews the various studies that analyze the Dutch Disease phenomenon. For an additional review, see also Corden and Neary (1982).

economic, political, social and moral issues worldwide for many years. Theoretically, according to Solow's (1956) neoclassical model, under conditions of free flow of capital and technology, the per capita GDP gap between two countries should diminish in a finite horizon and reach steady state. This result is in contrast to the hypothesis of Malthus (1798) that the marginal productivity of labour will decrease below a given level of capital. However, Malthus's theory has proven itself in many poor countries with fast growing populations and low levels of governance, education and technology. These poor countries became trapped in the vicious cycle of low saving and thus low investment, low capital and low growth. It seems that for these countries, foreign aid can break the vicious cycle of low saving and investment and close the "foreign currency gap" that prevents growth (Chenery and Strout (1966)). However, various studies that will be presented later claim that for many reasons; foreign aid may increase consumption, rather than increasing saving and growth.

Both economic thinkers and social welfare scientists have claimed that foreign aid can be detrimental to productivity. The flow of gold to Spain in the 16th century helped develop the Catholic Church, but not the Spanish economy, which remained technologically behind relative to the economies in neighbouring countries (Drelichman 2003). Numerous studies examine the impact of aid on growth (see, for example, Maizels and Nissanke (1984), Levy (1988), Burnside and Dollar (2004) and Rajan and Subramanian (2005, 2006). There is an ongoing debate among researchers concerning the impact of aid on growth and the factors underlying positive and negative correlations that have been observed between the two. Durberry, Gemmel and Greenaway (1998) claim that foreign aid can only have a limited positive impact on growth and that this depends on a number of factors, including the macroeconomic policy environment, income level, level of foreign aid and geographic location. Burnside and Dollar (2000) conclude that the quality of institutions and the presence of a sound fiscal and monetary policy in developing countries determine aid effectiveness. Easterly (2003) disputed Burnside and Dollar's (2000) claim and concluded that "how to achieve a beneficial aggregate impact of foreign aid remains a puzzle" (p.39). Rajan and Subramanian (2005) conducted a cross country analysis and did find that foreign aid was negatively correlated with growth, but they claimed that the direction of causality is unclear because poorer countries with low growth rates may attract higher amounts of aid. UNCTAD (2006-B) review much of the empirical

and theoretical debate on the effectiveness of aid. Djankov, Montello and Reynal-Querol (2006, 2008) review many of these studies and claim that Dutch Disease is the "The Curse of Aid"².

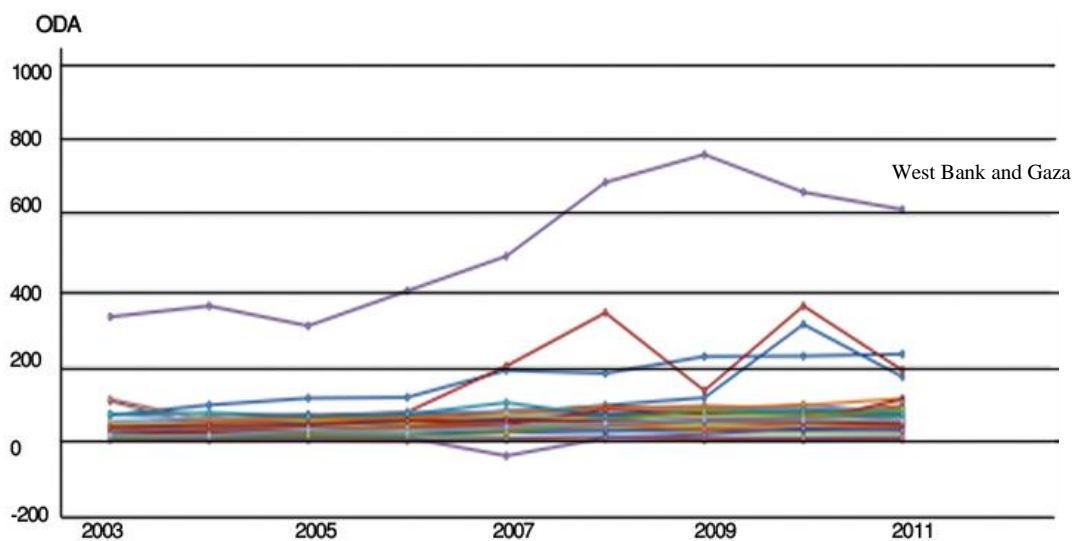
The specific interest of this thesis is the unique case of the economy of the West Bank and Gaza. This economy is unique for many reasons. First, the West Bank and Gaza have spent the last 50 years in a major conflict with Israel, which controls the most important factors of the economy of the West Bank and Gaza, including energy, water, arable land, labour abroad, and the physical movements of people and merchandise inside and outside the country including export and import. The West Bank has no sea shore, airports and borders are controlled by Israel, and almost all import, export and labour abroad occur through and to Israel. Although Gaza has a sea shore, there are no sea or airports in Gaza due to the Israeli siege, and Gaza is also geographically and physically disconnected from the West Bank. Second, the West Bank and Gaza does not have a national currency, with transactions occurring in the Israeli Shekel, the Jordanian Dinar and the Egyptian Lira. Thus, in the case of the West Bank and Gaza, the potential for Dutch Disease is not due to local currency appreciation but most likely due to various political, economic and physical constraints that are mainly imposed by Israel. Third, this economy is very small, and the per capita income is very low³. Naturally, a small economy with no natural resources and a limited amount of water and arable land is highly dependent on international trade and labour mobility. However, imports and exports of products, services and labour are exogenously politically constrained, mainly by Israel. Fourth, the West Bank and Gaza has received an exceptionally high level of per capita foreign aid. Figure 1.1 below presents the 2003-2011 per capita Official Development Aid (ODA). This figure shows that for a long period of time, the West Bank and Gaza received much higher aid relative to other poor countries. According to World Bank data, in 2011 the average ODA to less developed countries (according to UN classification) was on the average only USD 53, while the ODA to the West Bank and Gaza was USD 615. In fact, the West Bank and Gaza have a history of almost 50 years of dependence on external exogenous sources

² The "Curse of Aid" is the name of their 2008 paper.

³ According to the CIA World Fact Book, 2013 July 5th update, the 2011 estimated GDP of the West Bank and Gaza in Purchasing Power Parity terms is USD 8,022 billion (ranked 156th out of 229 countries), and the 2008 per capita GDP estimate was only USD 2,900 (ranked 178th in the world). These low levels can be compared to those of Israel, with a 2011 GDP in Purchasing Power terms of USD 245 Billion (ranked 51st in the world) and a per capita GDP of USD 32,800 (ranked 43rd in the world).

of foreign currency. From 1968-1993, (the pre "Oslo Peace Accord" period), the average annual per capita foreign currency financial transfers plus net capital transfers of USD 208 and the compensation from work abroad (most from Israel) of USD 340 financed 68% of the imports, which reached USD 811. In that period, the exports financed 32% of the imports, on average. From 1994-2007, the post Oslo period, the average annual per capita financial transfers and capital transfers tripled to USD 667, but compensation from work abroad was cut by 50% to an annual per capita amount of USD 169⁴. In the post Oslo period, the above two sources of foreign currency financed 80% of the imports, which increased to an average per capita amount of USD 1045. During the post Oslo period of 1994-2007, the exports deteriorated to an average annual per capita amount of only USD 208, and those exports financed only 20% of the imports (compared with 32% before the Oslo period)⁵.

Figure 1.1 Per Capita Official Development Aid (ODA) to the West Bank and Gaza and 36 Low Income Countries, 2003-2011 (in current USD)



Source: World Bank Data; Development Indicators July 2013.

The thesis examines whether these differences in exports and imports between the two periods constitute Dutch Disease. There are many historical examples of countries that were infected by Dutch Disease (See Table 3.1 in chapter 3 p.110). There is a vast body of literature related to the impact of foreign aid on tradable sectors and export in

⁴ According to Table 5.7 in Chapter 5 p.153, 89% of the compensation from work abroad from 1999-2007 was from Israel.

⁵ All USD numbers above are in real CPI terms of 2004 and are taken from Table 5.2 in Chapter 5 p.146.

general, especially in developing countries. Recently, Rajan and Subramanian (2011) provided cross country data demonstrating that aid inflows have systematic adverse effects on country competitiveness by resulting in real exchange rate appreciation. Other studies report conflicting results⁶.

Only a few studies have examined the impact of donations on economic growth in the West Bank and Gaza Strip. Le More (2005) focuses on the effect of the struggle, using the Palestinian-Israeli dispute as an example for the claim that much more effort should be put into solving the dispute before aid can be effective⁷. Lasensky and Grace (2006) question the impact of aid on the economy of Palestine as well as on the path to peace. Hever (2006) supports the claim that the basic purpose of the donor countries was the development and economic independence of the Palestinians. UNCTAD (2006-A) reviewed the impact of aid in the West Bank and Gaza. However, development and economic independence have not been achieved due to the political situation. Petri (1997) also views the West Bank and Gaza as victims of Dutch Disease. He observes:

"An especially dramatic example of the Dutch Disease at work is provided by the structure of the Palestinian economy in the early 1990s. Despite its very small economic size, the West Bank and Gaza exported only 14 per cent of its output. These exports paid for only one-fifth of imports, with the remaining 80 per cent financed by wages earned in Israel. As a result, the West Bank and Gaza's productive resources at home were engaged mostly in non-traded sectors, with tradable accounting for only 8 per cent of outputs. Nevertheless, wage rates were higher than those in neighbouring Jordan or Egypt. As the effects of Israeli border closures demonstrate, the shift to alternative foreign-exchange generating activities is difficult because the economy lacks a base for producing tradable sectors" (p. 25).

The claims in the literature that the West Bank and Gaza is infected by Dutch Disease are presented without any systematic academic study to support these claims. Recently, Cali (2011) indicated in a preliminary unpublished working paper that under military occupation, foreign aid cannot support growth. Similarly to Le More (2005), Cali also claims that aid only supports the continuation of Israeli control over the West Bank. Cali claims that under the occupation, additional aid leads to the Dutch Disease symptoms of lower export and the deterioration of the tradable sector. The report of the

⁶ See for example: Kang, Prati and Rebucci (2013), Rajan and Subramanian (2005), Nkusu (2004), Vos (1992), Rob (1998), Adenauer and Vagassky (1998), Bandara (1995) Benjamin, Devarajan and Weiner (1989), Cordon (1984), Torvik (2001, 2002) Elbadawi (1999).

⁷ This claim is in line with the main claim of this thesis.

United Nations Conference on Trade and Development, UNCTAD (2006-A), claimed that:

"On the supply side, induced higher wages in the domestic economy that do not reflect domestic productivity gains dampen agriculture and industrial production. This is due to higher production costs, falling profitability and loss of competitiveness in foreign markets. Thus, from both sides, demand and supply, the impact of exporting labour to Israel gives rise to a dynamic similar to the "Dutch Disease". This dynamic has reinforced adverse path dependence, distorting the development of the Palestinian economy, and inhibiting its growth" (p.13).

The above claim made by the UNCTAD (2006-A) report is supported by a flow chart of the economic distorting and non-distorting factors that are embodied in aid (see p. 14 of the report). An appendix in UNCTAD (2006-A) provides only a highly simplified Cobb-Douglas production model.

Before I present my specific research questions and hypotheses, I would like to present the basic economic background as this information is important for understanding the research questions and hypotheses of this work.

1.3 Background

More than sixty years since the establishment of the state of Israel, the Israeli-Palestinian conflict has not subsided and continues to affect the economies and daily lives of both sides. Current and future generations of Palestinians and Israelis will continue to suffer, and there seems to be no end in sight to the conflict. The Oslo Accords (1993) appeared to represent progress towards peace. Hopes were high on both sides, as was the disappointment following the collapse of the Oslo Accords with the onset of the second Intifada⁸ in 2000.

The conflict has an enormous economic cost for both sides. In July 2002, the Israel's Ministry of Finance estimated that the 2000 Intifada alone cost the Israeli economy more than US \$10 billion⁹.

⁸ The Arabic word for "uprising". The term Intifada is used to designate the violent Palestinian resistance to Israeli occupation in the West Bank and Gaza. The first Intifada occurred in 1988. The second Intifada began in September 2000 after the breakdown of peace negotiations between Israel and the Palestinian Authority.

⁹ This amount is almost 10% of the annual GDP of Israel in Purchasing Power terms, which was US 110.2 billion in the year 2000 (source: Index Mundy report, based on the CIA World Fact book, January 2011).

The impact of the second Intifada on the Palestinian economy has been devastating. In constant prices of 2004, the per capita GNP decreased 39.3% from USD 2008 in 1999 to USD 1218 in 2002, most likely mostly because of the second Intifada. This low level is only slightly below the 1974 per capita GNP (in constant prices) of USD 1237. The only other period with a significant decline in per capita GNP was the period of the first Intifada that erupted in December 1987 and continued up to Madrid Conference in October 1991. According to my estimates, the per capita GNP was USD 1849 in 1987, fell by -8.43% to USD 1693 in 1988, and remained almost the same until 1991. The two Intifada periods are the only two periods in which there were significant and lasting decreases in the per capita GNP. The per capita exports in the second Intifada period fell from USD 278 in 1999 to only USD 141 in 2002 (-49%). During these years, per capita imports decreased from USD 1379 to USD 987 (-28%) but income from labour abroad fell from USD 294 to USD 86 (-71%). As almost all exports, imports and wages from abroad are to and from Israel, the reduction in the GNP in the Intifada period is mainly related to the difficult economic-political relationships with Israel during the Intifada periods.

1.3.1 Unique Features of the Palestinian Economy

It is difficult to speak about Palestine as an independent economic entity. Throughout modern history, Palestine has been administered by foreign entities, even after the dissolution of the British Mandate in 1948. Until 1967, the West Bank economy was integrated into that of Jordan, while Gaza's economy was tied to Egypt. Since 1967, the Palestinian economy has been merged with that of Israel in a de-facto customs union unilaterally imposed by Israel. The Palestinian economy is not only highly dependent on neighbouring Israel, but is in large part defined and controlled by Israel. The flow of imports and exports to and from the Palestinian Authority is entirely controlled by Israel.

The Palestinian Authority has neither air nor sea ports. Virtually all land borders are under Israeli control. Prior to 1967, exports from the West Bank and Gaza were negligible and almost entirely destined for Jordan and Egypt, countries with which Israel was at war during much of the post-1967 era. Thus, it is not surprising that Israel is virtually the Palestinian Authority's sole trading partner today.

The Palestinian Authority has no independent currency and a poorly developed financial services sector. Agriculture is limited by a lack of water and arable land. The natural resources of the Palestinian Authority are limited to the stone industry. The high potential of the tourism industry cannot be fully realised under the current conflict situation.

Unlike most other countries, for many years the GDP of the West Bank and Gaza was significantly lower than the GNP due to the impact of the export of Palestinian labour to Israel. For most of the 1970s and 1980s, the contribution of revenues from foreign wages abroad to Palestinian GDP hovered approximately 30%, peaking on the eve of the first Intifada in 1987 at 43%. Since Oslo and particularly since the second Intifada, which is also called the "Al Aqsa Intifada", the dependency on employment in Israel has decreased significantly, reaching a low of 6% of GDP in 2004.

In light of this situation and the high birth rate, it should not be surprising to find a high unemployment rate (especially in Gaza) and a particularly high dependency on foreign aid and charitable donations. The efforts of the Palestinians to disengage from the Israeli economy by developing an independent economy can damage the Palestinian economy from the growth potential embodied in the positive economic relationship with Israel.

1.3.2 Historical Review

The course of the Israeli-Palestinian conflict is the major variable determining the effectiveness of economic policy and foreign aid in promoting Palestinian economic development. Any reliable projection of the impact of policy and aid should specify alternative scenarios regarding the development of this conflict and its resolution and the probability that these alternative scenarios will occur. Thus, a short review of the conflict is essential for understanding the current situation as well as the viability of the future scenarios¹⁰.

The current conflict between Israel and Palestine is a reflection of the inability to find a peaceful way for the Jewish and Arab populations to co-exist. While the origins of

¹⁰ According to our model and the empirical findings of this thesis, the future positive impact of foreign aid on economic growth is highly dependent on the political agreement between Israel and the Palestinians.

the conflict can be traced to the Nineteenth Century, the Balfour declaration of 1917 is a point of reference for Jewish settlement in Palestine and Arab opposition to that settlement.

In 1948, the Jewish people realised their claimed rights to political sovereignty and established the State of Israel. The establishment of Israel in territories west of the Jordan River accomplished Israeli goals while depriving Palestinians of their claimed right to sovereignty over the same land. In 1948, many Palestinians became refugees in the West Bank and Gaza, which were controlled by Jordan and Egypt, respectively, prior to 1967. Since then, hundreds of thousands of refugees fled from the Israeli territory to the West Bank and Gaza. Some fled to neighbouring Arab countries and others overseas, creating a Palestinian Diaspora throughout the rest of the world.

In 1967, Israel occupied the West Bank and Gaza, compelling many Palestinians to flee. The maps of the West Bank and Gaza and Israel, including the so-called "green line" indicating borders prior to the occupation, are rendered below.

This conflict continues to affect daily life and the economics of both sides. From an economic standpoint, the Palestinians are more deeply affected by the conflict. Although the Palestinians have set up independent political and social institutions with the establishment of the Palestinian Authority, the road toward political normalisation, a necessary (but not sufficient) condition for economic development, is long and tortuous.

Table 1.1 summarises the chronology of the political conflict. Although this conflict has roots spanning thousands of years, this table begins with the Balfour Declaration¹¹

¹¹ The Balfour Declaration (dated 2 November 1917) was a letter from the United Kingdom's Foreign Secretary Arthur James Balfour to Baron Rothschild (Walter Rothschild, 2nd Baron Rothschild), a leader of the British Jewish community, for transmission to the Zionist Federation of Great Britain and Ireland: "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."

The text of the letter was published in the press one week later, on 9 November 1917.^[2] The "Balfour Declaration" was later incorporated into the Sèvres peace treaty with the Ottoman Empire and the Mandate for Palestine.

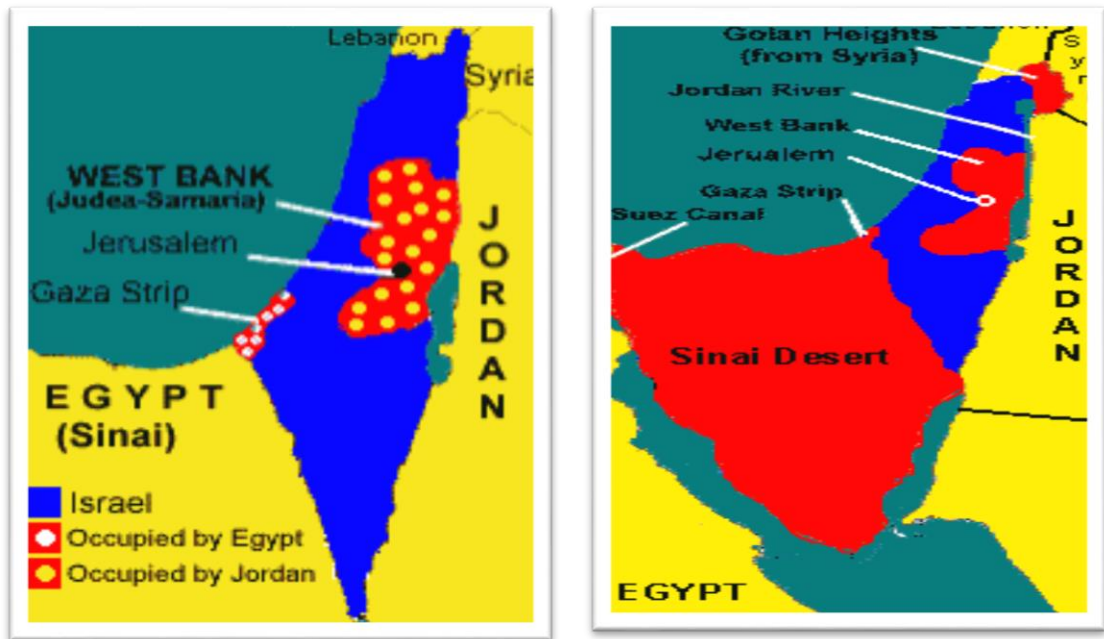
and ends 60 years after the establishment of the State of Israel. The Balfour Declaration represents the first official British recognition of the Zionists' strive for a "Home land in Palestine for the Jewish people." From that point on, the Israeli-Palestinian conflict has intensified, reaching peaks in 1948 and 1967. The Maps of Israel and the West Bank and Gaza following the 1948 cease fire borders agreements and before and after 1967 are presented in Figures 1.2 and 1.3.

Figure 1.2 Map of the West Bank and Gaza



Note: The red lines specify the 1967 borders between Israel and the West Bank and Gaza.
Source: <http://www.mideastweb.org/mpalestine.htm>. Adapted from an original in the Atlas of the Orient.

Figure 1.3 The Border Lines of Israel and Surrounding Countries Before and After the 1967 War



1949 Armistice Lines following first Arab- Israeli war (1947-49). ■ Areas that were attached to Israel Following 1967 war.

Source: <http://www.masada2000.org/historical.html>

Table 1.1 Important Events in the Israeli-Palestinian Conflict

Year	Event	Outcome
1917	Balfour Declaration	Arab opposition. The beginning of the Arab/Jewish conflict.
1918	Allied forces occupy Palestine	Britain began working on fulfilling the Balfour declaration.
1919	- First Palestinian National Congress in Jerusalem. - Peace conference decides to send international commission to Palestine (King-Crane)	Balfour Declaration rejected. England and France declined to participate. The commission advised to drop the idea of a Jewish commonwealth in Palestine.
1922	- 1 st White Paper: Sir W. Churchill excluded Trans- Jordan from the scope of the Balfour declaration. - First British census of Palestine.	Total population of Palestine: 757,182 78% Muslims, 11% Jews, 9.6% Christians
1923	British Mandate for Palestine comes officially into being.	
1924-1928	4 th wave of Zionist immigrants	Jewish population grew to compose 16%.
1929	Palestinian riots expand to several towns.	Clashes resulting in 133 Jews killed, 339 wounded; 116 Arabs killed, 232 wounded
1931	Second British census	Total population of Palestine: 1,035,154; 73.4% Muslims, 16.9% Jews, 8.6% Christians.
1936	Great Arab Revolt begins (1936-1939).	More than 5,000 Arabs, 400 Jews, and 200 British were killed; disengagement of the Jewish and Arab self-sustaining economies.
1947	UN General Assembly recommends partition plan by 33 to 13 votes	Agreed by Jews but strongly opposed by Palestinian Arabs.
1948	Israel declares independence; Arab states declare war against Israel.	Israel gains control of 77% of British Mandatory Palestine. Jordan and Egypt hold the West Bank and the Gaza Strip respectively; Jerusalem divided.
1967	Six Day War	Israel occupies West Bank, Gaza Strip, Egyptian Sinai, and Syrian Golan Heights, expands Jerusalem boundaries and extends Israeli law over East Jerusalem. 500,000 more Palestinians are displaced. Birth of the PLO.

Table 1.1 Important Events in the Israeli-Palestinian Conflict - continued

1987	First Intifada	Cemented the Palestinians identity. Brought Palestinian discussion back to the UN. Led to the Madrid Conference.
1993	Oslo Peace Accords	Israel recognized PLO. Palestinians achieved limited autonomy. Arafat returned to Palestine.
1994	Establishment of the Palestinian Authority	
1996	Beginning of disintegration of peace process under the Oslo Accords	
1998	Renegotiation of Oslo Interim Agreement culminating in Wye River Memorandum	
2000	Camp David Summit. The Second Intifada (Al-Aqsa)	The Palestinians rejected the offer
2002	"Road map to peace" initiative	The parties have not complied with the requirements of Phase 1 of the Road Map
2004	Death of Yasser Arafat	
2006	Hamas wins majority in PA parliament	Complicated efforts for peace negotiations
2007	Hamas claims full control over Gaza Strip Annapolis conference	Hamas rejects Abbas authority. Intense fighting leaves the West Bank under Mahmoud Abbas, and Gaza Strip under Hamas. Mutual agreement for two-state solution as framework for peace settlement. Resumption of peace talks.
2008	Operation Cast Lead – Israeli military campaign in Gaza Strip to stop Hamas rocket attacks on southern Israel.	Hamas blames Israel for not lifting the Gaza Strip blockade. 14 Israelis and estimated 1,300 Palestinians killed. Cessation of peace talks.

1.3.3 Socio-Economic Profile of the West Bank and Gaza

To better understand the economic history and potential of the West Bank and Gaza, as well the hypotheses presented in this thesis, a concise socio-economic overview is provided in Tables 1.2-1.3 and Figure 1.4 below, leading to the following observations. First, the annual population growth rate is extremely high. According to Table 1.2 and Figure 1.4, the average annual growth of the population is 3.37%. This high rate includes a 17.7% increase in 1994¹². The high population growth rate results from the difficulty to immigrate and the relationships between poverty, tradition, and birth rates. Even excluding 1994, the average annual growth of the population is 3%, about three times higher than worldwide annual growth¹³. The 2013 estimated population growth rate is 2%, placing it in the high global quartile¹³. The implied result of this extremely high population growth is the additional difficulty to increase or even maintain per capita GDP and GNP. Second, living conditions have dramatically improved since 1970. There are now refrigerators in each house. The number of hospital beds per 1000 people remains low¹⁴ and it is 1.26 per 1000 in 2013¹⁵. Life expectancy increased dramatically from 56 years to 72 years in 2007 and to 75 years in 2013 (92nd in the world)¹⁶. Note also that the expected number of school years in the West Bank and Gaza is relatively high compared to other neighbouring countries. For example, in the West Bank and Gaza, the 2013 school life expectancy is 13 for men and 14 for women, compared to 15 and 16 in Israel, 12 and 13 in Jordan, 12 and 11 in Syria and 11 and 9 in Iraq.¹⁷ Israel is very successful in the high tech industry. The school life expectancy figures for the West Bank and Gaza indicate that with proper cooperation with Israel

¹² The increase in 1994 was partially due to a political change in the definition of Palestinians. The Israeli Central Bureau of Statistics (ICBS) excluded about 300,000 inhabitants of east Jerusalem from the Palestinian population, and in 1994, the Palestinian Central Bureau of Statistics (PCBS) included those inhabitants as well as many labour immigrants out of the West Bank and Gaza. In addition, following the Oslo peace accord, many Palestinians returned from abroad back to the West Bank and Gaza. Finally, some part time inhabitants of the West Bank and Gaza considered "tourists" or non-citizens are considered as citizens by the Palestinian Central Bureau of Statistics (PCBS).

¹³ See CIA World Fact book updated August 2013, <https://www.cia.gov/library/publications/the-world-factbook/geos/we.html>.

¹⁴ Compare to the worldwide average of 7.3 beds per 1000 people in 2013. See: http://www.nationmaster.com/graph/hea_hos_bed-health-hospital-beds

¹⁵ <http://www.alhayat-j.com/newsite/details.php?opt=3&id=168469&cid=2552>

¹⁶ See: CIA World Fact book updated August 2013. <https://www.cia.gov/library/publications/the-world-factbook/geos/we.html>.

¹⁷ See CIA World Fact Book August 2013.

and other countries, the Palestinians have the potential to develop a successful high tech industry as well.

Table 1.2 Key Socio-economic Indicators for West Bank and Gaza, 1970-2007
(selected years)

Year	1970	1980	1987	1994	1999	2002	2007
Population (000s)	970	1,172	1,408	2,111	2,633	2,884	3,357
Population in West Bank (without Jerusalem)	603	721	853	1,252	1,562	1,701	1,962
Population in Gaza	367	451	555	859	1,071	1,183	1,395
Population Density (capita/ km ²) in West Bank (Total Area 5,655 km ²)	106.6	127.5	150.8	221.4	276.2	300.8	346.9
Population Density (people/ km ²) in Gaza (Total Area of 365 km ²)	1,005.5	1,235.6	1,520	2,353.4	2,934.2	3,241.1	3,821.9
Life expectancy in the West Bank and Gaza (Years)	56	61	65	66	-	-	72
Households with electricity (%)	30	66	75	85	97	100	100
Households with refrigerators (%)	11	57	71	85	90	100	100
Internet at home (%)	-	-	-	-	1.6	-	15.9
Hospital beds per 1000	-	1.9	1.6	1.4	1.3	1.4	1.6

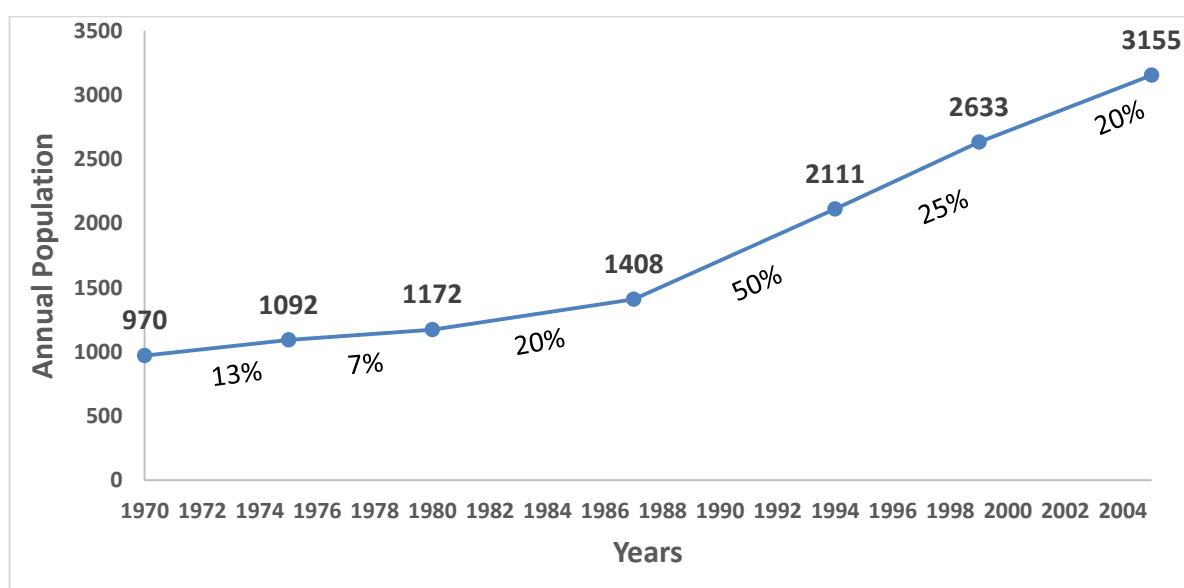
Sources: Figures from 1994 onward are based on data from the Palestinian Central Bureau of Statistics' National Accounting Statistics. Figures up to 1993 are based on data from the Israel Central Bureau of Statistics.

Table 1.3 Key Economic Indicators for West Bank and Gaza, 1970-2007
(selected years)

Year	1970	1980	1987	1994	1999	2002	2007
GNP (2004 US Million \$)	752	1,942	2,604	3,408	5,288	3,513	5,048
GDP (2004 US Million \$)	670	1536	1824	3014	4514	3265	4536
GNP per capita (2004 US \$)	775	1657	1849	1615	2008	1218	1504
GDP per capita (2004 US \$)	690	1311	1295	1428	1714	1132	1351
Export (% of GNP)	16.6	22	17.8	13	13.8	11.6	11.9
Export to Israel (% of GNP)	7.67	14.4	14	12.2	13.4	10.4	10.6
Import (% of GNP)	56	57.7	58	67.2	68.6	81.1	54.8
Import from Israel (% of GNP)	46.8	50.6	53	59.9	52	44.5	40.2
Foreign financial transfers plus net capital transfer (millions USD 2004 prices)	213.8	287.9	267.4	1452.3	2124.3	2191.6	1655.9
Employment in West Bank and Gaza (000s)	173.3	218	278	316	502	406	565
Employment in Israel (000s)	20.6	76	108.9	51.2	115	41.8	56
Unemployment rate in Gaza (%)	6.4	3.1	1.6	24.9	18	39.1	32.1
Unemployment rate in West Bank (%)	3.2	1.8	2.5	17.4	13	30.9	20.6

Sources: Israel Central Bureau of Statistics (ICBS) up to 1993 and the Palestinian Central Bureau of Statistics (PCBS) from 1994 onward, and Table 5.1 in Chapter 5, p.144.

Figure 1.4 Population and Population Growth between Selected Years in the West Bank and Gaza, 1970-2007



Source: Table 5.1 in Chapter 5 p.144.

Table 1.3 highlights the following important facts: first, the main period of growth in terms of GDP and GDP per capita is between 1970 and 1980. This is the period of the initially positive interaction between the Israeli and Palestinian economies. Since 1980 and until 2007, the GDP increased from USD 1536 million to USD 4536 million, an average increase of 4% per year. However, the per capita real GDP remained almost the same, from USD 1311 in 1980 to USD 1351 in 2007. One explanation for this result is the 17% "increase" in population in 1994, which is basically due to "political" differences in the population census methods of the Israeli Central Bureau of Statistics (ICBS) and the Palestinian Central Bureau of Statistics (PCBS). However, even if we reduce the 1994 increase in population to 4%, the 1980-2007 average annual growth of per capita GDP is 0.54% per year, which is much lower than the annual average growth rate of 6.6% between 1970 and 1980. The poor results after 1980 may be due to the various constraints on the Palestinian economy, the policy of Israel of employing Palestinians in Israel rather than developing the economy of the West Bank and Gaza, and the devastating economic results of the uprisings in the first and especially in the second Intifada. It is interesting to note in Table 1.3 that in 1970, the ratio of GNP to GDP was 1.12 (752/670). In 1980, this ratio increased to 1.26, and in 1987 it was 1.42. The high level of GNP relative to GDP is due to Palestinians working in Israel and in the new Israeli settlements in the occupied territories. Following the first Intifada, this ratio decreased to 1.13 in 1994, and then to 1.07 at the end of the second Intifada in 2002.

To prevent a major humanitarian disaster and the total collapse of the Palestinian economy, much of the income lost by the West Bank and Gaza from work in Israel had to be replaced by foreign aid, but foreign aid does not create jobs. The results of these dramatic changes can be seen in the last two lines in Table 1.3, presenting the unemployment rates. Unemployment has been a persistent problem in the West Bank and Gaza since the outbreak of the first Intifada in 1987. The unemployment rate in the West Bank part of Palestine reached 20.6% in 2007, after peaking at approximately 30% at the height of the Al Aqsa Intifada. The unemployment rate was higher in Gaza, at 32.1% in 2007 (peaking at approximately 40% in 2002). According to the Palestinian Central Bureau of Statistics, 44.1% of the population of the West Bank participated in the labour force in 2007, while this figure was only 33% in Gaza.

Due to the conflict and the frequent recurrence of hostilities, the Palestinian economy has been under siege intermittently since the period of the first Intifada and since the second Intifada of 2000. This economic siege is reflected in the severe constraints placed on the movement of labour and goods within and outside the West Bank and Gaza.

Unemployment rates were very low in the years 1970, 1980, and 1987. Since 1994, the unemployment rate has dramatically increased. Figure 1.5 provides better insight into the unemployment figures.

Figure 1.5 Unemployment Rates in the West Bank and Gaza, 1968-2007

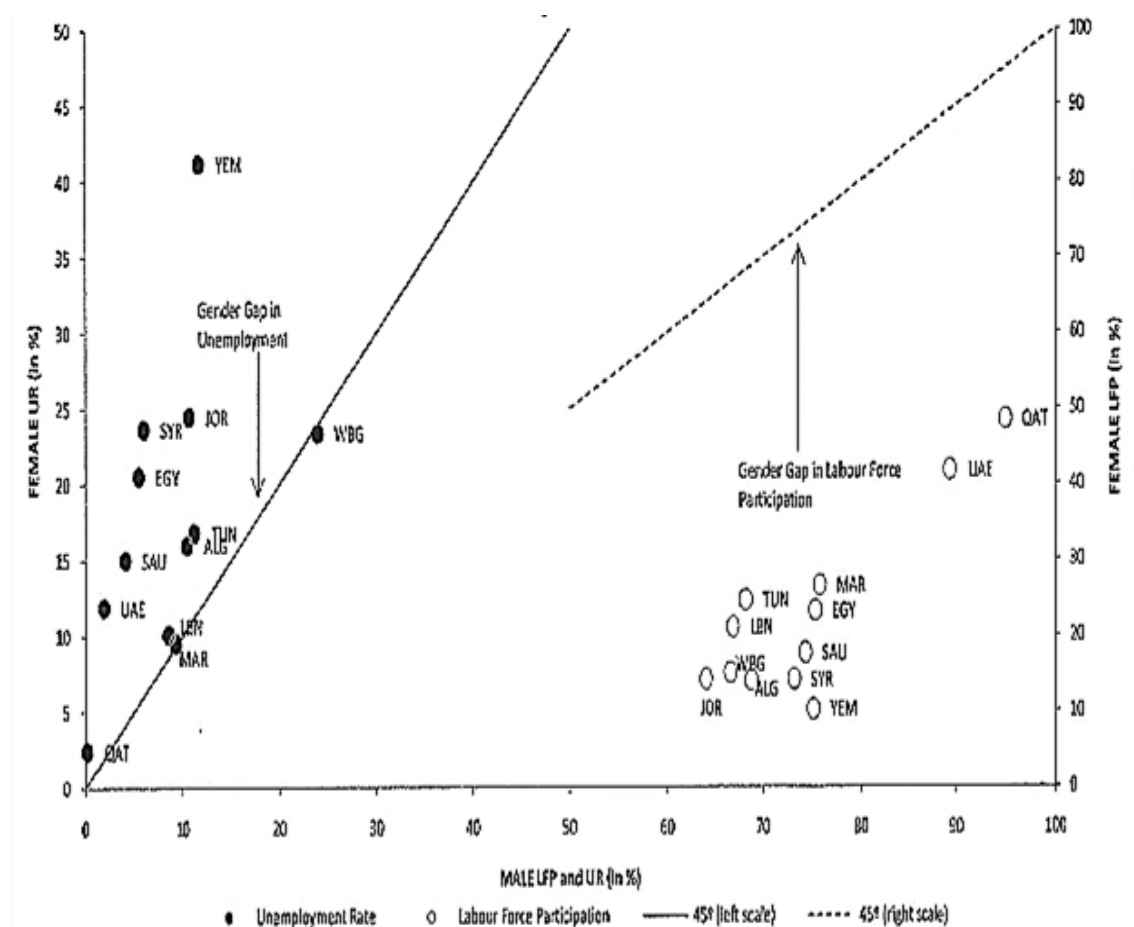


Source: Table 5.4, in Chapter 5, p.149.

Figure 1.5 demonstrates a decrease in unemployment during the initial period of integration with the Israeli economy. Then, the unemployment increased over the 1980s until 1993. A dramatic increase was observed in 1994, the first year after the Oslo Accord and also the first year when all the statistical calculations were under the responsibility of the Palestinian Bureau of Statistics rather than the Israel Central Bureau of Statistics. Much of this increase in unemployment is related to the different measurement methods of the two Bureaus, as Israel had an incentive to present a more positive picture of reality, while the Palestinians had the opposite incentive. Thus, the accuracy of the unemployment data are questionable. Following the second Intifada of 2000, unemployment increased again. While unemployment in the West Bank decreased each year, it remained exceptionally high in Gaza.

According to the International Labour Organization (ILO) report in May 2011, the main reason for the low participation rate is the gender gap (see Figure 1.6 below). The 2006-2010 average participation rates, unemployment rates and gender gaps in the West Bank and Gaza are close to those in other Arab states. The unemployment rate of women in the West Bank and Gaza is relatively high, but similar to that of Jordan and Syria.

Figure 1.6 Gender Gap in Labour Force Participation and Unemployment Rates, Average 2006-2010



Source: ILO Department of statistics with the following explanation:

This graph describes the gender gap both in labour force participation and unemployment rate. Horizontal axis shows both male unemployment and labour force participation, while left and right axis represent female unemployment and labour force participation respectively. The two lines are 45° lines each with respect to an axis.

On the right, the white points below the dashed line indicate that Women participation is extremely low compared with men's. On the left, the black points above the line show that unemployment for women is higher than for men in most of the countries.

Figure 1.6 reveals that the average unemployment of men over this period (2006 to 2010) is the highest among Arab countries. This result is most likely due to the particular political constraints on the Palestinian economy.

Another unique feature of the Palestinian economy is its small size. In 2007, the GNP of the Palestinian economy was US \$5.05 billion and the GNP per capita was \$1,504. Table 1.4 shows that at the turn of the century, the per capita GNP of the West Bank and Gaza was roughly equivalent to that of Jordan and to the average in the Middle East and North African countries. It is striking to note that in 2005, the per capita GNP of the West Bank and Gaza was about half of the average in Jordan, the Middle East and North Africa. This result is due to the negative 4.88% growth rate over the period 2000 to 2005 and concurrently, the accelerated growth in other Middle East countries. These findings suggest that the opportunity cost of the Intifada to the West Bank and Gaza is about half of GNP.¹⁸

Since the early 1970s, the GDP of the West Bank and Gaza has been consistently lower than the GNP, due initially to the massive employment of Palestinians in Israel and subsequently to foreign aid, donations and other unilateral capital transfers from abroad. The Palestinian economy is nascent, and its public and private sectors have little experience. There is no independent currency or central bank in the West Bank and Gaza, and there are no savings systems or retirement savings schemes. Commercial banking and other forms of financial mediation are severely underdeveloped after decades of restrictions and prohibitions placed on the development of local financial services. The stock market is only sixteen years old and has yet to develop its economic potential as a platform for raising capital and providing liquidity for local companies and investors.

¹⁸ This conclusion assumes that in the absence of the Intifada, the growth rate in terms of per capita GNP would have been equivalent to that of Jordan and to the average growth of the Middle Eastern and North African countries.

Table 1.4 GNP and GNP Per Capita, Atlas Method (current US dollars)

	2000		2005		ANNUAL GROWTH RATE 2000-2005
	GNP (billions)	GNP per capita	GNP (billions)	GNP per capita	
West Bank and Gaza	4.67	1,580	4.45	1,230	- 4.88%
Jordan	8.6	1,790	13.47	2,490	6.82%
Middle East and North Africa	453.3	1,640	662.82	2,190	5.95%
Israel	112.54	17,890	136.98	19,790	2.04%
Lebanon	17.29	4,580	22.82	5,690	4.43%

Source: World Bank, *World Development Indicators database*, April 2008.

The above factors have created severe poverty and hardships, which are only partially relieved by the UNDP and the international donor system. Employment of Palestinians in Israel and later the foreign aid agencies have helped to provide and even to improve the basic necessities of normal life (See: Table 1.2).

From 1970 to 2007, the per capita GNP of the West Bank and Gaza increased by 94% (approximately 1.8% a year). However, until the first Intifada in 1987, the average annual increase in GNP was 5.6%, and from 1987 to 2007 there was an average annual negative decrease of -1%¹⁹ in the per capita GNP, despite the massive amount of foreign aid after the Oslo Accord. These results indicate that foreign financial aid and donations to Palestine that turned into a flood of aid following the Oslo Accord did not stimulate economic growth²⁰ under the economic siege, and at best addressed the humanitarian disaster.

¹⁹ Note again that the population increased by more than 17% in 1994 due to "political" differences between the calculations of the Israeli Central Bureau of Statistics (ICBS) and the Palestinian Central Bureau of Statistics (PCBS). Considering only 3%-4% population growth in 1994, the growth rate in this period is slightly above 0%.

²⁰ Some claim that a portion of these capital transfers are channeled to finance terrorism. This claim has to be substantiated before it can be argued that this is part of the inability of aid to generate growth.

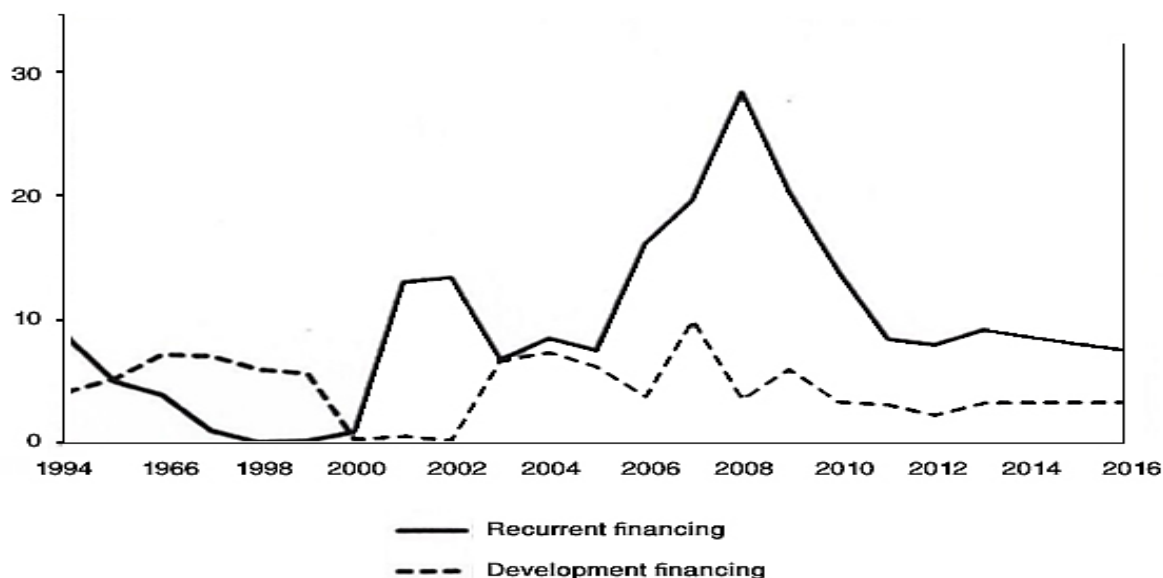
Figure 1.7 below presents the IMF estimates (based on information from the Finance Ministry of the West Bank) on the composition of donors' aid, divided between development aid and recurrent aid. This figure shows that development aid was only greater than recurrent aid during the short period of 1995-1999. Donors' aid decreased to almost zero in the years 2000-2002 (the second Intifada period), increased to 5-10% of GDP in 2003-2009, and has been approximately 5% of GDP from 2010 to 2016 (projected). The recurrent aid, which finances the government deficit, dropped from approximately 8% of GDP in 1994 to almost zero in the year 2000. Then, it soared to 13% of GDP in 2001 and 2002 and to almost 30% of GDP in 2008. From 2011 to 2016 (projected), it is more than double the amount of recurrent aid.

The reduction of the per capita GNP and GDP of the West Bank and Gaza reflects the results of the first and second Intifada and the continuation of the severe political struggle. The years from 1980 to 1987 ended with the first Intifada, and the annual growth rate of GNP per capita was only 1.57% per year, compared to 7.9% in the years 1970-1980.

From 1987 to 1999 (encompassing the first Intifada), growth came to a virtual standstill. From 1999 to 2007 (during the second Intifada), the economy in terms of GNP per capita contracted by 3.5% per year, and the cumulative GNP per capita declined by 25.1%. Note that the actual deterioration of the economy following the Oslo Accords was not projected by economists who attempted to project the future of the Palestinian economy using the macroeconomic equilibrium model while assuming a non-hostile relationship with Israel²¹.

²¹ See for example Astrup, C. and S. Dessus (2002) and Cobhan and Kanafani (2004), which presented and reviewed many studies of the peace economy in Palestine.

Figure 1.7 Total Development Aid and Recurrent Aid as a Percentage of GDP for West Bank and Gaza



Source: International Monetary Fund-IMF (2013) "Recent Experience and Prospects of the Economy of the West Bank and Gaza ,"Staff Report Prepared for the Meeting of the Ad Hoc Liaison Committee , Brussels, March ,2013 ,19 P.20.

However, under a hostile relationship with Israel and in the presence of deep unemployment and the physical and political constraints on trade, export, and labour, macro equilibrium models are not able to provide reliable economic forecasts.

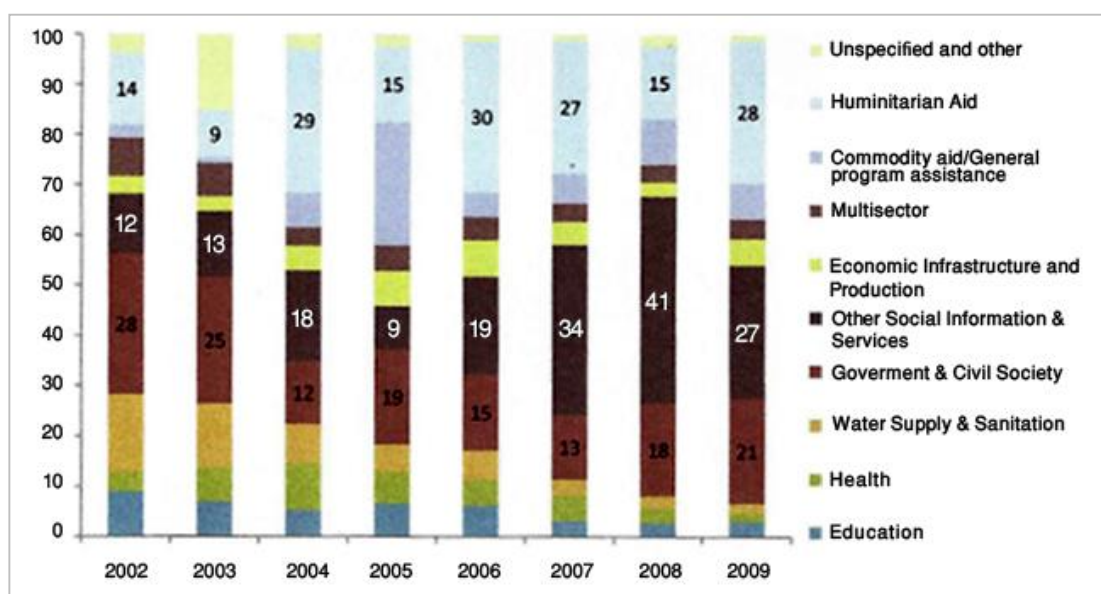
From 1994 to 2007, following the Oslo Accords, net foreign and capital transfers to the West Bank and Gaza exceeded US \$25.6 billion USD (in terms of 2004 prices)²². In the ten years between 1997 and 2007, foreign aid amounted to US \$21.46 billion (in terms of 2004 prices) and constituted almost 43% of the GNP²³. Over 10 years, the cumulative GNP growth was 19.6%, however per capita GNP dropped by 12.25% over that period. The average net foreign aid, as reflected in the gap of the balance of payments, exceeded 1.95 billion USD per annum in those years, or US \$678 per capita.

²² This figure is obtained by calculating current transfers and financial and capital transfers following the Oslo Accords. See Table 5.1 in Chapter 5, p.144.

²³ Bettin and Zazzro (2012) find that remittances encourage growth in economies with well developed and efficient financial sector.

A more detailed distribution of foreign aid to the West Bank and Gaza is presented in Figure 1.8. These data demonstrate that most donors' aid had the goal of supporting the governmental deficit rather than developing the economy. This figure shows that the major uses of aid from 2002-2009 were humanitarian aid (average 21%), other social infrastructure & services (average 22%), and government & civil society (19%). The portion allocated to Economic Infrastructure and Production was very small.

Figure 1.8 Destination of Donor Funding to the Palestinian Territories
(percentage of total aid flows)



Source: World Bank (2011), "Coping With Conflict: Poverty and Inclusion in the West Bank and Gaza " October 2011, Chapter 6, P.122.

1.4 The Main Research Questions and Hypotheses

Given the unique problems and features of the Palestinian economy reviewed in the previous part of this chapter, the main research questions are as follows:

- A. What are the impacts of the problematic economic and political control of Israel over the West Bank and Gaza?
- B. Is the Palestinian Economy infected by Dutch Disease?
- C. If the answer to B is yes, when did the infection occur? Was it before the Oslo peace accord when the amount of foreign aid was relatively low but the labour exploitation by Israel was relatively high, or did the symptoms of Dutch Disease only appear after the Oslo accord when foreign aid tripled?
- D. If the answer to B is yes, then what are the sources of the infection?

- Is it due to the exploitation of Palestinian labour by Israel that harmed competitiveness and led to the under-development of the Palestinian industrial sector?
 - Is it due to the physical mobility constraints on labour and merchandise within and outside the West Bank and Gaza?
 - Is it due to military clashes with Israel and terror and anti-terror retaliation activities?
 - Is it due to the classical disincentive impact of foreign aid on self-efforts required for production and growth?
- E. Is the future economic growth of the West Bank and Gaza seriously bounded due to the harsh military retaliations of both sides and terror and thus only viable under a peaceful political arrangement of "Two nations for two peoples" that may include or exclude economic cooperation with Israel?

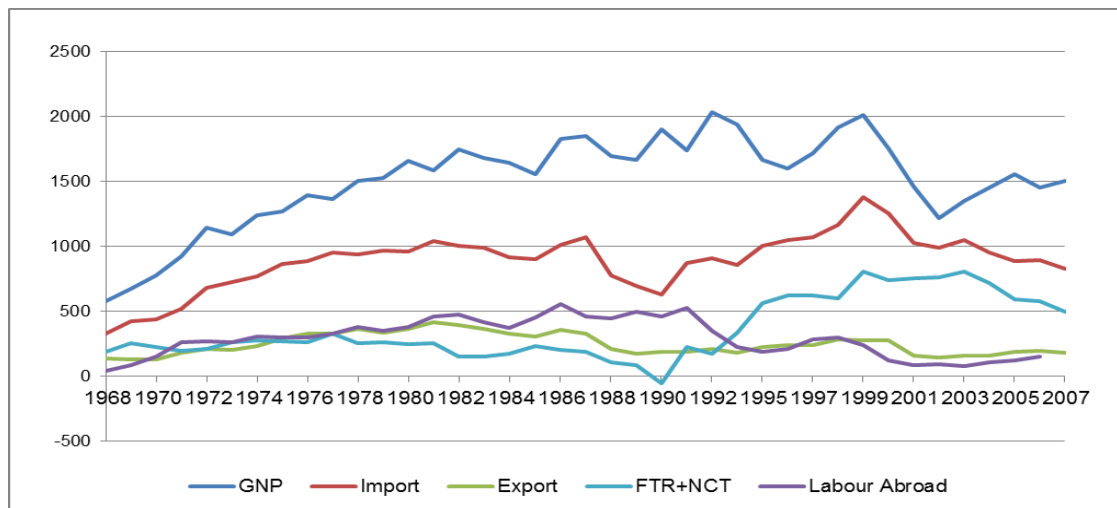
My preliminary hypotheses are as follows:

- I. The GDP and GNP of the Palestinian economy are determined almost entirely by exogenous factors such as exports and imports, work abroad and foreign aid. There are no land, air, or sea ports through which merchandise and labour can be transferred abroad. In essence, the West Bank and Gaza are under economic siege.
- II. The answers to the remaining research questions posed above should be positive. The support for this hypothesis is the previous related literature and the unique political background that leads to exogenous economic constraints, which are almost the only factors that determine GDP growth according to my hypothesis.

The following discussion will present some additional reasons to support these hypotheses. The only period of high per capita GDP growth was the 1970s. From 1970 to 1979, the annual average real growth in per capita GDP was 6.1%. During these first ten years of the Israeli occupation of the West Bank and Gaza, the average per capita income from work abroad (in 2004 USD prices) was only USD 262 and the average foreign aid in terms of foreign transfers plus net capital transfers (FTR+NCT) was only USD 252. The high per capita growth in these initial years is most likely due to the positive impact of the new economic relationship with the much better developed

Israeli economy²⁴. Over this decade, the growth in the West Bank and Gaza was much higher than that in the surrounding countries. Over the following decade (1980-1989), the per capita real GDP remained almost unchanged. The average annual per capita FTR+NCT during this period decreased from USD 252 to USD 178 (a decrease of -29%), but compensation from work abroad during this period increased to an average annual amount of USD 434.4 (+66%)²⁵. The poor GDP growth during this period along with the high level of work in Israel most likely indicates that the GDP of the West Bank and Gaza was negatively affected by Israel's policy of using Palestinians as low paid labourers in Israel rather than helping to develop a competitive industry in the West Bank and Gaza. Following the 1994 Oslo Accords, economic growth was extremely low and financial aid was extremely high. At this juncture it is worth noting that the major source of growth prior to the first Intifada of 1987 was most likely economic exchange with the strong economy of Israel. During those years, the lion's share of Palestinian exports was to Israel, and the export of labour to Israel dramatically increased the GNP of the West Bank and Gaza. Figure 1.9 below presents the main per capita figures for the period 1968 to 2007.

Figure 1.9 Per Capita GNP, Import, Export, Work Abroad and FTR+NCT* for Palestine from 1968 to 2007 (2004 constant prices in USD)



*FTR+NCT is the foreign exchange gap, which is measured by import less export less work abroad.

This gap is considered as the best approximation for total "foreign aid".

Source: Table 5.2, Chapter 5, p.146.

²⁴ The numbers in this analysis are calculated from Table 5.2 in Chapter 5, p.146.

²⁵ See Table 5.2 in Chapter 5, p.146.

Figure 1.9 indicates that until 1982, the GNP, exports, labour abroad and imports increased almost steadily. Then, from 1982 and especially from the first Intifada that erupted at the end of 1987, there was mainly a decrease and turbulence that continued until the Oslo peace accord. During the period 1970-1993 foreign aid in terms of FTR+NCT was very low, and decreased over time. Despite the negative impact of the first Intifada at the end of 1987, from 1970-1993, the per capita GDP, GNP, labour abroad and imports tended to increase over the years. During that period, GNP was positively correlated with labour abroad (0.95), imports (0.77) and exports (0.46) but there was (insignificant) negative correlation with FTR+NCT (-0.29). During that period, the percentage change in imports was significantly negatively correlated with FTR+NCT (-0.41 with $F=4.5$ and $p=0.047$). This result most likely indicates that during that period, foreign aid was directed more to the non-tradable sectors that require less foreign currency. The positive correlation between foreign aid and the level of the non-tradable sector is a well-known symptom of Dutch Disease. The second period of 1994-2007 following the Oslo agreement was much more volatile, mainly due to the second Intifada. During that period, the per capita GNP was positively correlated with labour abroad (0.94), exports (0.94) and imports (0.73).

During the second period, FTR+NCT was positively correlated with imports (0.58). The percentage change in FTR+NCT was also positively correlated with imports (0.71). However, even under the situation in which the per capita FTR+NCT is positively correlated with per capita imports and imports are positively correlated with GNP, there is no correlation between GNP and FTR+NCT. This result is most likely an indication of a negative impact of imports and foreign aid on local production. Economic growth stopped after the first Intifada. The income from labour in Israel was USD 554 per capita in 1987, decreasing to a per annum average of USD 187 per capita in 1994 and increasing to USD 240 per capita in the year 2000. This figure decreased dramatically following the second Intifada to an average of only USD 107 per capita over the period 2001 to 2007. Based on the previous results and analysis, my hypothesis is that foreign aid in the second period just replaced the income from work in Israel, and due to other symptoms of Dutch disease, foreign aid did not increase GDP.

This discussion leads me to summarise the main claim of this thesis as follows. The economic developments of the tradable sectors of the economy are seriously impaired

by the exogenous constraints on exports as well as by the sources of foreign cash due to the high dependence on work in Israel up to the first Intifada and later the dependence on external aid and donations. During the first years after the occupation of the West Bank and Gaza by Israel, the economy of the West Bank and Gaza developed quite rapidly. This development mainly occurred in the first ten years from 1968 to 1978. During this period, the annual growth rate in GDP was 7.4% per year. In the 8 years from 1978 to 1986, the annual growth rate of per capita GDP was almost zero. In this thesis, I claim that the rapid growth in the 1970s is due to the sudden positive impact of the connection with the strong economy of Israel, while the stagnation of the 1980s reflects the impact of constraints on exports as well as the fact that agricultural and industrial workers were employed in Israel and not in the West Bank and Gaza. This thesis will theoretically and empirically examine the above hypothesised sources of infection as well as possible cures once the flood of foreign aid is drained and the export constraints are removed. If the main claim is correct, it is expected that opening the Palestinian economy to free international trade is an essential step to generating growth. Without this opening, this thesis also claims that the massive amount of foreign aid can at best alleviate poverty but will remain ineffective in generating economic growth. In contrast, the massive amount of foreign aid may even contribute to decreasing growth. The ineffectiveness of foreign aid and donations is not unexpected, given the experience of other small developing countries. This ineffectiveness is especially true under political turmoil, which can breed corruption and decrease the effectiveness of foreign aid and short and long term capital investment²⁶. The Palestinians are struggling for political independence and are also striving for economic independence, especially from Israel. International trade is a requirement for growth in today's global economy, especially for small countries with limited resources. Thus, it is critical that Palestinians do not try to develop an "independent autocratic economy" when granted an independent state. The thesis also claims that the economy of a small country, such as Palestine, cannot grow without free labour and trade relationships with the rest of the world, and especially with neighbouring Israel. The existing political restrictions on trade in and out of Palestine and restrictions on labour and natural resources curtail the

²⁶ As noted before, there are allegations that donations finance part of the cost of terrorist activities. Formally, terror activities (others refer to these activities as part of a freedom struggle) do not generate GDP. However, terror money increases consumption, and part of this consumption increases local production, which then increases GDP. On the other hand, terrorism increases the economic constraints imposed by Israel, so that periods of high terrorist activity lead to lower GDP per capita (see Saleh 2004).

positive potential impact of foreign direct investment and foreign aid on growth and socio-economic development. The long road towards peace or at least rational co-existence with Israel must be travelled to enable the Palestinian economy to achieve a high rate of economic growth. My hypothesis is that the negative impact of the long-term dependence on donations and foreign aid on the tradable sector will decrease the effectiveness of foreign aid, even in the years following any potential future peace accord. Therefore, a great deal of time and effort will be needed to propel the Palestinian economy away from its low current socio-economic status.

1.5 Methodologies

First, I directly express the relationship between the exogenous foreign currency constraints and GDP and GNP.

In any economy, the GNP can be written as a function of the following parameters²⁷:

$$Y \equiv GNP = \frac{1}{\beta} * [(E_x + FTR + NCT) * (1 - \beta) + W]$$

Where:

E_x - Export of goods and services

FTR - Financial transfers to the private and government sectors

NCT - Net capital and financial accounts

W - Salaries of residents from abroad and net income from abroad

Y - Gross national product (GNP)

β - Proportion of imports out of Total uses

In a fully open and free market economy, E_x , W and β are endogenous parameters that are determined in equilibrium. In the case of the West Bank and Gaza, only β , the ratio of imports to total use (β), can be changed endogenously, but this occurs under highly restrictive assumptions as E_x , W and $FTR+NCT$ are exogenous parameters in the case of the West Bank and Gaza according to my claim. If the export of merchandise or compensation for labour is restricted and foreign debt financing is limited because of the various risk factors in the region, then additional foreign currency from foreign aid is the only foreign currency available for additional imports. In addition, the restrictions

²⁷ The development of this equation is presented in Chapter 4 and also in Kroll and Shoukair (2012).

on the export of merchandise and labour increase unemployment of labour and capital in the West Bank and Gaza.

The remaining hypotheses are supported both by descriptive statistics of the temporal trends of the composition of economic sectors, exports, imports, unemployment and investment as well as by the causality analysis of multi-period and multivariate analysis that examines the impact of the main relevant macroeconomic factors affecting GDP and per capita GDP.

Generating the time-series of the main macroeconomic data from 1968 to 2007 was not an easy task for the following main reasons. First, at the time of the first Intifada, the employees of the Israeli Central Bureau of Statistics (ICBS) had difficulties collecting field data, so unreliable figures had to be smoothed and data had to be incorporated from alternative sources²⁸. Second, in 1994 the Palestinian Central Bureau of Statistics (PCBS) replaced the Israeli Central Bureau of Statistics (ICBS). This replacement involved various political changes in the definitions of the Palestinian population and GDP. To overcome this difficulty, I divided the regression analysis into two periods, the first for the years 1968 to 1993 and the second from 1994 to 2007. Third, there is no national local currency for the West Bank and Gaza, and the actual currencies in use are the Israeli Shekel, the Jordanian Dinar and the Egyptian Lira. Thus, it is problematic to form a time series of data in real prices in terms of USD. Calculations for this were based on the Israeli Shekel. Fourth, the separation between Gaza and the West Bank in 2007 when Hamas took control of Gaza made it difficult to obtain reliable data from Gaza, thus restricting the main regression analysis to this time.

The data used to support these hypotheses are presented in Tables 5.1 to 5.10 of Chapter 5. The time series regression is related to annual changes, rather than to absolute values, to decrease interdependence over time. The main regressions used import and export values estimated by exogenous regression models, rather than by the actual values of exports and imports, to overcome simultaneity biases. Additionally, in an effort to deduce causality from the regressions, the Granger's lag regression procedures for foreign aid was applied.

²⁸ Mainly from Arnon, Luski, Spivak and Weinblatt (1997).

1.6 Conclusion of Chapter 1 and the Structure of the Thesis

This introductory chapter established the academic and empirical motivation for the dissertation. It provides the important political and economical background of the very unique case of West Bank and Gaza. Given the empirical facts and previous literature, the chapter identifies the main questions and hypothesis and the methodology that will be used to test that hypothesis. The structure of thesis proceeds as outlined below.

Chapter 2 presents a detailed description of Palestine's complex political and economic history from the end of World War I to the present day. While many developing economies experience political and economic turmoil, the chronic uncertainty thrust upon the Palestinian economy by frequent regime changes render it unique in this regard. Thus, a rudimentary appreciation of history is necessary for the analysis of the current structure of the Palestinian economy.

Chapter 3 reviews the theoretical and empirical literature on development economics, focusing, *inter alia*, on the role of foreign aid in economic development and the diagnosis of "Dutch Disease" in developing economies.

Chapter 4 sets out the specific theoretical definition of GNP in terms of exogenous factors and analyses the theoretical welfare implications of moving from one economic sector to another.²⁹

Chapter 5 describes the process of data compilation and the adjustments made to compensate for gaps and inconsistencies in the data.

Chapter 6 discusses the results of the econometric modelling, and also analyses the empirical findings and the contributions of this work to the existing literature. Policy recommendations are presented as well as final thoughts on the limitations of the model and possible future extensions of this research.

Chapter 7 highlights the impact of political violence on Palestinian and Israeli financial markets. This chapter introduces a separate study conducted in conjunction with

²⁹ The modeling was conducted in collaboration with Professor Yoram Kroll; my contribution to all facets of the research exceeded fifty percent.

Shmuel Hauser, Rafi Eldor and Yoram Kroll on the impact of terrorism on the Israeli and Palestinian stock exchanges³⁰. The impact of the military clashes between Israel and the Palestinians as well as the physical and economic constraints imposed by Israel may partially explain the inability of the Palestinian economy to grow at a rate that fits with its high population growth.

³⁰ This chapter draws on the terror index developed by Hauser, Eldor and Kroll while the work presented in the thesis is my own.

Chapter 2 - A Detailed Discussion of the Israeli-Palestinian Conflict

2.1 Introduction

The Israel-Palestinian conflict involves many aspects, such as political, economic, geographic, cultural, ethnic, religious, social, moral, humanitarian, psychological and demographic. In this chapter I will begin the review from the 1917 Balfour Declaration of a home for the Jewish people. Appendix 2.1 provides cogent facts on this period. My review will focus on two aspects only: the political aspect and the economic aspect. As I will emphasize and claim later in the study, my contention is that politically complicated historical situations and events had a strong negative impact on the economy of the West Bank and Gaza. The type of solution to the conflict and its practical implementation are extremely important and relevant for the economic growth of the Palestinian economy. As Israel is the only neighbouring country that has a very strong and well developed economy, opening of the borders of the West Bank and Gaza to Israel and Jordan and allowing Palestinian sea and air ports or, alternatively, free use of the Israeli and Jordanian ports is vital for efficient export and import of merchandise by air and sea. Whether negative economic costs of military clashes are incurred also depends on the political solution.

The historical review is separated into two subsections of political and economic history. In the economic history subsection I will assert the relevant connections between the political and economic aspects.

This review draws heavily on Barguty (1988), Alsiudan (2004), Albargute and Totah (2001) and Bellin (1999), which are referred to throughout the chapter.

2.2 The Political History

The current conflict between Israel and Palestine is a reflection of the inability to find a peaceful formula for co-existence accommodating the national aspirations of both the Jewish and Arab populations inhabiting modern-day Israel and Palestine. The roots of this conflict can be traced to antiquity, but the seeds of the recent conflict are found in the 1917 Balfour Declaration. This chapter outlines the history of the region in the Twentieth Century and the new Millennium, providing background for the discussion of the impact of the Al Aqsa Intifada on the current state of the Palestinian economy.

For centuries Palestine has experienced a turbulent history of successive occupations. The most recent period of turbulence began early in the last century with the Balfour Declaration of November 1917, which formally recognized organized Jewish settlement in Palestine. The Declaration, a letter from Britain's then foreign minister articulated Britain's policy in favour of the establishment of a national home for Jews in Palestine while maintaining the civil and religious rights of non-Jewish residents. The exact wording of declaration is:

"His Majesty's Government views 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".
Source: http://zionism-israel.com/Balfour_Declaration_1917.htm

Britain introduced and implemented military rule in Palestine until 1920. The British Mandate was subsequently ratified and approved by the League of Nations in 1922. The Mandate document empowered Britain to implement the Balfour Declaration and prepare the foundations for the establishment of a Jewish homeland in Palestine (Barguty 1988, p. 35).

Palestinian Arabs opposed the Mandate document and the Balfour Declaration, particularly on the grounds that these documents referred to them as non-Jewish sects with civil and religious rights that had to be protected. The perceived disenfranchisement of Arab residents (92% of the population in the designated area) subsequently led to violent clashes. They found a contradiction between the Mandate document and Article 22 of the League of Nations Charter, which stipulates that the type of government and administration should reflect the wishes of the inhabitants (Barguty 1988, p. 281). Although the vast majority at the time, Arab Palestinians were

not consulted regarding their national aspirations, nor were they given a role in governing the country. Under these circumstances and in an atmosphere charged with anger, violence broke out in Jerusalem in 1920, and quickly spread to other cities, especially the city of Jaffa. In May 1921 intense fighting between Arabs and Jews took a heavy toll on both sides (Alsiudan 2004, p.232).

In light of these events and in an attempt to appease the Arab community, the Mandatory government issued the First White Paper in 1922. This decree stipulated that it was not the intent of the Balfour Declaration to transform all of Palestine into a national home for the Jews nor was it to impose Jewish citizenship on all Palestinian residents. The Paper stated that Jewish immigration would be limited by the territory's resources and economic capacity³¹.

Jewish immigration continued throughout the 1920s at a pace that worried leaders of the Arab community. In addition, the Mandatory government maintained full control of all economic, social, health and educational services. While it enlisted the involvement of the Jewish Agency in this, it denied a similar role to Arab organizations (Barguty 1988, p.283).

Violence erupted again in 1929, resulting in hundreds of Jewish and Arab casualties and leading to the establishment of the Shaw Committee to investigate these events. The Committee recommended that the government further clarify the rights of non-Jews, place greater supervision and limitations on Jewish immigration and refrain from transferring ownership or selling land to the Jews (Barguty 1988, p.283).

The Second White Paper (also known as the Passfield White Paper) was issued in October 1930. This statement of policy reiterated principles articulated in the previous 1922 White Paper. It refused to adopt the constitutional format demanded by the Arabs, citing conflicts with Mandatory government obligations. At the same time, however, the 1930 White Paper acknowledged that the time had come to grant the Arab community some kind of autonomy. The paper also called for a cessation of Jewish immigration due to the shortage of land. Following the protest of Jewish leaders and

³¹ Source: [text of the Churchill White Paper, 1922](http://unispal.un.org/UNISPAL.NSF/0/F2CA0EE62B5680ED852570C000591BEB) at UNISPAL,
<http://unispal.un.org/UNISPAL.NSF/0/F2CA0EE62B5680ED852570C000591BEB>

subsequent negotiations between the Jewish Agency and the British government, in 1931 British Prime Minister, Ramsay MacDonald, sent a letter to Dr. Haim Weizmann stating that the British government did not oppose the additional Jewish land acquisition and that it did not prohibit Jewish immigration. This enraged the Arab inhabitants who considered it a retreat from principles articulated in the Passfield White Paper. British ambiguity and seeming duplicity contributed significantly to the violent events in the decades that followed (Barguty 1988, p.286).

During the period 1931 to 1935, Palestine underwent important economic changes reflected in the establishment of key corporate entities by Jewish investors and the undertaking of major infrastructure projects such as a seaport in Haifa, an oil pipeline to Iraq, potash mining at the Dead Sea and the establishment of the Palestine Electric Company. A financial sector also developed during this period. The number of banks serving the Jewish community grew and German restrictions on the export of Jewish capital led to the public sale of securities of Jewish enterprises and institutions in Palestine. The “Exchange Bureau for Securities” the predecessor of the Tel Aviv Stock Exchange, was established in 1935 to enable trading in these securities³².

During this period, Jewish immigration accelerated in wake of the ascent of Nazism in Germany. It is estimated that by the end of 1935, 30,000 German Jewish immigrants settled in Palestine. The number of Jews in Palestine soared from 28,000 in 1927 to 87,000 in 1936. This increase in immigration was accompanied by an influx of Jewish capital, which while improving the welfare of all Palestinian residents, accentuated the disparity between Arab and Jewish standards of living (Barguty 1988, p.291).

The Arab community lacked the commercial and organized labour institutions established by the Jewish population. These factors contributed to a general strike declared by the Arab Executive Committee in 1933. Demonstrations spread to Jerusalem, Haifa, Jaffa, Nablus and other areas, culminating in a six-month general strike in 1936. The strike revealed numerous grievances held by Palestinian Arabs, most of which were related directly or indirectly to the surge in Jewish immigration and Jewish land ownership. These included, *inter alia*, dissatisfaction over the eviction of Arab farmers from their villages and increasing Arab unemployment. In addition,

³² <http://www.tase.co.il/heb/tradingandclearing/history/Pages/History.aspx>

the Arab community felt that it was being held responsible for Arab insurgency in neighbouring states, such as Lebanon, Syria and Egypt. The Arab High Committee was formed, headed by Haj Amin Al Husseini. The Committee declared the continuation of the strike until the cessation of Jewish immigration. The strike, which included numerous violent clashes between Arabs, Jews and the British army, was called off after the intervention of Arab leaders. The rebellion continued, however, until 1939 (Alsiudan 2004, p.244).

When the strike ended, Britain instigated a royal commission headed by Lord Peel, which recommended the termination of the Mandate and the partition of most of Palestine into two states: Arab and Jewish³³. The partition plan was rejected by both sides and eventually abandoned by Britain as unworkable (Barguty 1988, p.297).

In 1939, with the imminent outbreak of World War II, Britain acted to resolve the conflict between the parties in order to enlist their assistance in the war against Germany. Britain's new approach to governance in Palestine was summarized in the (McDonald) White Paper of 1939. Departing from the commitment under Balfour to a Jewish homeland, the White Paper called for the establishment of a single independent Palestinian state jointly ruled by Arabs and Jews within ten years. The policy outlined in the White Paper restricted Jewish immigration to 75,000 within the first five years and made future immigration contingent on Arab approval. It also limited the amount of land that could be sold to Jews. Jewish leadership around the world rejected the 1939 White Paper, since it closed Palestine to immigration of Jewish refugees facing extermination in Europe. The Arab Higher Committee also objected to it, believing that it did not go far enough and fearing that it did not provide a real opportunity for meaningful Arab independence. In the 1940s Jewish underground organizations violently protested the limitations placed by the Mandatory government on Jewish land ownership and immigration. Underground activities included terrorist actions against British targets, which invited even greater controls on Jewish immigration³⁴.

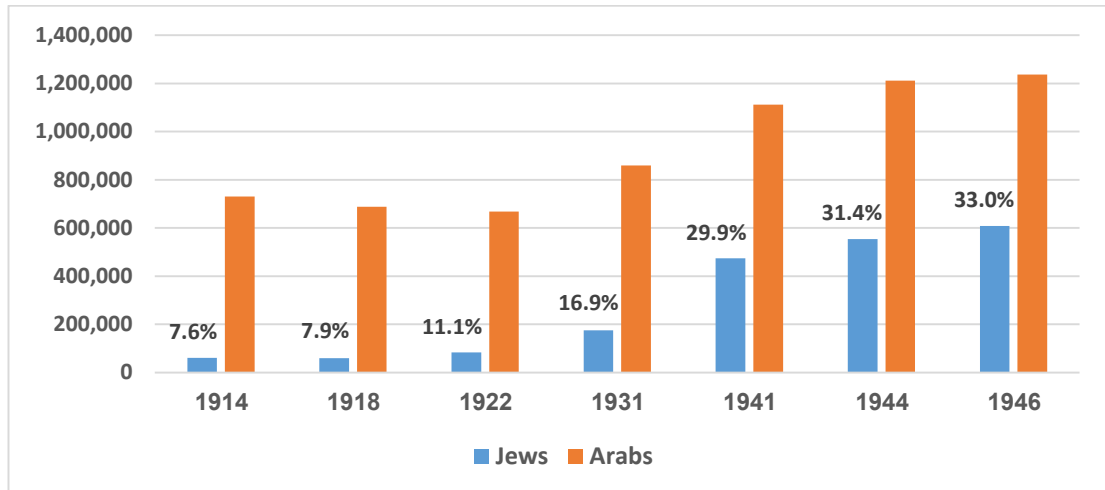
³³ Other recommendations of the Peel Commission included: a) The ratification of a treaty with each of the two subject states in order to preserve the military interests of Britain on land, air and at sea and to protect ports, communication routes and oil pipelines; b) annual British assistance in the amount of £2 million to the Arab and Jewish states; c) population exchanges; d) a ten-year period during which all problems between the two states were to be resolved through peaceful negotiations.

³⁴ http://avalon.law.yale.edu/20th_century/brwh1939.asp

Criticism of the British Mandate grew both in Palestine and abroad, and at the end of 1945, an Anglo-American committee of inquiry was formed to examine Jewish immigration and the future of Palestine, particularly in light of the needs of post-war European Jewish refugees. The committee submitted its report in April 1946, rejecting the principle of establishing either a sovereign Jewish or Arab state in Palestine. According to the report, while civil liberties for all communities were to be safeguarded, neither Jewish nor Arab domination would prevail in Palestine, which would continue to be a protectorate backed by international guarantees. The Committee recommended the immediate entry of 100,000 new Jewish immigrants (conditional on the disarmament of radical Jewish groups) and the abolition of legal restrictions on Jewish land acquisition³⁵. Figure 2.1 displays the distribution between Jewish and Arab population in Palestine between the years 1914-1946.

³⁵ <http://www.jewishvirtuallibrary.org/jsourc/History/anglo.html>

Figure 2.1 Arab / Jewish Population of Palestine (1914 - 1946)



Sources:

- 1914 - 1918 Justin McCarthy *The Population of Palestine*, 1990
- 1922 and 1931 British Census (Census conducted by the British Mandate Government)
- 1941 Esco Foundation *Palestine: A Study of Jewish, Arab, and British Policies Vol. 1*, p.46, Yale University Press, 1947
- 1944 Anglo-American Committee of Inquiry, Chapter IV: Population, April 20, 1946
- 1946 United Nations General Assembly, A/364, "UNSCOP Report to the General Assembly," September 3, 1947

In February 1947, Britain proposed to extend its mandate over Palestine for five more years, during which time preparations for an independent Palestinian state shared by Arabs and Jews were to take place. The proposal was rejected by both Jews and Arabs and the matter was referred to the newly-established United Nations.

The Arabs refused to conduct discussions with the U.N. committee; leaving deliberations solely between Britain and Jews. The committee presented two proposals; firstly, a majority proposal recommending the partition of Palestine into two states; secondly, a minority proposal opting for the establishment of one federal state for Arabs and Jews.

The majority proposal was submitted and adopted by the United Nations General Assembly on November 29th 1947. The partition plan was accepted by the majority of the Jewish community, including the Jewish Agency, but was strongly opposed by Palestinian Arabs and the Arab League. Violent clashes between the communities intensified in the months following ratification of the plan (Barguty 1988, p.316).

The culmination of these violent clashes occurred on the 30th April 1948, when the chiefs of staff of the Arab armies decided to enter Palestine with their armies (Jordanian, Syrian, Lebanese, Iraqi and Egyptian). The British Mandate ended two weeks later and the Jewish leadership declared the establishment of an independent Jewish state based on the U.N. partition plan. The Arab armies entered Palestine, but with one fifth of the troops originally pledged. Their armies advanced to take some positions and cities as well as a few Jewish settlements. The Israeli defence forces were able to retake these positions in relatively little time. In June 1948, the United Nations intervened and declared the first truce, sending its mediator Count Bernadotte to stop the hostilities.

In September, Count Bernadotte proposed a new partition of Palestine. An Arab state, including the Negev desert, Ramla and Lod, would be annexed to Trans-Jordan, while a Jewish state would be established in the Galilee region. Jerusalem would be placed under international rule and refugees would be allowed to return or receive compensation for forfeited property. The proposal was rejected by both the Arab League and Israel as hostilities resumed.

The Israeli army conquered the cities of Lod, Ramla, Shfaram, Saffourieh, Nazareth and the Carmel area. Count Bernadotte was assassinated in Jerusalem by Jewish extremists, however a second ceasefire and later permanent armistice was achieved by November 1948. The outcome of the war was that Israel seized 80% of the area of Mandatory Palestine (Barguty (1988), P.316).

Approximately one million Palestinians became refugees, and they were relocated to camps in the various neighbouring countries. Approximately 150,000 Palestinians remained inside the new state of Israel. The West Bank (which included East Jerusalem, Bethlehem, Nablus and Jenin) was annexed by the Hashemite Kingdom of Jordan. The Gaza was administered by Egypt. The official number of refugees registered with the U.N. Relief and Welfare Agency (UNRWA) in 1948 reached 914,000, of which 545,000 were located in the West Bank and Jordan³⁶.

³⁶ The United Nations Relief Agency (UNRWA) defines a Palestinian refugee as “a person that was living in Palestine for at least two years prior to the events of 1948, who lost his home and means of livelihood as a result of these events, and took refuge in any country where the agency provides relief (Jordan, Syria, Lebanon, the West Bank and the Gaza).” See UNRWA site:

2.2.1 The Six Day War (1967)

In the years that followed the 1948 Arab-Israeli conflict over Palestine lost intensity, but was never resolved. Despite intermittent skirmishes and hostilities, including a coordinated Israeli-British-French military campaign against Egypt in 1956, the status quo attained and the "ceased fire agreement between Israel and its neighbouring countries (Lebanon, Syria, Jordan and Egypt) at the end of 1948 persisted until June 1967. Israel's legitimacy was recognized by most nations, but was never recognized by either the Palestinians or the Arab states.

On May 22, 1967, following a protracted period of escalating friction in the region, Egypt blockaded the Straits of Tiran for Israeli navigation. This act was seen by Israel as a justification to launch war against Egypt. Responding to an Egyptian request, the governments of Jordan, Iraq, Saudi Arabia, Syria and Lebanon moved their armed forces in the direction of Israel in the weeks following closure of the Straits of Tiran. Israel mobilized its army reserves and launched a diplomatic campaign to lift the Egyptian blockade. On June 5, 1967, Israel surprised Egypt with a devastating strike on the Egyptian air force. In the six days that followed, the Israeli defence forces overran the Sinai Peninsula to the Suez Canal, took control of the entire West Bank of the Jordan River, and seized a large portion of the Golan Heights³⁷.

The Six Day War was a watershed event in the conflict over Palestine. The whole of Palestine came under Israeli control. Despite this, the Kingdom of Jordan continued to regard the West Bank as a part of the kingdom until the announcement by King Hussein in July 1988 relinquishing all claims on this territory.

Israel's own position towards the political status of the West Bank and Gaza has been ambivalent. Originally viewed by Israeli policy-makers at the time as strategic bargaining chips in imminent peace negotiations or as physical buffers for Israel's security, prolonged occupation lent acceptance to claims by right-wing groups for Israeli sovereignty over the "Territories". Jewish settlement in them was first tolerated and later encouraged by the Israeli government. As governments changed, so did the policy orientation towards the West Bank and Gaza. However, for all practical

<http://www.un.org/unrwa/refugees/whois.html>. As of 2005, the number of refugees was estimated at 4.3 million, most of whom reside in the Palestinian Authority (1.7 million) and Jordan (1.8 million).

³⁷ http://main.knesset.gov.il/About/Lexicon/Pages/six_days.aspx

purposes, the distinction between right and left-leaning governments was one of degree rather than kind – i.e., whether the rationale for continued occupation was functional or ideological in nature. Left wing governments rarely took steps to disband or even regulate settlement in the West Bank and Gaza. For their part, right-wing governments never actually annexed the Territories³⁸, despite their apparent ideological commitment to an Israel, whose borders are determined by the Bible rather than diplomacy. More often than not, the political debate over the West Bank and Gaza became hostage to domestic partisan concerns, leaving the universe of possible alternatives extremely narrow.

Out of the ashes of Arab defeat, the Palestinian Liberation Organization (P.L.O.), arose, and transformed the politics of the region. An umbrella organization of Palestinian insurgent groups, the P.L.O. put a decidedly Palestinian face on what was considered, until that time, the Arab-Israeli conflict. In both the West Bank and Gaza, Israeli occupation met with armed resistance starting as early as August 1967. In September 1970, Palestinian forces came close to seizing power in neighbouring Jordan, whose population was two-thirds Palestinian. The movement was put down and the P.L.O. was expelled from Jordan to Lebanon³⁹. In 1974 the Arab League declared the P.L.O. the sole legitimate representative of the Palestinian people. In 1975, the United Nations granted the P.L.O. observer status. In 1982, in the wake of the Israel-Lebanon War, the P.L.O. leadership was expelled to Tunisia, where it remained until the establishment of the Palestinian Authority in 1994⁴⁰.

³⁸ Immediately following the Six Day War, East Jerusalem was incorporated into the Jerusalem Municipality in a unilateral measure by Israel to ‘unify’ Jerusalem. Arab residents were offered the opportunity to obtain Israeli citizenship. In 1980, the Knesset enacted the Basic Law, Jerusalem, capital of Israel. This law declares that the unity of greater (post-Six Day War) Jerusalem will not be violated, however falls short of explicitly annexing or claiming Israeli sovereignty over Jerusalem. The law’s status as a Basic Law means that its amendment or repeal is subject to special majority vote in the Knesset, a feature which may hinder the ability to partition the city in a negotiated settlement. U.N. Security Council Resolution 478, which was adopted shortly after the law’s passage, declares this law null and void. <http://unispal.un.org/UNISPAL.NSF/0/DDE590C6FF232007852560DF0065FDDB>

³⁹ [http://en.wikipedia.org/wiki/Black_September_\(group\)](http://en.wikipedia.org/wiki/Black_September_(group))

⁴⁰ <http://rachelcenter.ps/news.php?action=view&id=26>

2.2.2 The First Intifada (1987-1993)

The first Intifada (1987-1993) was a popular uprising against Israeli military occupation, which began in the Jabalia refugee camp and spread to Gaza, the West Bank and East Jerusalem. No single individual or organization started the first Intifada, but the P.L.O. soon established itself the leading role, sponsoring provocateurs and enhancing its presence in the West Bank and Gaza⁴¹.

The fundamentalist Islamic organizations, such as Hamas and Jihad were the P.L.O.'s major rivals in this, as were local leaders in some cities⁴².

The Intifada's contribution to the standing of the Palestinians and their political consolidation was substantial. The mobilization of the local population enabled Palestinians to better consolidate their identity as a nation with a right to self-determination. Discussion in Israel to merge the West Bank with Jordan in a confederation came to an end. The Intifada succeeded in putting the Palestinian question back on the international agenda, not only in United Nations and Arab League committee rooms, but in Europe and the United States as well. European and U.S. support of Israel became seemingly less automatic as the perception of the Palestinian cause as a 'national' rather than 'refugee' problem took root. In 1988, P.L.O. leader, Yasser Arafat, declared the establishment of a Palestinian state at the Palestine National Council meeting in Algiers. Later that year, the P.L.O. condemned terrorism, accepted U.N. Security Council Resolutions 242 and 338, and recognized the State of Israel. These two important resolutions are presented below:

"Security Council resolution 242 (1967) of 22 November 1967

The Security Council, Expressing its continuing concern with the grave situation in the Middle East, Emphasizing the inadmissibility of the acquisition of territory by war and the need to work for a just and lasting peace in which every State in the area can live in security. Emphasizing further that all Member States in their acceptance of the Charter of the United Nations have undertaken a commitment to act in accordance with Article 2 of the Charter,

1. Affirms that the fulfilment of Charter principles requires the establishment of a just and lasting peace in the Middle East which should include the application of both the following principles:

- (i) Withdrawal of Israel armed forces from territories occupied in the recent conflict;
- (ii) Termination of all claims or states of belligerency and respect and acknowledgment of the sovereignty territorial integrity and political independence of every State in the area

⁴¹ http://www.academia.edu/329929/The_Rise_of_Hamas_Armed_to_Political_Struggle

⁴² http://en.wikipedia.org/wiki/First_Intifada

and their right to live in peace within secure and recognized boundaries free from threats or acts of force;

2. Affirms further the necessity

(a) For guaranteeing freedom of navigation through international waterways in the area;

(b) For achieving a just settlement of the refugee problem;

(c) For guaranteeing the territorial inviolability and political independence of every State in the area, through measures including the establishment of demilitarized zones;

3. Requests the Secretary-General to designate a Special Representative to proceed to the Middle East to establish and maintain contacts with the States concerned in order to promote agreement and assist efforts to achieve a peaceful and accepted settlement in accordance with the provisions and principles in this resolution;

4. Requests the Secretary-General to report to the Security Council on the progress of the efforts of the Special Representative as soon as possible.

Adopted unanimously at the 1382nd meeting."

Resolution 338 (1973) of 22 October 1973

The Security Council,

1. Calls upon all parties to the present fighting to cease all firing and terminate all military activity immediately, no later than 12 hours after the moment of the adoption of this decision, in the positions they now occupy;

2. Calls upon the parties concerned to start immediately after the ceasefire the implementation of Security Council resolution 242 (1967) in all of its parts;

3. Decides that, immediately and concurrently with the ceasefire, negotiations shall start between the parties concerned under appropriate auspices aimed at establishing a just and durable peace in the Middle East.

Adopted at the 1747th meeting by 14 votes to none.

<http://www.un.org/depts/dpi/palestine/ch3.pdf>

These declarations enabled the opening of direct discussions between the United States and the P.L.O.

The first Intifada coincided with the fall of the Soviet Union and the end of the Cold War. A coalition of countries successfully convened to combat Iraq during the 1991 Gulf War. These developments appeared to signal the dawn of a new era of international cooperation. As a diplomatic expression of what many policy-makers hoped to be a "new order", the United States and Russia jointly convened the Madrid Conference in October 1991 to prepare a comprehensive framework to address the Arab-Israeli conflict. It was an attempt by the international community to initiate a peace process through negotiations involving Israel and the Arab countries, including Syria, Lebanon, Jordan and the Palestinians. Due to Israeli objections, the Palestinian team was initially a part of a joint Palestinian-Jordanian delegation and consisted solely of Palestinians from the West Bank and Gaza who were not manifestly associated with the Palestine Liberation Organization (P.L.O.)⁴³.

⁴³ http://en.wikipedia.org/wiki/Madrid_Conference_of_1991

The approach adopted at the Madrid conference combined the institution of multi-lateral formula to address less contentious regional issues and promote confidence-building with the initiation of direct bilateral talks between Israel and its neighbouring states. The formula for bilateral talks between Israel and the Palestinians was a two-stage process. The first stage focused on negotiating interim self-government arrangements, while the second would address the permanent status issues. This formula was essentially followed in the Oslo Peace Accords.

The Oslo Peace Accords were signed on 13 September, 1993. Israel acknowledged the existence of the P.L.O. and granted Palestinians limited civil autonomy in the West Bank and Gaza in return for peace and an end to Palestinian claims on Israeli territory. A provisional government Palestinian Authority was established and Israel allowed Chairman and President of the Palestine Liberation Organization Yasser Arafat to return to the region and preside over the Authority. The Israel-Jordan Peace Agreement followed a year later⁴⁴.

The Oslo Peace Accords were largely criticized by some Palestinians as one-sided accords that benefited only Israel, resulting in continued Israeli control of land, water, roads and other resources. It was criticized by Israel's right wing as well. Critics on both sides claimed that the other side was acting in bad faith and that the agreements did not set the scope of Israeli withdrawal from the Territories. In 1994, Israel began the process of scheduled withdrawal from Gaza and Jericho, ending twenty-seven years of occupation⁴⁵.

In 1995, Israeli Prime Minister Yitzhak Rabin, was assassinated by a Jewish extremist. In the months that followed, in anticipation of impending Israeli elections, Palestinian extremists opposing Oslo stepped up terrorist activities inside Israel. In the 1996 elections, Israelis elected a right-wing coalition led by the Likud candidate, Benjamin Netanyahu, an opponent to Oslo, who reluctantly implemented Israel's commitments, causing both sides to have to return to the table to renegotiate the agreement. Certain achievements, such as limitations on construction of Jewish settlements in the West

⁴⁴ http://www.yaf.ps/ya/life_details.php?start=28

⁴⁵ http://en.wikipedia.org/wiki/Oslo_I_Accord

Bank that were secured under Rabin, were unravelled by Netanyahu, who accelerated the pace of new construction.

Following the Oslo agreement, a second agreement (brokered by the Clinton administration) between Israel and the Palestinians was signed on October 23, 1998. It was intended to reinstate implementation of the Interim Agreement of September 25, 1995, (“Oslo II”), that had stalled as a result of Palestinian protest over a controversial new Jewish neighbourhood planned in southeast Jerusalem, and as a result of a growing mistrust between the two sides. According to the Wye River Memorandum, Israel would relinquish control over thirteen percent of the land, of which ten percent would be turned over to Palestinian control and the rest would be turned into nature reserves. In return, Arafat agreed to take measures to prevent acts of terrorism against Israel, to apprehend individuals suspected of perpetrating acts of violence and terror, to punish all persons involved in acts of violence and terror, to collect all illegal weapons held by Palestinian citizens and reduce the size of the police force from 36,000 to 30,000 men. Arafat also agreed to reaffirm a previous letter, concerning the nullification of Palestinian National Charter provisions, which called for the destruction of Israel. According to the Wye Memorandum, permanent status negotiations would resume and accelerated to meet the May 4, 1999 target date set in the Oslo Accords⁴⁶.

The optimism generated at Wye was short-lived when Arafat announced intentions to unilaterally declare an independent Palestinian state. In response, the Israeli government resolved to halt Israeli implementation of the Wye Memorandum until Arafat retracted his statement and reaffirmed his commitment to halt violence and collect illegal weapons.

Netanyahu’s government was defeated in 1999, replaced by a Labour Party government under the leadership of Ehud Barak. Another attempt was made to end the impasse in the peace process at Camp David during the final months of the Clinton administration. Barak agreed to hand over to the Palestinians most of the disputed territories and insisted that Arafat accept some general ground rules for negotiations before launching the next round of rigorous negotiations. Palestine would have sovereignty over ninety-one percent of the West Bank; Israel would annex nine percent

⁴⁶ http://en.wikipedia.org/wiki/Oslo_I_Accord

of the West Bank and, in exchange, Palestine would attain sovereignty over [unspecified] parts of pre-1967 Israel, roughly equivalent to one percent of the West Bank⁴⁷.

The Palestinian leadership refused to agree to the deal, the apparent deal-breaker being the insistence on the Palestinian demand for a "right of return" of Palestinian refugees to Israel.⁴⁸ The summit thus ended without reaching any agreement.

2.2.3 The Al Aqsa Intifada

Two months after the failure at Camp David, right-wing opposition leader at the time and former Israeli military general, Ariel Sharon, undertook a highly controversial⁴⁹ visit to a holy Muslim site called "The Temple Mount" by the Israelis, and "*Haram al Sharif*" (Noble Sanctuary) by the Muslims. Sharon's visit was condemned by the Palestinians as provocation, as reflected in the massive police escort accompanying him. The day following Sharon's visit, following Friday prayers, large riots broke out around the Old City of Jerusalem. The violence quickly escalated and spread throughout the West Bank and Gaza, leading to a virtually total breakdown of any co-existence previously shared between Israel and the Palestinian Authority. Israeli retaliation to continual daily Authority-sanctioned violence brought devastation to the Palestinian infrastructure. Permanent closure of the West Bank and Gaza left Palestinians isolated, finding it difficult (if not impossible) to travel to, from, between and often within the Palestinian Authority.

In February 2001 Ariel Sharon was elected as Israel's Prime Minister. In 2002 Israel began building a complex security barrier to block suicide bombers penetrating Israel from the West Bank. In the same year the United States, European Union, Russia, and United Nations ("the Quartet") proposed a new peace initiative. The so-called "Road Map for Peace" called for a two-state solution to the Israeli-Palestinian conflict⁵⁰.

⁴⁷ http://www.yaf.ps/ya/life_details.php?start=28

⁴⁸ It is widely believed that in addition to the Palestinian right of return issue, the offer did not include water resources for the Palestinians or shared sovereignty over Jerusalem.

⁴⁹ The visit was planned in advance and highly publicized. Palestinian protests and U.S. objections to the visit were voiced during the planning stage. Sharon was escorted to the site by more than 1000 riot police. See Jane Perlez, "US Envoy Recalls the Day Pandora's Box Wouldn't Shut," *The New York Times*, January 29, 2001 as cited in the *Mitchell Report on the Al Aqsa Intifada*, April 2001, http://www.mideastweb.org/mitchell_report.htm

⁵⁰ <http://www.palestine-studies.org/gaza/behindscenes/7-5-2003.pdf>

The United States demanded democratic reforms in the Palestinian Authority, as well as the appointment of a prime minister independent of Arafat. On 13 March 2003, Arafat appointed the moderate Mahmoud Abbas as Palestinian prime minister. Following the appointment of Abbas, the U.S. administration promoted the disbandment of militant organizations, the cessation of further Jewish settlement activity and the establishment of a peaceful, democratic Palestinian state. The first phase of the plan demanded that the Palestinian Authority suppress guerrilla and terrorist attacks and confiscate illegal weapons. Unable or unwilling to confront militant organizations and risk civil war, Abbas tried to reach a temporary cease-fire agreement with the militant factions and requested that they halt attacks on Israeli civilians.

By the end of 2003, neither party had complied with the requirements of Phase I of the Road Map. The Palestinian Authority had not successfully contained Palestinian terrorism and Israel had neither withdrawn from Palestinian areas re-occupied since the outbreak of the Al Aqsa Intifada nor discontinued the expansion of settlements.

On November 11, 2004 Yasser Arafat died after a prolonged illness. In 2005 Ariel Sharon unilaterally disengaged from the Gaza, disbanding Jewish settlements and withdrawing defence forces. In January 2006 the radical Islamic movement, Hamas, won a large majority in the new Palestinian parliament⁵¹.

The arrival of Hamas (formerly known as the Islamic Resistance Movement) to the Palestinian Authority as a nearly equal partner, severely complicated Abbas's efforts to resume "Road Map" negotiations with Israel. Hamas, which emerged in 1987 during the first Palestinian uprising as an offshoot of Egypt's Muslim Brotherhood, favours the creation of a Palestinian nation on land that now includes Israel, rejecting the two-state solution outlined in the Road Map⁵².

The election results stunned U.S. and Israeli officials who had repeatedly stated that they would not work with a Palestinian Authority that included Hamas, an organization which both countries and the European Union classified as a terrorist organization. On

⁵¹ <http://www.palestine-studies.org/gaza/behindscenes/29-01-2006.pdf>

⁵² http://www.academia.edu/329929/The_Rise_of_Hamas_Armed_to_Political_Struggle

June 13, 2007, Hamas fighters claimed full control of Palestinian Authority security agencies in Gaza. Its leader rejected an emergency decree from Chairman Mahmoud Abbas dissolving the Hamas-led Palestinian unity government. After four days of intense fighting that left at least 70 Palestinians dead, Hamas fighters waved their green banners atop the headquarters of the Preventive Security Service in Gaza City and took numerous prisoners⁵³.

Palestinian Authority Chairman Mahmoud Abbas dissolved the Hamas-Fatah coalition government and declared a state of emergency. He also said he would replace Prime Minister Ismail Haniyeh. In response, Hamas issued a statement suggesting it did not recognize Abbas's authority. Since then, Hamas has had almost full control over Gaza and, for the time being, it appears that there are two Palestinians: Gaza under the leadership of Hamas and the West Bank under the leadership of Mahmoud Abbas.

The dichotomy between Gaza and the West Bank is starkly reflected in Israeli-Palestinian relations. While on the West Bank, the P.L.O. worked to contain terrorism against Israel, in the Gaza, armed aggression was encouraged and routinely carried out. Gaza-based rocket attacks against towns in southern Israel intensified in scope (and range), becoming a daily occurrence under the *Hamas* regime. In June 2007, Israel instituted a blockade on the Gaza, severely restricting the movement of goods in or out of the area without the inspection of Israel.

At the same time, the Israeli government, under Ehud Olmert⁵⁴ re-engaged with Palestinian Chairman, Mahmoud Abbas to breathe life into peace negotiations. In November 2007 an international conference convened by the United States in Annapolis and attended by Abbas and Olmert ended with a public statement of joint understanding to convene regular bilateral negotiations to bring about a two-state solution to the conflict⁵⁵. Negotiations were held throughout 2008, with a stated goal of reaching a peace agreement by the end of the year that would pave the way for the establishment of a Palestinian state by 2011. Within the West Bank, the P.L.O. invested

⁵³ <http://www.terrorism-info.org.il/he/article/18607>

⁵⁴ Ariel Sharon suffered a debilitating stroke in January and was replaced by his colleague, Ehud Olmert.

⁵⁵ US, Israeli and Palestinian Governments, *Joint Understanding Read by President Bush at Annapolis Conference*, November 27, 2007.

See <http://georgewbush-whitehouse.archives.gov/news/releases/2007/11/20071127.html>

considerable resources in improving law enforcement, which gradually lead to a partial relaxation of Israeli restrictions on activity and movement in this part of the Palestinian Authority. In Gaza, the blockade initiated in June 2007 continued under varying degrees of severity, as Israel endeavoured to use it as leverage to compel the Hamas to control the rocket attacks against civilian targets in Israel and terrorist activities around crossing points. In December 2008, after the end of a six-month ceasefire between Hamas and Israel, Hamas escalated rocket attacks into Israel. In retaliation, Israel initiated a three-week military offensive on the Gaza under the name of “Operation Cast Lead”. This offensive demolished infrastructure throughout the Gaza and caused the death of 1300 Palestinians. While Israel continued to let humanitarian aid into the Gaza, it reinstated the economic blockade in full force. Temporary closures were also imposed on the West Bank during the offensive, but were subsequently lifted.

2.3 Economic History

Palestine's economic history is no less volatile and complex than its political history with a strong correlations between the political-military events and the economic difficulties and harshness of the civil population in the West Bank and Gaza. Often the victim of the latter, the Palestinian economy has not only been plagued by lack of stability, but lack of continuity as well. The relatively frequent changes in political regimes has forced the economy to reinvent itself several times and adjust to sudden demographic changes, shifts in major trading partners and changes in legal and physical infrastructure. Certain features, however, have remained constant throughout the many reversals of fortune. For a variety of reasons, industrial development has eluded the West Bank and Gaza. The economy has always been acutely dependent on imports and capital transfers have always played an important role in financing trade deficits. The development of financial intermediaries has been systematically discouraged by the various regimes governing the West Bank and Gaza. In addition, given the lack of political autonomy, Palestinians have never had control over fiscal and monetary policy, and as a result have been unable to either direct or shape the course of their economic future.

2.3.1 Mandatory Palestine (1917-1948)⁵⁶

From an economic standpoint, the British Mandate was a transformative period for Palestine, fuelled in large part by vast demographic changes. Unfortunately, due to lack of scholarship on the subject at the time, data concerning the Palestinian economy during this period is sparse, particularly the initial years of the Mandate following World War I. As a British protectorate in 1917, Palestine lacked financial independence. The allocation of public funds focused on administration and security with no special attention to economic and social development. Approximately 60% of government expenditures went towards administration and security, and only 12% for public works and social affairs.

For the most part, the local population was left to feed itself. In anticipation of achieving political independence, the Zionist Jewish community⁵⁷ began the process of

⁵⁶ This section is based on the analysis of Owen (1988). Unless otherwise indicated, all statistical data can be attributed to him.

⁵⁷ As opposed to the Jewish population living in Palestine prior to establishment of the Zionist movement (*Ha Yishuv Hayashan*).

nation-building prior to the attainment of statehood. Hence it erected quasi-public institutions and allocated some 40% of its funds for education, health and other services not provided by the Mandatory government. In contrast, the non-Jewish population suffered a significant decline in the level of basic services such as education (Owen 1986, p.29).

In a very tangible sense, it is fair to speak of two rather than one Palestinian economy. While the Arab economy was based primarily on agriculture and commerce, the Jewish economy was more broad-based. Seeking to create a European lifestyle in Palestine to attract and consolidate Jewish immigration, the Jewish community erected urban centres and established capital-intensive industries. Given the social, demographic, organizational and political differences between the Jewish and Arab populations, economic integration in Mandatory Palestine was limited. Political ideologies and events exacerbated socio-economic segregation.

Given the British commitment to the establishment of a Jewish homeland under the Balfour Declaration, the Mandatory administration cooperated in the economic development of the Jewish *Yishuv* (settlement) by licensing Jewish entrepreneurs to undertake projects, such as the construction of an electric power plant on the Jordan River and the establishment of the Potash Company to mine minerals in the Dead Sea.

Between 1922 and 1946 the population of Palestine more than doubled, from 750 thousand to 1.8 million people due to natural population growth and waves of Jewish emigration. The Arab population grew 80% to 1.2 million during this period, while the number of Jewish residents increased seven-fold, reaching 600,000. Most Jewish immigrants were young (aged 15-29) and brought with them skills and capital. Although there was a clear Arab majority throughout the Mandate period, Jewish manpower was roughly equal to that of Arabs. The literacy rate among young Jews was 90%, while it did not exceed 25% among Arab youth. On average, the per capita income of the Jewish community was more than 2.5 times higher than that of the Arab community⁵⁸.

⁵⁸ Owen (1986, p.16).

Population growth and capital investment outpaced production, and although the rate of export growth exceeded the rate of import growth, Palestine was plagued with a growing trade deficit until the mid-1930s. This trade deficit, which exceeded an estimated cumulative £100 million by 1939, was covered primarily by Jewish remittances from abroad (Owen (1986), p.18). Throughout the Mandate period, the Palestinian population continued to be a predominantly agrarian.

Table 2.1 Distribution of Population in Villages and Towns of Palestine 1922, 1931, 1944

	1922	1931	1944
Total population	510,651	794,658	1,144,370
Total Rural population	374,362	519,052	733,870
Percentage of Rural population	73.31%	65.32%	64.13%

Sources: My calculations are based on Kamen (1991) Table 1, p.16. His sources are based on: Data for 1922 and 1931 are based on the censuses of population carried out by the government of Palestine. Data for 1944 are an estimate of the year-end population made in the Department of Statistics. For total population, 1922, Government of Palestine. Department of Statistics. *Vital Statistic*, p.3, less tribal population as reported in Gurevich, *Statistical Abstract*, p. 28; 1931, 1944: *Vital Statistics*, p.6. HM Forces are included in 1922, 1931, but not in 1944. For rural population, 1922: *Vital Statistics*. p.5, less tribal population as reported in Gurevich, *Statistical Abstract*. p. 18; 1931, 1944: *Vital Statistics*. p. 8. HM Forces included in 1922, 1931, but not in 1944. For proportion urban, 1922: *Vaal Statistics*. pp. 3-4, less tribal population as reported in Gurevich. *Statisticas Abstract*, p. 18; 1931, 1944: *Vaal Statistics*, pp. 6-7.

Table 2.1 indicates that up to 1944, the majority of the population of Palestine lived in rural areas although agriculture provided little income as most arable land was used for grain, which depended on rainfall, with a few tracts of land assigned for fruits and vegetables. The sectorial value of the agricultural product was extremely low⁵⁹. In the wake of shrinking citrus markets in neighbouring countries, Palestine's first citrus exports to Europe were launched during the inter-war period.

Industry developed substantially during this period, primarily in the Jewish community. Arab manufacturing was limited primarily to labour-intensive industries, such as food and leather and Arab enterprises remained small-scale. In contrast, Jewish manufacturing branched out to more capital-intensive industries, such as chemicals,

⁵⁹ According to Table 2.2 sectorial distribution of output of the Arabs in Palestine was only 25% agriculture, 13% industry and 60% services (compared to 9.5%, 22% and 59.9% respectively among the Jewish population).

electrical goods and metalwork. The sixteen large (100+ employees) factories operating at the time belonged to Jewish entrepreneurs and institutions. Industrial production in both sectors of the population aimed at import substitution and virtually all products were consumed locally. Given the accelerated population growth and the development of urban centres, construction and related industries grew substantially. The structure of economic activity in Mandatory Palestine is illustrated in Table 2.2.

Table 2.2 Sectorial Distribution of Output in the Arab and Jewish Economies 1936 (in percent)

Sector	Agriculture	Industry	Construction	Services	Total
Arabs	25	13	2	60	100
Jews	9.5	22	8.6	59.9	100

Source: Metzer, 1982, p.28.

Despite the growing complexity of political developments, the advent of World War II did not adversely affect economic growth. The war years were years of economic prosperity for Arabs and Jews alike. Although stringent subsidies and price controls were imposed, the net macro-economic impact of the war was positive as Palestine became a base for British war operations. Aggregate demand was stimulated by growing British army purchases. The Mandatory government encouraged the expansion of Palestinian industry as a means to contribute to the war effort and provide consumer goods to a population suddenly deprived of European imports. Foreign trade rose from £20 million in 1939 to £50 million in 1944, and a sizeable deficit in the balance of trade accrued, covered this time by transfer payments from Britain and the Jewish Diaspora. Another important development during the war years was the massive migration of hundreds of Arab peasants from villages to cities to work for the government and the army.

After World War II, consumption and investment were set free. Foreign manufactured goods began to return to Palestinian shores, doubling the volume of imports. At the same time, the post-war European recovery raised demand for Palestinian exports of citrus and diamonds, which accounted for 60 percent of total exports. Despite these positive developments, the Arab sector did not fare particularly well in the post-war environment. In 1947 drought struck rain-fed agriculture and olive groves, particularly in the south. Army employees were laid off by the government, but did not return to

work in their villages. Settling in coastal towns such as Haifa and Jaffa, they became the cadre of a skilled work force. This process of Arab urbanization and the socio-economic changes it engendered was interrupted by the 1948 war and its aftermath.

2.3.2 The West Bank under Jordanian Rule – Gaza under Egyptian Rule (1948-1967)

The establishment of Israel and the outcome of the 1948 war left Arab Palestine divided into two distinct geographic and political regions. During the years 1948-1967 the West Bank was under Jordanian jurisdiction, while the Gaza was under the control of Egypt. There was little, if any, interaction between the two territories, which were geographically separated by Israel. In addition, each operated under a different legal and administrative system. For this reason, I will discuss the West Bank and Gaza separately.

The West Bank⁶⁰

The West Bank refers to the territory along the West Bank of the Jordan River, which was designated under the British Mandate as the border between Jordan and Palestine. In 1948 the entire population was Arab, primarily Muslims with a Christian minority. The establishment of the State of Israel led to a massive change in the West Bank. The region lost its access to the Mediterranean ports as well as to the major commercial centres of Haifa and Jaffa.

The 1948 war caused the displacement of more than 276,000 Palestinians to refugee camps set up in the West Bank, increasing its population by approximately 60% during the years of 1948-1952. This resulted in extremely high levels of unemployment (50% by 1954), which made many seek their livelihood in other Arab countries, particularly Jordan and the Arab Gulf states.

In the early 1950s, the West Bank was more highly developed and advanced than Jordan in almost every respect; however this was to change under Jordanian rule. In the years following the annexation of the West Bank to Jordan in 1950, several factors led to the economic development of the East Bank. First, many professionals left the

⁶⁰ The analysis of the West Bank economy during this period is based primarily on Mansour (1988). Unless otherwise indicated, all statistical data is drawn from this article.

West Bank in search of work elsewhere. In addition, as a result of the separation from the ports of Haifa and Jaffa, new transport outlets had to be created. Jordanian investments in infrastructure were allocated primarily to the East Bank and Amman emerged as a key centre for trade and commerce (Cohen 1986, p.92).

Despite Jordan's annexation of the West Bank, there was the on-going political tension between West Bank residents and the royal family. West Bank Palestinians questioned the legitimacy of the Hashemite monarchy and disagreed with the foreign policy stance adopted by King Hussein. This conflict created a situation in which, for all intents and purposes, two peoples inhabited one state. Palestinian attitudes toward the monarchy served to consolidate the king's preference to invest in Jordan's 'loyal' East Bank rather than the rebellious West Bank.

The West Bank economy under Jordan remained largely underdeveloped. The first Jordanian census conducted in 1961 indicated that 40% of the workforce was employed in tourism and services, 37.6% in agriculture, 11.5% in industry and 10.4% in construction.

As the development of the East Bank continued, its relative marginalization intensified. Outward migration, particularly of the younger and better educated male residents of the West Bank continued, rendering the area a rural outpost devoid of a viable industrial base or sources of income. Investment in the West Bank in the 1950s and 1960 was not directed at productive enterprises. Approximately two thirds of all investment in the West Bank focused on the construction of private housing, with the rest going to public infrastructure, transport and construction equipment. The economic survey conducted by Israel in 1967 indicated an overall retreat in productive sectors. Manufacturing's share of GDP did not exceed 8.9% and the relative weight of agriculture also declined to 27%. The share of tourism and services grew to 56% ⁶¹.

⁶¹ Israel Economic Planning Authority, *Economic Survey of the West Bank* (1967, p. 7) as cited in Mansour (1988, p.73).

Trade

The new geo-political reality imposed in wake of the 1948 war affected patterns of foreign trade. Table 2.3 provides a snapshot of the composition of trade to and from the West Bank towards the close of the period of Jordanian control. While most imports (predominantly industrial) came from abroad, almost 50% of West Bank exports (predominantly agricultural) were sold in Jordan.

Table 2.3 West Bank Trade by Destination and Type, 1966 (in thousand Jordanian dinars and percentage)

Sector	East Bank	%	Other countries	%	Total	%
Exports						
Agricultural	1,600	80	1,750	76.1	3,350	77.9
Industrial	400	20	550	23.9	950	22.1
Total	2,000	100	2,300	100	4,300	100
Imports						
Agricultural	300	7	2000	10	2,300	9.5
Industrial	4,000	93	18,000	90	22,000	90.5
Total	4,300	100	20,000	100	24,300	100
Trade Balance	-2,300	-	-17,700	-	-20,000	-

Source: Economic Planning Authority, *Economic Survey 1967*, pp.27-28.

The West Bank's trade deficit did not disappear with the end of the British Mandate and separation from the Jewish community. By the close of the period of Jordanian governance, the deficit exceeded 82% of the total value of trade.

The trade deficit was covered partially by the export of tourism services, and supplemented by capital transfers provided by the Jordanian government, United Nations organizations and by remittances of West Bank residents working abroad.

The Gaza⁶²

The 1949 Armistice Agreement between Israel and Egypt placed the Gaza under Egyptian jurisdiction, which ended abruptly in 1967 with the Six Day War. Unlike the West Bank, which was formally annexed to Jordan in 1950, the Gaza was never annexed to Egypt and its residents were never entitled to Egyptian citizenship. Throughout the entire 18-year period, Egypt treated the Gaza as a controlled territory and it was administered by a military governor. During the Sinai Campaign of November 1956, the Gaza was temporarily overtaken by Israeli troops. International pressure compelled Israel to relinquish control until 1967, when Israel re-occupied the Gaza.

The southern district of Mandatory Palestine, which included the Gaza area and Beersheba, was one of the area's poorest regions. Waves of refugees poured into Gaza in 1948, which tripled in population to 360,000. Since then, the Gaza has continued to be one of the most densely populated areas in the world. In contrast to the West Bank, outward migration from the Gaza was minimal, due to Egyptian restrictions on migration. Despite this, the Gaza work force was limited, since most refugees to Gaza were elderly. The labour force at that time comprised approximately 15% of the total population. A survey conducted in 1960 showed that 35% of the indigenous population, and 83% of refugees were unemployed⁶³.

Agriculture, fishing and trade services were the primary economic activities in the Gaza during the 1949-67 period. Administration also accounted for a large portion of Gaza's GDP during these years.

Capital investment in Gaza was negligible. As mentioned above, Egypt regarded the Gaza as a separate entity. While accepting jurisdiction and applying Egyptian law to the territory, it isolated Gaza from the Egyptian economy. Infrastructure development in the Gaza was not a priority and little was done to foster economic development. Despite this, development did ensue. Table 2.4 summarizes economic activity in 1945 and 1966. The table indicates a growth in economic activity averaging 6.6% per annum, propelled primarily by agriculture, construction and government services. Economic

⁶² For a more extensive analysis, see Abu-Amr (1988).

⁶³ Khulusi (1967, pp.61-64).

growth, however, did not keep pace with population growth, which grew on average 9% per annum.

It is worth noting that industrial activity declined during these years. The industrial sector was comprised predominantly by “mom and pop” workshops producing goods for local consumption.

Trade was important to the Gaza economy. Approximately fifty percent of all imports came from Egypt. During this period, since Gaza enjoyed a favourable customs treatment relative to Egypt, and it became a “re-export” centre for foreign luxury goods destined for Egypt. Citrus was the primary, and by 1966, almost sole export. The Gaza sustained a trade deficit throughout the entire Egyptian administration period, which was generally covered by remittances and Egyptian tourism. International aid, including investments in education from Saudi Arabia and other Gulf states, supplemented public funds.

Table 2.4 Gross Domestic Product (GDP) in Gaza, 1945, 1966, in Million Egyptian Pounds (EP) and Percent

Sector	1945 Million EP	1966 Million EP	Real growth	Accumulative Annual Average
Agriculture including fishing	0.8	4.6	475%	8.6%
Industry and manufacturing	0.7	0.6	-14%	- 0.5%
Construction and public works	0.2	0.8	300%	6.6%
Total production of goods	1.7	6.0	253%	6.2%
Transportation	0.4	0.4	0%	0.0%
Trade, Finance	1.0	3.6	260%	6.3%
Housing	0.2	1.2	500%	8.9%
Government	0.5	3.3	560%	9.4%
Total services	2.1	8.5	305%	6.9%
Total	<u>3.8</u>	<u>14.5</u>	284%	6.6%

Sources: 1945 - Loftus, *National Income of Palestine* 1945, Jerusalem 1948, p.18.
1966 - Israel Economic Planning Authority, *Gaza Economy*, 1967, (Hebrew) p.8.

2.3.3 Six Day War - Oslo Agreement (1967-1993)

Israel assumed control of both the West Bank and Gaza after its military victory over Egypt and Jordan in the Six Day War. As the result of the occupation, the West Bank and Gaza were administered by Israel's armed forces, although each area maintained the legal infrastructure inherited from the 1948-67 era. From an economic standpoint, Israel unilaterally imposed a customs union between itself and the occupied territories (Arnon 2007). No border crossings were erected and for at least the first twenty years of occupation, movement of people and non-agricultural goods continued fairly unfettered⁶⁴. Israeli currency was accepted as legal tender throughout Israel and the Territories, although Jordanian currency was also commonly used in the West Bank. Palestinian imports and exports were handled through Israeli ports of entry and were subject to the same customs duties imposed on goods destined to Israel. Exports to Israel were not subject to Israeli customs and no levies were placed on imports from Israel. Recognizing the ex-territoriality of the West Bank and Gaza, the Israeli government did not levy income taxes on economic activity conducted in the Palestinian territories and was compelled to amend the Tax Ordinance to render income from economic activities undertaken by Jewish enterprises domiciled there taxable.

Given the lack of autonomous public economic institutions, such as a finance ministry or central bank, the West Bank and Gaza did not have the capacity to formulate or implement an independent economic policy. Under the imposed economic integration, Israeli economic policy became Palestinian policy by default and it rarely reflected the economic needs of the Arab residents of the West Bank and Gaza (Arnon 2007).

Overall, Israeli interests, be they military, political or economic, superseded Palestinian economic interests and, despite the seemingly open access under the customs union, did little to promote the development of the productive capacity of the Palestinian economy. The seizure of land, encouragement of Palestinian emigration (and restrictive repatriation policy), the closure of Arab banks and prohibition on the development of a Palestinian financial sector, restrictions on water use and fishing, and other policies

⁶⁴ Unless otherwise restricted by regulation imposed on all Israeli and foreign goods, such as Ministry of Health approval of pharmaceuticals, safety standards, etc.

conspired to inhibit agriculture and severely cripple any possibility for industrial development⁶⁵.

In practice, economic integration was less than perfect. The economic annexation of the West Bank and Gaza in 1967 increased aggregate demand for Israeli goods as well as the means of production available to Israeli enterprises. This generated a post-war surge of growth in Israel. Over time, the removal of barriers and improvement in infrastructure enabled Israelis to purchase Palestinian goods and vice versa. However, while physical and tariff barriers were dropped, restrictions, such as the prohibition of agricultural imports from the West Bank and Gaza rendered much of the integration one-sided. For various reasons, Israeli banks, which replaced closed Arab banks, operated only sparingly. Operations were limited primarily to taking deposits and servicing payments to Israeli trade partners, leaving the financial infrastructure for capital development lacking. Israeli-Palestinian joint ventures, while perfectly legal, were not encouraged. Ultimately, the model that emerged was one in which Arab labour from the West Bank and Gaza was imported into Israel. While this model improved the standard of living for Palestinians, it did little to promote the creation of a viable Palestinian economy.

Israeli economic policy regarding the West Bank and Gaza was intimately tied to the question of political annexation vs. separation. More often than not, economic policy fell hostage to political considerations. Annexation of the West Bank and Gaza meant forming a single geographic and political unit, which would foster total integration of Palestinians into the Israeli economy. On the other hand, defining borders, even within an economic context, could lead to the establishment of two political entities between the Mediterranean and Jordan River. The opposition to economic separation arose out of the opposition to any Palestinian sovereignty, or at least out of a desire to facilitate a long-term occupation of the Territories that would buy Israel time until a peace settlement was reached⁶⁶. For their part, the opponents of integration feared possible competition from Palestinian enterprises with access to more cost-effective means of production. Reserve General Shlomo Gazit, Israel's first Coordinator of Activities in

⁶⁵ See Mansour (1988) and Abu-Amr (1988).

⁶⁶ Those favoring economic integration argued that it would bring a higher standard of living to the Territories, which would serve to defuse Palestinian opposition to Israeli occupation. See Arnon (2007), p. 575.

the Territories, recounts that not only were Israeli entrepreneurship and Israeli-Palestinian joint ventures discouraged, but that the desire to protect Israeli industries was so strong that attempts were made to prevent the establishment of Palestinian-owned factories that could compete with Israeli products⁶⁷.

Since 1967, Israeli policy has consistently tried to avoid both scenarios. Its focus was directed towards preventing both the division of the land into two states and the creation of a single political and economic entity. Although Israeli leadership considered the Palestinian economy as complementary to the Israeli market, and did not invest in developing the West Bank and Gaza, access to the Israeli market created significant economic opportunities for the Palestinian economy.

Palestinian Economic Development

The Palestinian economy under Israeli occupation experienced accelerated growth, which came at the price of almost total dependency on Israel. This dependency emerged as a direct result of both Israeli policy and economic realities, which, when combined, made the export of labour unbearably easy and the development of productive Palestinian enterprises unbearably hard.

Generally speaking, the history of Palestinian economic development during this period can be divided into three periods. During the 1970s integration with the Israeli economy fostered accelerated growth in the West Bank and Gaza to the extent they were included in the World Bank's list of most rapidly growing economies⁶⁸. With rare exception, double-digit growth in GDP graced the entire decade, exceeding by far the rate of population growth. The transfer of wages from workers employed in Israel and abroad (primarily the Persian Gulf states) grew steadily during the entire period⁶⁹, resulting in even more impressive GNP growth for most years (see Table 2.5 below.) In the early 1980s, the performance of the Palestinian economy was uneven, advancing in some years and receding in others. Overall, GNP was flat for most of the 1980s. During this period, Israel was in the throes of a grave economic crisis, marred by

⁶⁷ See Gazit (1995, pp.220-221).

⁶⁸ World Bank (1993), Volume 2.

⁶⁹ Mansour (1988) argues that actual remittances from abroad may exceed the amounts reported by the Israel Central Bureau of Statistics. In addition, sums that were deposited in Jordanian bank accounts are not reflected in Israeli statistics.

“hyper-stagflation”, i.e. triple-digit inflation coupled with negligible growth. With the outbreak of the Intifada in 1987, the Palestinian economy took a steep dive from which it did not recover until after the first Gulf War. The contraction of the Palestinian economy can be attributed primarily to Israel’s severance of economic ties, reflected, *inter alia*, in restrictions placed on the import of Palestinian labour. The expulsion of Palestinians employed in the Gulf States after the first Gulf War only exacerbated the economic challenges facing the Palestinian economy.

Table 2.5 Selected Macro-Economic Indicators for the West Bank and Gaza, 1968-1993 (constant prices, million 2004 US dollars)

Years	Population (000)	GDP	GDP%	Wages from Abroad (W)	GNP	Imports (IM)	Exports (EX)	Net Imports IM-EX	Transfers FTR + NCT
1968	938	538		5	543	308	127	182	176.3
1969	951	603	12.1%	38	642	400	120	280	241.7
1970	970	670	11.1%	82	752	421	125	296	213.8
1971	990	763	13.9%	149	911	515	178	337	188.7
1972	1011	892	16.9%	260	1152	687	213	474	213.7
1973	1037	857	-3.9%	274	1131	748	206	542	268.0
1974	1069	1046	22.1%	276	1322	820	249	571	295.1
1975	1092	1058	1.1%	330	1388	939	313	626	295.4
1976	1111	1219	15.2%	332	1551	984	360	623	291.5
1977	1134	1207	-1.0%	338	1544	1080	371	709	371.1
1978	1159	1362	12.8%	378	1740	1088	418	670	291.9
1979	1167	1340	-1.6%	439	1780	1132	393	739	300.2
1980	1172	1536	14.6%	406	1942	1121	427	694	287.9
1981	1191	1440	-6.3%	448	1888	1242	493	750	301.9
1982	1214	1564	8.6%	554	2118	1215	475	740	185.6
1983	1246	1504	-3.8%	589	2093	1232	455	777	188.0
1984	1285	1580	5.1%	530	2110	1176	422	754	224.7
1985	1323	1570	-0.6%	485	2055	1195	408	787	301.6
1986	1362	1873	19.3%	616	2489	1372	484	888	272.5
1987 , 1st Intifada	1408	1824	-2.6%	780	2604	1511	464	1047	267.4
1988	1459	1798	-1.4%	672	2470	1130	303	828	155.8
1989	1505	1838	2.2%	673	2511	1050	257	793	120.8
1990	1563	2187	19.0%	781	2968	979	286	693	-87.8
1991	1641	2095	-4.2%	755	2850	1424	305	1119	364.2
1992	1725	2595	23.9%	911	3506	1566	359	1206	295.5
1993	1800	2870	10.6%	624	3494	1537	317	1220	596.4

Sources: Israel Central Bureau of Statistics (ICBS). Due to problems of data collection during the first Intifada period, parts of data from 1988-1994 are based on my estimates. Explanations of the basis for these adjustments are added in data problems in Chapter 5.

**FTR*- Financial transfers to the private and public sectors. *CT*- Net capital and financial transfers_

* Most of the sums indicated represent wages from work in Israel and may understate the actual value of wages from work abroad. The Israeli government tended not to recognize Palestinians working abroad as West Bank/Gaza residents and hence did not include their remittances in official reports. This also does not include sums reported by the Jordanian government as Palestinian remittances deposited directly in Jordanian banks.

The structure of economic activity shifted under Israeli control that started following June 6, 1967 "Six Days War". Services continued to be the dominant sector, accounting for approximately 50% of all activity, while agriculture retreated in favour of building and construction. The decline in agriculture is not only reflected in its weight relative to GDP, but in terms of the area of land under cultivation. Land seizures and Israeli restrictions on water use contributed to the contraction in agricultural activity, however may have not been the sole cause of the change. The pattern of agricultural production on the West Bank shifted as farmers diversified production, abandoning field crops in favour of non-citrus fruits. These developments were facilitated by the introduction of technological improvements, which increased production in absolute terms while reducing the resources required sustaining production.

Table 2.6 Average Structure of Economic Activity in the West Bank and Gaza, 1968-1993 (percent of GDP)

Years	Agriculture and Fishing	Manufacturing	Construction	Public Services	Other
1968	33.9	6.7	3.4	18.4	37.6
1969	36.0	7.4	5.5	17.0	34.1
1970	32.6	8.3	6.3	17.7	35.1
1971	34.0	8.5	6.6	16.4	34.5
1972	35.0	7.7	8.9	14.8	33.6
1973	32.2	7.8	11.4	15.8	32.8
1974	39.7	8.3	12.6	15.0	24.4
1975	28.8	8.7	15.7	15.2	31.6
1976	33.1	7.9	15.4	13.1	30.5
1977	29.3	8.3	15.8	13.7	32.9
1978	33.2	8.4	15.8	13.5	29.1
1979	28.1	8.3	19.1	13.1	31.4
1980	32.9	7.3	15.8	13.0	31.0
1981	29.1	6.8	17.9	16.1	30.1
1982	26.1	7.0	18.6	15.9	32.4
1983	23.7	7.1	18.5	18.1	32.6
1984	18.4	7.7	17.5	20.5	35.9
1985	19.7	8.0	16.9	17.3	38.1
1986	29.4	8.4	15.2	11.5	35.5
1987	18.8	13.5	22.2	19.8	25.7
1988	20.0	11.0	23.0	22.0	24.0
1989	18.0	11.0	22.0	22.0	27.0
1990	18.0	12.0	19.0	23.0	28.0
1991	18.0	13.0	18.0	22.0	29.0
1992	16.0	12.0	21.0	21.0	30.0
1993	14.0	12.0	22.0	20.0	32.0

Source: Israel Central Bureau of Statistics, *National Accounts Judea Samaria and Gaza: 1968-1993*, Publication No 1012.

In Gaza, agriculture was not the only sector in relative decline. Cut off from Egypt, Gaza no longer served as either a commercial centre or a destination for Egyptian tourists. Services, which comprised some 66% of economic activity in 1968 declined to 46% by 1987⁷⁰.

The relative decline in agriculture was accompanied by a comparable increase in construction. The same cannot necessarily be said for manufacturing. Until the mid-1980s growth in the manufacturing sector more or less kept pace with GDP growth. As of 1987, however, there was a sharp increase in manufacturing's share of the GDP, which persisted into the 1990s. Manufacturing, however, never contributed more than 13% to GDP during this period.

As mentioned above, industrial development was not encouraged as a matter of policy. As a matter of economic feasibility, the considerable risk, perpetual political uncertainty and lack of financial mechanisms for the extension of credit and sharing of risk hindered the creation and expansion of industrial production. In addition, under the customs union, Palestinian manufacturers were forced to compete with Israeli industry. Hence, despite the prosperity, tremendous growth in consumption and capital accumulation, and access to the Israeli market, a sustainable industrial base was not formed. This said, certain shifts did occur in the composition of Palestinian industrial activity. While food, beverages and tobacco continued to account for the majority of industrial output in the West Bank, rubber, chemical and plastic manufacturing increased, rising from 8.7% of the West Bank industrial output in 1968 to 17.8% in 1984⁷¹. In Gaza, subcontracting for Israeli textile manufacturers gave a boost to Gaza's textile industry. By 1987, the manufacturing sector contributed approximately 14% to Gaza's GDP, as opposed to 3% in 1968.

Capital investment increased substantially under Israeli occupation. Gross capital formation rose steadily from 8.7% of GDP in 1968, averaging 30% from 1970 onwards. The private sector drove investment during this period, which concentrated primarily on construction and land development.

⁷⁰ Israel Central Bureau of Statistics (1996).

⁷¹ Mansour (1988, pp.90-91).

More important than the sectorial shifts within the Palestinian economy, is the impact of the employment of Palestinian labour in Israel. As mentioned above, the model adopted by Israeli policy makers was one of limited integration, which facilitated the free movement of labour into Israel while restricting industrial investment. Wages from Palestinians employees increased exponentially, growing consistently from five million dollars to 780 million dollars on the eve of the first Intifada. Wages from work in Israel during this period came to approximately 30% of the GDP on average, peaking in 1987 at 43% of the GDP.

The change in political and economic regime initiated in 1967 had a profound impact on the pattern of foreign trade. Israel overwhelmingly became the primary trading partner for imports and industrial exports. Despite the absence of diplomatic relations between Israel and Jordan, trade between the Palestinian territories and Jordan was allowed to continue and Jordan remained the primary recipient of Palestinian agricultural exports. The trade deficit persisted and grew almost seven-fold during this period. Although exports increased by 150%, imports quintupled. While this is directly attributable to growth in consumption and investment, the shift to more specialized agricultural and industrial activities in the West Bank contributed to increased demand for imports⁷². Wages from Israel went far towards covering the trade deficit. Throughout most of the period the value of wages covered more than 50% of the deficit.

Economic activity in the West Bank and Gaza was supplemented by foreign aid, which in the pre-Oslo period was dispensed primarily by non-government organizations (NGOs). The Jordanian and other Arab governments, the P.L.O. and the Joint Jordanian-Palestinian Committee for the Steadfastness of the Palestinian People in Occupied Homeland were important sources of aid. International aid was provided by the American government, European NGOs and the UNDP. Most aid was earmarked for social programs rather than productive enterprises, although some was diverted by the Israeli authorities to infrastructure⁷³.

⁷² Mansour (1988, p.92).

⁷³ Mansour (1988, p.84).

2.3.4 The Oslo Agreement Period (1994-2000)

The first Intifada and the conclusion of the 1991 Gulf War sparked the initiation of peace negotiations aimed at resolving the Middle East Conflict once and for all. In light of the new reality created by the Madrid Peace Conference, Israeli leaders were obliged to reassess economic policy towards the West Bank and Gaza⁷⁴. Moshe Arens, then Israeli Defence Minister, appointed a committee to examine new approaches to economic development in the West Bank and Gaza. Chaired by economist Ezra Sadan, the committee recommended replacing the policy of importing Palestinian labour services with one based on encouraging entrepreneurship and production. This approach coincided with new post-cold war foreign aid thinking in the U.S., which emphasized the promotion of market-driven economic reforms as the key to economic development in developing and ‘transition’ (i.e. Eastern Europe and former Soviet Union countries) economies. The Sadan Committee’s recommendations were not implemented, obviated in large part by the Oslo Agreement two years later.

In 1993, the signing of the Oslo Declaration of Principles (referred to also as the Oslo Accords) led to Israeli disengagement from the West Bank and Gaza (starting with Gaza and Jericho) and to the establishment of the Palestinian Authority. The Authority took over civil administration of the West Bank and Gaza, including education, health and social welfare. With the establishment of the Palestinian Authority came the creation of Palestinian economic institutions empowered to set fiscal, monetary and development policies. Rather than imposed integration, the terms of economic relations with Israel under the new peace regime were to be negotiated. The 1994 Paris Protocol articulated the scope and character of economic relations between the Palestinian Authority and Israel. While Israel sought to continue a borderless customs union, Palestinians argued in favour of a free trade agreement, which would assure Palestinians an autonomous trade policy towards third-party nations while maintaining duty-free commerce within the free trade area of Israel, the West Bank and Gaza⁷⁵. To compel Palestinian acceptance of the reaffirmation of a customs union, Israel threatened to condition the entrance of Palestinian workers to Israel on Palestinian

⁷⁴ Arnon (2007).

⁷⁵ With the planned construction of Palestinian ports of entry, an airport and seaport in Gaza as well as border crossings with Jordan and Egypt, Palestinian dependence on Israeli trade infrastructure was to be discontinued.

acquiescence to the customs union model⁷⁶. Hence, the customs union model continued with a commitment on both sides to “attempt to maintain the normality of movement of labour” between Israel and Palestine⁷⁷. Palestinian foreign trade was conducted through Israeli ports of entry and collection of customs and value-added tax was administered by Israel on the Palestinian’s behalf.

Palestinian governance over its economy presented the Palestinian Authority with numerous obstacles⁷⁸, given the need to build not only programs and services, but the very infrastructure of government as well. In addition, since a significant part of the budget and virtually all public investment was funded by highly-specified donor contributions (see below), the Palestinian Authority was not entirely independent in its allocation of resources. Public revenues, which not only included foreign aid but taxes collected by Israel on the Authority’s behalf, were not entirely under the Authority’s control. Overall, however, optimism and a positive inward flow of funds sparked significant growth in the second half of the 1990s. Investment doubled in 1995-1999, with resources directed to productive enterprises outside the field of construction. The positive momentum continued until the eruption of the Al Aqsa Intifada in September 2000.

The process of Palestinian nation-building was underwritten in a coordinated effort orchestrated by the World Bank by “donor countries and institutions”, primarily the original members of the European Union⁷⁹, the United States and to a lesser degree, Japan. The scheduled foreign assistance was designed to be comprehensive, financing humanitarian aid, social services, political and economic “capacity-building”, private sector development and physical infrastructure. Major infrastructure projects included an airport and seaport in Gaza, power stations, road and rail corridors, industrial parks and logistic facilities. A special fund, the Jorgen Holst Fund, was set up specifically to provide fiscal aid to the Palestinian Authority to assist the establishment of government institutions. During the five years between 1994 and 1998 donors committed some

⁷⁶ See Arnon (2007, p.585), Elmousa and Mahmoud, (1995, pp. 14-32) and Arnon *et al.* (1997).

⁷⁷ Protocol on Economic Relations between the Government of the State of Israel and the P.L.O. Representing the Palestinian People, (Paris Protocol), Article 7.

⁷⁸ See Bennett *et al.* (2003).

⁷⁹ The list of donors includes some 47 countries and international institutions, including Israel, Russia Arab States, the UNDP, and World Bank.

US\$3.6 billion and disbursed US\$2.5 billion⁸⁰ to the Palestinian Authority, approximately 15% of the GDP during this period and accounting for virtually all public investment.⁸¹ By the eve of the Al Aqsa Intifada in 2000, cumulative donor commitments exceeded US\$ 5.2 billion and disbursements came to more than US \$ 3.5 billion⁸².

The Palestinian Authority Economy

The first years following the establishment of the Palestinian Authority were characterised by accelerated growth. Table 2.7 indicates that the momentum created after the Second Gulf War continued in the post-Oslo era until the end of the decade. GDP continued to grow at an accelerated pace, dipping below 3% only in 1996, when frequent closures disrupted the flow of goods and people between Israel and the Palestinian Authority. Inspections and restrictions on the movement of people and goods were imposed not only at boundary check points but within the Palestinian Authority. Road barriers, curfew hours, and supervised unloading and re-loading of goods interrupted economic life and stunted growth. In 1996, as the Oslo Agreement began to unravel, it became increasingly difficult to legally employ Palestinians in Israel and many Palestinian workers were replaced by foreign workers. In dollar terms, wages from Israel after having peaked in 1992, initially retreated to 1980 levels, but made a comeback by the close of the decade. Relative to GDP, their weight declined substantially, from an average 30% until 1994 to 13-17% post Oslo.

⁸⁰ See World Bank and U.N. Office of the Special Coordinator of the Occupied Territories (1999), p.44.

⁸¹ Secretariat of the Ad Hoc Liaison Committee, (1999) pp. 27.,30.

⁸² World Bank (2002a), p.60.

Table 2.7 Selected Macro-economic Indicators for the West Bank and Gaza, 1994-2007 (Constant prices, million 2004 US dollars)¹

Years	Population ² (000)	GDP	GDP%	Wages From Abroad ⁴ (W)	GNP	Imports (IM)	Exports (EX)	Net Imports IM-EX	(FTR + NCT) ³
1994	2111	3014	5.0%	395	3408	2289	442	1847	1452.3
1995	2217	3195	6.0%	490	3685	2233	497	1735	1245.0
1996	2327	3287	2.9%	436	3723	2439	553	1886	1450.2
1997	2,462	3703	12.7%	517	4220	2639	587	2052	1535.2
1998	2,547	4150	12.1%	722	4872	2964	724	2240	1518.4
1999	2,633	4514	8.8%	774	5288	3631	732	2898	2124.3
2000, 2nd Intifada	2,720	4120	-8.7%	652	4773	3399	746	2653	2000.6
2001	2,801	3767	-8.6%	332	4098	2880	446	2434	2102.2
2002	2,884	3265	-13.3%	248	3513	2848	408	2440	2191.6
2003	2,970	3751	14.9%	262	4013	3108	459	2650	2387.6
2004	3,058	4198	11.9%	232	4430	2909	484	2425	2193.4
2005	3,155	4560	8.6%	337	4897	2801	598	2204	1866.3
2006	3,255	4322	-5.2%	398	4720	2911	629	2282	1884.2
2007	3,357	4536	5.0%	513	5048	2769	601	2168	1655.9

Sources: Table 5.2 which is based on the Palestinian Central Bureau of Statistics.

¹ The transfer of the figures from current USD to 2004 constant prices and US Dollars is done by me.

² My estimates for the mid- year figures (1994 to 1996)

³ FTR- Financial transfers to the private and public sectors. CT- Net capital and financial transfers_

⁴ Most of it represent wages from work in Israel and may understate the actual value of wages from work abroad. The Israeli government tended not to recognize Palestinians working abroad as West Bank/Gaza residents and hence did not include their remittances in official reports. This also does not include sums reported by the Jordanian government as Palestinian remittances deposited directly in Jordanian banks.

Palestinian growth in the post-Oslo period can be attributed not only to business as usual with Israel, but to public sector demand created by the newly created government institutions. An analysis of Palestinian national accounts shows that expenditures exceeded GDP by more than 50% during these years (Table 2.9). Generally speaking, GDP covered private consumption, while investment and public consumption was covered by external sources. The structure of productive activity did not change radically in the six years since Oslo, although the 11% contribution of the newly-established 'public administration and defence' sector brought the total service sector to 61%. According to Palestinian estimates (Table 2.8), the relative weight of

Agriculture and Construction in 1999 declined in comparison to 1994 figures, to approximately 10% and 14% respectively. The relative share of manufacturing, which according to Palestinian sources peaked in 1994 at 19.7%, declined significantly in the post-Oslo period to 12.6% in 1999⁸³. The trade deficit jumped precipitously, averaging 60% of GDP over the period, reflecting the radical increase in demand for imported goods.

Table 2.8 Economic Activity 1994-2000 in Percentage of GDP in West Bank and Gaza

Economic Activity	1994	1995	1996	1997	1998	1999	2000
Agriculture and fishing	13.2	13	14.7	11.6	11.6	10.4	9.8
Mining, manufacturing, electricity and water	22.1	20.5	16.8	15.3	14.8	14.6	13.2
Mining and quarrying	1	0.9	0.8	0.7	0.7	0.8	0.6
Manufacturing	19.7	18.4	14.9	13.3	12.8	12.6	11.4
Electricity and water supply	1.4	1.2	1.1	1.3	1.3	1.2	1.2
Construction	8.9	6.9	8.4	7.8	8.9	13.7	8.9
Wholesale and retail trade	17.9	15.2	10.9	11.4	10.5	11	11.3
Transport, storage and communications	3.4	3.2	3	3.9	4.6	5.1	5.4
Financial intermediation	1.2	2	2.2	2.7	3.2	3.7	4.4
Other services	23.7	21	20.1	20.6	20.3	19.5	21.8
Real estate, renting and business services	12.1	10.5	9.7	10.4	9.8	8.9	11.8
Community, social and personal services	0.7	0.6	0.6	0.6	0.6	0.6	0.7
Hotels and restaurants	1.5	1.3	1.1	1.2	1.3	1.3	0.8
Education	5.6	5.1	5.4	5.9	5.9	5.9	5.9
Health and social work	3.8	3.5	3.3	2.5	2.7	2.8	2.6
Public administration and defence	9.4	11.4	12.6	11.9	10.9	11	12.6
Households with employed persons	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Public owned employed persons	0	0	1	2.4	2.8	3.5	4.7
Less: FISIM	-0.7	-1.2	-2	-2.3	-2.5	-2.9	-3.8
Plus: Customs duties	0	1.7	5.7	7.1	7.3	4.6	4.8
Plus: VAT on imports, net	0.7	6.1	6.4	7.4	7.4	5.6	6.7
Total	100	100	100	100	100	100	100

Source: Table 5.9 which is based on Palestinian Central Bureau of Statistics (PCBS) annual reports.

⁸³ Based on data from the Palestinian Central Bureau of Statistics. Methodological differences regarding data collection and classification between the Israel Central Bureau of Statistics, which covered the period until 1993 and the Palestinian Central Bureau of Statistics, which covered the post-Oslo period, make a direct before-and-after comparison difficult.

Table 2.9 Palestinian Authority: National Accounts, 1994-2000 (percent of GDP)

	1994	1995	1996	1997	1998	1999	2000
Gross domestic expenditure	157.5	152.1	158.1	156.4	157.1	164.5	157.1
Consumption	123.1	118.9	123.5	122.4	122.1	122.5	125.8
Private	104.4	100.7	101.8	100.8	99.7	99.4	99.4
Public	18.6	18.1	21.7	21.5	22.4	23.1	26.4
Gross Fixed Investment	33.1	31.1	32.9	31.9	32.8	38.7	30.4
Private	26.5	21.8	26.3	25.3	26.4	31.7	25.0
Public	6.6	9.5	6.6	6.5	6.4	7.0	5.4
Change in inventories	1.3	1.9	1.7	2.1	2.3	3.3	0.9
Net exports of goods and services	-57.5	-52.1	-58.1	-56.4	-57.1	-64.5	-57.1
Import	75.8	71.1	78.3	75.5	78	84.2	76.6
Export	18.2	19	20.2	19.1	20.8	19.7	19.5
Gross domestic product	100	100	100	100	100	100	100
Net factor income	14.5	17.3	15.8	16.2	21.2	20.8	18.7
Gross national income	114.5	117.3	115.8	116.2	121.2	120.8	118.7
Net current transfers	15.1	12.4	13.9	11.7	9.6	8.8	13.2
Gross disposable income	129.7	129.6	129.6	128	130.8	129.6	131.9

Sources: Palestine Central Bureau of Statistics (PCBS) and staff estimates, Bennett, Nashashibi, Beidas, Reichold, and Toujas-Bernat (2003).

Despite the positive developments colouring the post-Oslo period, political instability and economic uncertainty (aggravated by closures) erected significant barriers to private sector development. For its part, the public sector faced difficulties in building viable national institutions. The promise of the Paris Protocol for unfettered movement of goods and labour never fully materialized. In addition, as tensions between the sides grew, Israel began withholding taxes collected on the Palestinian Authority's behalf as a sanction against alleged Palestinian infractions of the interim peace agreement. These taxes were an important source of revenue for the Palestinian Authority. With the exclusion of foreign aid, they constituted more than 60% of the Authority's revenues. This added a financial dimension to the Palestinian Authority's economic dependency on Israel.⁸⁴

The Wye River Memorandum concluded in 1998 did not specifically address the issue of closure and did not alter the existing customs union model of Israeli-Palestinian

⁸⁴ Arnon (2007, p.588).

economic cooperation. It did, however, declare the two sides' intention to launch 'a strategic economic dialogue' and reaffirmed their joint commitment to the completion of key infrastructure projects (including the Gaza Airport, Gaza Seaport, 'safe passage' between Gaza and the West Bank, and the Gaza Industrial Zone), which could consolidate the economic sovereignty of the Palestinian Authority⁸⁵.

In 1999, a committee headed by Professor Avi Ben Bassat, was established in Israel to prepare for economic negotiations with the Palestinian Authority. The Ben Bassat committee rejected continuation of the "customs union" model and recommended defining trade borders, believing that Israeli and Palestinian interests would motivate both sides to adopt the free trade agreement model. The committee's recommendations were never implemented, although talks between Israel and the Palestinian Authority did take place. The failure of Camp David talks, together with the outbreak of the Al Aqsa Intifada, exhausted all efforts towards any permanent arrangement.

2.3.5 Al Aqsa Intifada - Hamas Takeover (2000-2007)

The Al Aqsa Intifada erupted in September 2000. What started as seemingly random popular protests and sporadic spontaneous violence quickly deteriorated to premeditated centrally-directed armed actions. The Al Aqsa Intifada terminated a period of relative calm and even guarded cooperation between Israel and the Palestinians, placing the final nail in the coffin of the Oslo Accords. The damage to the Palestinian economy was devastating, as GDP plunged and infrastructure was decimated in Israeli retaliations to Palestinian violence.

The Palestinian economy, which was enjoying accelerated growth in the years preceding the Intifada, came to a crashing halt as a result of the Al Aqsa Intifada. GDP contracted by 8.7% in 2000 additional 8.6% in 2001, and 13.3% in 2002. Successive closures led to *de facto* separation, which resulted in a dramatic across-the-board decrease in commerce, employment and investments. Growth achieved in the post-Oslo period was all but eradicated, as GDP retracted to 1995 levels.

⁸⁵ See Section III, "Interim Committees and Economic Issues", *Wye River Memorandum*, October 23, 1998.

Not surprisingly, exports also suffered. High transportation costs resulting from internal closures rendered Palestinian products less competitive. Foreign buyers looked for more reliable and secure alternatives to Palestinian products and manufacturers were forced to rely solely on domestic markets for demand.

The effect on the labour market was not late to come, both directly, i.e. employment in Israel, and circuitously, employment in Gaza and the West Bank. Approximately 180 thousand Palestinians (of these 100 thousand employed in Israel) lost their jobs in the second half of the year 2000. Wages from abroad plunged in 2001 declining to 40% of what they had been in 1999. There was a dramatic increase in unemployment, decline in the standard of living and sharp increase in poverty. It is estimated that by 2001 unemployment reached levels of 24% in the West Bank and 35% in Gaza⁸⁶. International aid skyrocketed. However, in contrast to the post-Oslo period, in which substantial assistance was earmarked for building public institutions and the economy, almost all aid was designated as emergency relief⁸⁷.

By 2003 recovery was underway, mainly due to the improvement in the security situation. As violence subsided, restrictions imposed on the Palestinians were gradually eased. However Palestinian jobs in Israel, particularly those of Gaza residents did not return.⁸⁸ During the years 2004 and 2005 the Palestinian economy was well on the way to recovery, with GDP returning to pre-Intifada levels and exports steadily increasing.

In January 2006 the Hamas Movement achieved success in the elections to the Palestinian Authority. This development led to the rise of the violence in Gaza, and hence to intensification of the closure policy. In addition, economic aid from Israel and other countries was discontinued.

The consequence of these developments was a sharp decline in key Palestinian economic indicators. GDP contracted by 5.2% in 2006. Moreover, shifts in the composition of the economy indicate that the economy had become increasingly driven by government and private consumption and financed by foreign aid. The Palestinian

⁸⁶ Palestinian Central Bureau of Statistics.

⁸⁷ Arnon (2007, p.593).

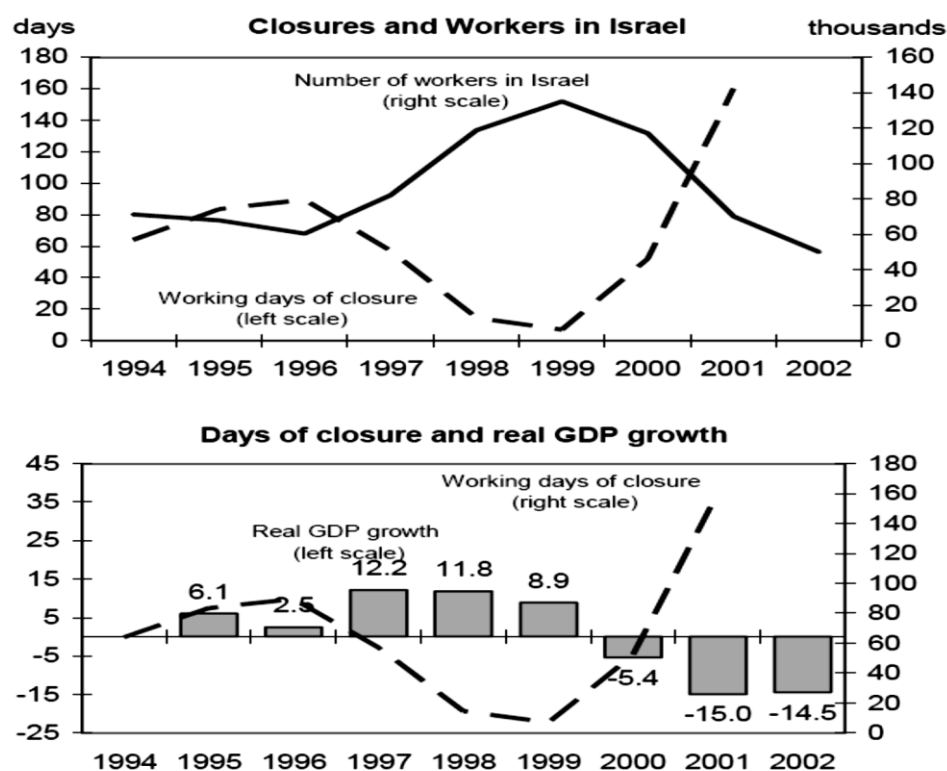
⁸⁸ Ibid, p.588.

civil service has become employer of last resort. Between the years 1999-2006 the public sector grew by 60%. Of the US\$1.4 billion in donor country aid granted the Palestinian Authority during this period, more than half went to support the budget⁸⁹.

The Impact of Closure on the Palestinian Economy

Israel's closure policy has had a heavy impact on the Palestinian economy and the ability to develop its productive sectors. Figure 2.2 illustrates the direct inverse relation between the density of closure, employment and GDP growth.

Figure 2.2 Closures and Macroeconomic Developments, 1994-2002



Source: West Bank and Gaza: *Economic Performance and Reform under Conflict Conditions*, International Monetary Fund, 2003.

In this thesis I contend that closure not only affects the current state of Palestinian economic affairs but has an adverse impact on the potential for future development. By caging in the productive sector, the perpetual closure imposed on the Palestinian economy deprives it of the capacity to convert foreign aid and even foreign direct investment into sustainable growth. In so doing, it creates the symptoms of Dutch Disease, i.e. the diversion of resources from productive tradable sectors

⁸⁹ Data in this section drawn from World Bank, (2007).

(manufacturing, agriculture, service exports) to non-tradable sectors, such as administration and security services. Table 2.10 reflects the diminishing weight of the industrial and agricultural sector from 2000 to 2007 period when foreign aid was very high (A detailed analysis of this point will be provided in chapters 5 and 6).

Table 2.10 Economic Activity 2000 to 2007 in % of GDP in West Bank and Gaza

Economic Activity	2000	2001	2002	2003	2004	2005	2006	2007
Agriculture and fishing	9.8	9.1	7.7	7.9	7.1	5.2	5.6	5.6
Mining, manufacturing, electricity and water	13.2	16.4	16.4	17	17.1	17	15	13.8
Mining and quarrying	0.6	0.6	0.8	0.6	0.7	0.6	0.5	0.4
Manufacturing	11.4	12.5	11.8	12.6	13.2	13	11.7	9.9
Electricity and water supply	1.2	3.3	3.8	3.8	3.2	3.4	2.8	3.5
Construction	8.9	5.5	3.9	5	5.7	6.8	7.2	6.2
Wholesale and retail trade	11.3	9.6	11.9	9.8	9.8	9.4	9.6	9.2
Transport, storage and communications	5.4	5.6	5.6	4.6	6.1	5.8	6.6	7.5
Financial intermediation	4.4	3.6	4.2	4.1	3.6	4.4	4.3	5.2
Other services	21.8	21.5	23.5	22.8	22.8	23	19.6	22.2
Real estate, renting and business services	11.8	10.3	11	10.3	10.4	10.3	7	7.6
Community, social and personal services	0.7	0.8	1	1.2	0.9	1.2	1.1	1.5
Hotels and restaurants	0.8	0.5	0.2	0.4	0.7	0.8	0.9	0.7
Education	5.9	7.1	8	7.6	7.8	8.2	7.9	9.6
Health and social work	2.6	2.8	3.3	3.3	3	2.5	2.7	2.8
Public administration and defence	12.6	17.6	16.7	16.9	14.3	14.1	15.7	13.9
Households with employed persons	0.2	0.2	0.2	0.2	0.1	0	0.1	0.1
Public owned employed persons	4.7	2.8	3.6	4.5	3.7	3.4	4.5	5.8
Less: FISIM	-3.8	-3.1	-3.1	-3	-2.8	-2.6	-3	-5.7
Plus: Customs duties	4.8	4.5	2.7	4.4	4.8	5.9	6.7	6.3
Plus: VAT on imports, net	6.7	6.7	6.7	5.8	7.7	7.6	8.1	9.9
Total	100	100	100	100	100	100	100	100

Source: Palestinian Central Bureau of Statistics (PCBS) annual reports.

2.4 Conclusion of the Historical Review of the Palestinians- Israeli Conflict

In this chapter I condensed the thousands of years of history in the region to a review of the main political events and decisions with its economic implications over the period of 1917 to 2007 (Appendix 2.1 provides cogent facts on this period). The economic question this thesis seeks to investigate is the impact of foreign aid on growth in the West Bank and Gaza under the harsh political relationships with Israel. Thus all the data and analysis up to 1967 is primarily background to the main analysis. Also under the sovereignty of Jordan before 1967, the Palestinians were deprived of their own national rights and were not able to develop their own economy as more able men emigrated to other countries and the economy of West Bank and Gaza remained underdeveloped. The review in this chapter provides a strong indication that under the existing political situation mainly with Israel there is a little chance that foreign aid will develop the Palestinian's economy. Later in the thesis I claim that since about 90% of the import is from Israel, foreign aid supports more the economy of Israel as the Palestinians only consume the products that are manufactured in Israel.

Appendix 2.1

Table A 2.1 Table of Historical Events in Palestine

Year	Event	Outcome
1917	Balfour Declaration	Arab opposition. The beginning of the Arab/Jewish conflict.
1918	Allied forces occupy Palestine	Britain begins working on fulfilling the Balfour declaration.
1919	First Palestinian National Congress. Peace conference decides to send international commission to Palestine (King-Crane) "Third Wave" of Zionist immigration begins	-Rejection of the Balfour Declaration. England and France decline participation. -King-Crane Commission advises abandoning idea of a Jewish commonwealth in Palestine.
1920	Violent disturbances Treaty of Versailles, assigning mandate over Palestine to Britain implemented.	- British civilian administration inaugurated; Sir Herbert Samuel appointed as First High Commissioner.
1924	"Fourth wave" of Zionist immigration	Jewish population increases to 16% of total population.
1925	Palestinian general strike protesting visit of Lord Balfour to Jerusalem.	
1928-1930	Attempt of Jewish religious leaders to change "status quo" at the Wailing Wall. Palestinian riots expand to several towns resulting in hundreds of Jewish and Arab casualties.	-Islamic Conference in Jerusalem demanding protection of Muslim property rights at Wailing Wall followed by Palestinian riots. - British Shaw Commission sent to Palestine for inquiry of 1929 disturbances and recommends re-evaluation of British policy towards Jewish settlement of Palestine. - British Hope-Simpson Commission on settlement and immigration leads to issuance of Passfield White Paper stipulating measures to restrict Jewish immigration and land ownership/development.
1933-1934	Arab Executive Committee calls for general strike against British pro-Zionist policies.	- Disturbances break out in main towns. - Special commission of inquiry under Sir William Morris visits Palestine in 1934.
1935	Arms shipment to Zionist groups discovered in Jaffa Port. - Sheikh Izz –Aldin Al-Qassam, leader of Palestinian insurgent group killed in action against British security forces.	
1936	Leaders of political parties form the "Higher Arab Committee" under Haj Amin Al-Husseini. - Six-month Arab general strike and violent clashes - Conference of Palestinian National Committees calls for self-rule.	- 1000 Arab, 80 Jewish and 37 British deaths. - Intervention of leaders from Arab world to end strike. - Great Arab Revolt begins (1936-1939). - More than 5,000 Arabs, 400 Jews, and 200 Britons killed, at least 15,000 Arabs were wounded. - Consolidation of Arab Palestinian identity. - Disengagement of Jewish and Arab economies.
1937	-Peel Royal Commission recommends partitioning Palestine into Jewish and Arab states. -Arab revolt intensifies.	- Jewish and Arab leadership reject Peel partition proposal. -British dissolve Arab Higher Committee and other Palestinian political organizations and deport five Palestinians.

Table A 2.1 Table of Historical Events in Palestine - continue

1938-1939	British Woodhead Commission declares impracticality of Peel Commission's partition plan Outbreak of WWII	<i>Irgun</i> (a Jewish underground organization) calls for conquest of Palestine by force. - London conference convened, attended by Arab, Palestinian and Zionist representatives, ending without agreement. - White Paper proposing single Palestinian state under joint Jewish/Arab rule issued in attempt to resolve dispute and mobilize local wartime support for Britain. - Stern Gang (a Jewish underground organization) calls for alliance with Axis powers in war against British.
1944	Land transfer law, forbidding the transfer of land ownership to Jews in most districts, issued.	Jewish underground instigate protests and violent activities against British.
1945	World War II ends. Anglo American Committee supports immediate mass Jewish immigration, while rejecting either Jewish or Arab sovereignty in Palestine.	- Ernest Bevin, British Foreign Secretary, issues White Paper affirming continued Jewish immigration into Palestine. - Abolition of land ownership restrictions
1947	After failure to secure support for extension of Mandate, Britain submits Palestine problem to UN. UN General Assembly adopts amended UNSCOP partition	- UNSCOP Committee recommends partition of Palestine. - Jews accept partition plan. - Palestinian Arabs reject plan.
1948-1950	British Mandate ends. Israel declares independence; Arab states declare war on Israel. U.N. General Assembly Resolution 194 supports right of Palestinian refugees to reclaim their homes or alternatively receive compensation.	- Israel gains control of 77% of Mandatory Palestine, including some areas designated for Arab state under partition plan; - Armistice gives Jordan and Egypt control over the West Bank and Gaza respectively. - Jerusalem divided between Israel and Jordan. - Israel rejects Resolution 194. - Jordan annexes West Bank and Jordan.
1967	Six Day War	Israel occupies West Bank, Gaza, Sinai, and Golan Heights, expands Jerusalem boundaries and extends Israeli jurisdiction over East Jerusalem. - 500,000 Palestinians displaced.
1970	War between Jordanian army and Palestinian (Black September) militia.	P.L.O. expelled from Jordan and relocates to Lebanon.
1974	Arab League declares P.L.O. the sole legitimate representative of Palestinian people.	Arafat addresses United Nations, which grants P.L.O. observer status in 1975.
1982	Israel-Lebanon War.	P.L.O. forced to leave Lebanon and relocate headquarters to Tunisia
1987-1988	Outbreak of popular uprising (Intifada) in West Bank and Gaza against Israeli occupation.	- Consolidation of Palestinian national identity - Renewal of U.N. discussion of Palestinian sovereignty. - Re-evaluation of policy and alternative solutions in U.S., Europe and Israel - Arafat proclaims establishment of Palestinian state, recognition of Israel's right to exist - Jordan renounces claims to West Bank

Table A 2.1 Table of Historical Events in Palestine – continue

1991	Madrid Conference	-Foundations for Oslo Peace Accords. and mobilization of international aid for Palestinian self-government
1993-1994	Oslo Peace Accords	-Mutual recognition of Israel and P.L.O. - Israel withdraws from Gaza and Jericho - Establishment of Palestinian Authority as provisional government in anticipation of a Palestinian state under final status agreement -Arafat returns to Palestine and becomes first President of the Palestinian Authority -Paris Protocol stipulates terms of economic cooperation between Israel and the Palestinian Authority - World Bank coordinates international comprehensive economic assistance initiative
1995-1997	Assassination of Israeli Prime Minister Rabin by Jewish assassin over Oslo. Escalation of Palestinian violence in Israel. Right wing government elected in Israel.	- Permanent status negotiations, while formally opened, never get underway, stalling peace process Implementation of Israeli redeployment stalled - Disintegration of trust on both sides leads to discontinuation of peace process
1998-1999	Wye River Memorandum–stipulates immediate. Resumption of permanent status talks revises Israeli military redeployment and reaffirms key Palestinian infrastructure projects. Left wing government elected in Israel Sharm el-Sheikh Memorandum reaffirms commitments under Wye	Israel fails to implement Wye agreement causing continued stalling of peace process. Permanent status negotiations reconvene. Redeployment and prisoner release commence. On-going negotiations on implementation of interim agreement re-established
2000	- Camp David Summit convened in an attempt to accelerate completion of permanent status agreement - The Second (<i>Al-Aqsa</i>) Intifada	- The Palestinians reject the offer; Camp David ends without an agreement. - Breakdown of Israeli-Palestinian political cooperation on all levels - Devastation of Palestinian economy and recession in Israel. - Election of right-wing government in Israel
2002-2003	“Quartet” endeavours to rekindle peace process towards a two-state solution under “Road Map” to peace.	- Formal resumption of bilateral talks between Israel and the Palestinian Authority. -Failure to fulfil stage I of the plan (cessation of violence and freeze on Jewish settlements in Territories) leads to failure of initiative
2004-2005	Death of Yasser Arafat Mahmoud Abbas elected head of P.L.O. Israeli disengagement from the Gaza	-Support for road map reiterated at Sharm el-Sheikh Summit, but no tangible progress followed. - Israeli disengagement from the Gaza.
2006	Hamas wins majority in Palestinian parliament.	- Israel, U.S. and others boycott Hamas-led government. - Prospects for resumption of peace talks complicated
2007	Hamas claims full control over Palestinian agencies in Gaza. Abbas dissolves Hamas-Fatah coalition.	Civil strife between West Bank and Gaza ensues, leading to de-facto political separation.
2008	Operation Cast Lead; Israeli military campaign in Gaza to stop Hamas rocket attacks on southern Israel.	Hamas blames Israel for not lifting the Gaza blockade. 14 Israelis and estimated 1,300 Palestinians killed. Cessation of peace talks

Sources: Barguty (1988), Alsiudan (2004), Albargute and Totah (2001) and Bellin (1999)
<http://www.palestine-studies.org> , <http://main.knesset.gov.il> and Wikipedia

Chapter 3 – Literature Review

3.1 Introduction

The main goal of this thesis is to examine the impact of foreign aid on the economic growth of an economy of a very poor and very small country that is under occupation. In particular whether symptoms of Dutch Disease can be identified. Extremely limited physical mobility exists with respect to both labour and merchandise outside the country, as well as within the country. The country is divided into two regions, that is, the West Bank on the east side and Gaza on the west, with Israel being situated between the two. This separation allows only minimal physical connection between the two regimes, each of which has its own governmental control⁹⁰. In addition to the trading constraints, the country has significantly nascent governing institutions and underdeveloped financial sectors with virtually non-existent savings systems.

The unique case of the West Bank and Gaza makes it extremely difficult to find existing literature on these issues. In attempting to review the (paucity of) existing literature I have grouped the available literature into the following three sections so as to examine firstly models of economic development that may assist in defining that of the West Bank and Gaza; secondly to examine models of the possible impact of foreign aid on economic growth and thirdly studies of Dutch disease and its possible impact on growth. These three sections cover:

I. Economic Development Models

These basic models describe the process of growth in the absence of extraordinary restrictions, such as those placed on the movement of goods and labour between Israel and the West Bank and between Israel and Gaza. The models posit economic growth as a function of investments, savings, capital formation, efficiency⁹¹, the accumulation of know-how and technology transfer, the interactions with the world, the inequality of income and the structure of economic and political institutions. In this context, the most relevant literature to my thesis is the two-gap model of Chenery and Strout (1966),

⁹⁰ Since 2007, the Hamas group has governed Gaza, while the Palestine Liberation Organization (PLO) governs the West Bank.

⁹¹ Efficiency determines competitiveness. Today, most countries increase their efforts and efficiency to compete in imports and to increase exports, both of which are vital to growth.

which extends Harrod-Domar and Solow's models. Chenery and Strout's model investigates the case in which development is limited by not only the vicious cycle of poverty-low/saving-low investment/low growth but also the foreign currency gap in the balance of payment. The two-gap model of Chenery and Strout was later extended and analysed by Harms and Lutz (2004).

II. Models Pertaining to the Impact of Foreign Aid on Economic Growth

The vast empirical literature on this subject reveals conflicting economic and political impacts of foreign aid, which are attributed to various factors. Several of these impacts are relevant to the case of the West Bank and Gaza. However, the case of the West Bank is significantly different from all other cases discussed in the literature. First, the level of foreign aid to the West Bank and Gaza is much higher than that of almost all other low income countries (see Figure 1.1 in chapter 1). Second, there is no other country that suffers from such extremely limiting constraints that are the result of a long lasting occupation. The most relevant literature to the case in the thesis is that of Djankov *et al.* and Barro and Sala-i-Martin (1995), who claim that the effectiveness of aid depends on a variety of interacting factors.

III. Dutch Disease and Empirical Findings

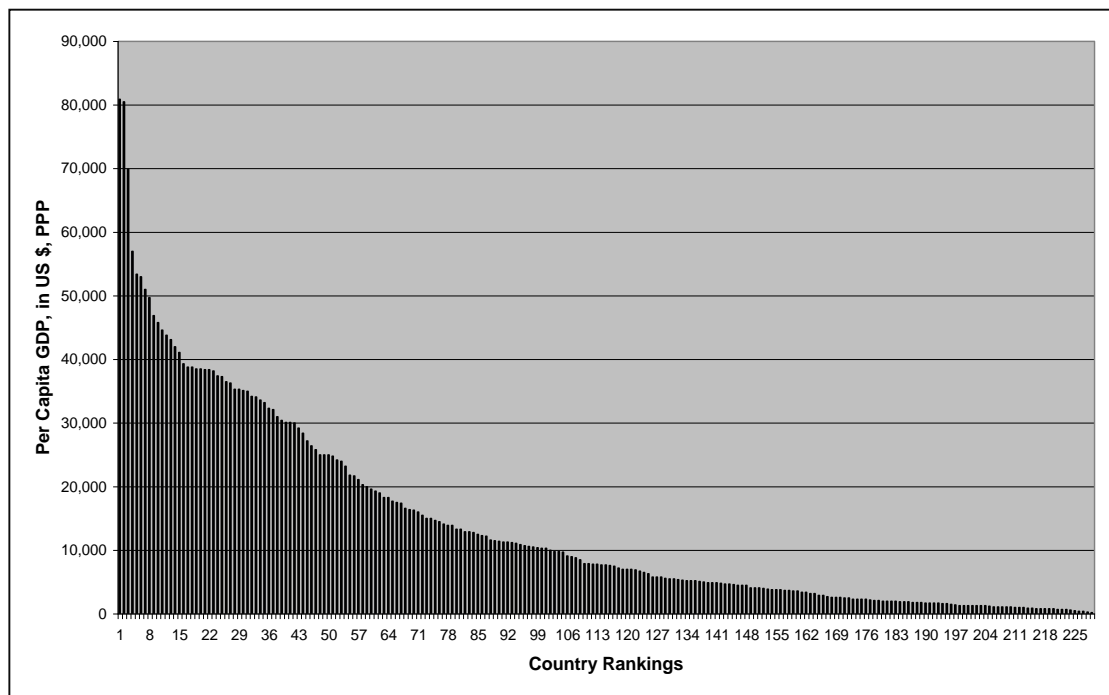
The symptoms of Dutch disease as well as relevant historical cases will be discussed and an analogy between them and the West Bank and Gaza case will be formulated. Note that these analogies, at this time, will be incomplete, though a full analogy will be offered in the following chapter in which we establish, both theoretically and empirically, the constrained economy model and the existence of Dutch disease in the West Bank and Gaza. In this section, the works that are most relevant to our case are those of Rajan and Subramanian (2008 and 2011), who provide multiple reasons why foreign aid may not have a positive impact on growth, and Kang, Prati and Rebucci (2013), as they provide the broadest and most current international empirical analysis by regressing the impact of aid on GDP growth and export growth.

3.2 Economic Development Models

The enigma of economic growth attracted early economists such as Malthus (1798) and Smith (1776). However, even after more than two hundred years, the secrets of economic growth have yet to be fully investigated as the global inequality among nations increases significantly in almost all decades since 1820 and up to year 2000⁹². As a result of the accelerated technological changes since the nineteenth century, some countries have experienced high growth while others have experienced low growth, thus causing a dramatic increase in the disparity in wealth among countries.⁹³

Inequality among nations in the 2007 per capita GDP is illustrated in Figure 3.1, which presents an international comparison of per capita GDP in terms of purchasing power parity in the year 2007.

Figure 3.1 International Comparison of Per Capita GDP, 2007*



* Based on 2007 or latest estimates

Source: Central Intelligence Agency, as per June 19, 2008 update.

⁹² See Figure 1.5 p.230 in Lindert and Williamson (2003).

⁹³ See a review in Helpman (2004).

In 2005, the West Bank had purchasing power parity adjusted per capita GDP of US \$800. Accordingly, it ranks 215 out of 237 countries. The Gaza, in 2005, had a per capita GDP of US \$600, thus rendering it 225 out of 237 countries. In 2007, the per capita GDP of the West Bank and Gaza was among the lowest 4% of any population in the world. Israel's per capita GDP in 2007, on the other hand, was US \$26,200, thus placing it among the 17% of those countries in the world with the highest GDP. The per capita GDPs of Jordan, Syria, Lebanon and Egypt were US \$4,900; \$4,500; \$11,300 and \$5,500 USD, respectively, and their rankings among all countries were 136, 152, 128 and 138, respectively⁹⁴. The low per capita GDP for the West Bank and Gaza contrasts with the much higher standard of living in the surrounding countries and with other data, such as the universal literacy rate of 95% to 100% in the West Bank and Gaza.

The parameters affecting economic growth in the West Bank and Gaza are the same as those in other countries; however, specific conditions unique to the West Bank and Gaza also come into play. These conditions include, *inter alia*, political and armed conflict as well as extended periods of economic isolation imposed by Israel. Since 1967 and until the first Intifada⁹⁵ in the 1980s, Israel provided a key source of employment for the Palestinian population, and as a result, the two economies, for all intents and purposes, were unified. In the 1990s, particularly in the wake of the Oslo Accords, the West Bank and Gaza were flooded with international economic aid intended to consolidate the physical and institutional infrastructure of the newly created Palestinian authority. Excluding the severe periods of the first and second Intifada, the economic policy of Israel was to employ Palestinians from the West Bank and Gaza in Israel rather than to generate employment and industrial development in the West Bank and Gaza. Since the beginning of the occupation, almost all foreign trade of the West Bank and Gaza has been with Israel. Foreign trade, especially export activity, is constrained by Israel. Part of the constraints stem from security problems, as the free entry of goods through commercial ports enables the smuggling of dangerous terrorist explosives and weapons. However, it is also possible that the Israeli constraints were

⁹⁴ Source: C.I.A. *World Fact Book*, 2005 <http://www.umsl.edu/services/govdocs/wofact2005/>

⁹⁵ The term designated to the violent Palestinian uprising in the West Bank and Gaza in the mid- and late-1980s. Prior to this and in the interim period between the first and second Intifada, which began in 2000, freedom of capital and individual movement between Israel and the West Bank, Gaza and the Strip was virtually unhindered.

intended to eliminate competition from the industrial and agricultural sectors of the West Bank and Gaza. Namely, the economic policy of Israel was to employ low-cost Palestinian workers in the agricultural, construction and industrial sectors of Israel, rather than to develop agricultural and industrial sectors in the West Bank and Gaza that would be based on relatively low-cost labour and would thereby compete with Israel's industry and agriculture. Since the first Intifada in 1987, the employment of workers from the West Bank and Gaza in Israel declined dramatically. The constraints on exports and the economic closure remained, however, and became even more stringent.

Let first look at basic growth models that have been developed that may assist in describing growth in the developing economy of the West Bank and Gaza before looking at more sophisticated models.

3.2.1 Basic Growth Models

Malthus 1766-1834

Malthus (1798) assumed that land, as the basic capital and technology input, is fixed and finite. Under the assumption of the diminishing marginal productivity of labour, the increase in population (at a given geometric rate) will lead the world toward starvation. In other words, limited natural resources must lead to perpetually diminishing growth and a reduction in per capita production. In addition, Malthus projected that the scarcity of land will cause competitive rents to increase and salaries from labour to decrease. It can be claimed that the Malthusian trap still holds in some periods and in some underdeveloped agricultural countries⁹⁶. However, on a global scale, his projections were invalidated by technological and educational advances and by the impact of capital and productive resources other than land (see Galor 2011).

Adam Smith 1723-1790

Adam Smith (1776) deviated from Malthus by adding capital equipment and productivity to his model. He emphasised the importance of the "invisible hand" under competitive free markets and claimed that the role of the government is to maintain

⁹⁶ Diao *et. al.* (2007) claim that some Sub-Saharan African countries with a large proportion of the agricultural sector and small industrial sector such as Ethiopia, Ghana, Rwanda are in a Malthusian agricultural poverty trap. However, international foreign aid is intended to rescue these countries from that situation.

laissez-faire conditions. Left to their own devices, competitive markets will generate growth driven by capital formation, specialisation and trade.

John Rae 1796-1872

While Adam Smith introduced the importance of capital formation, Rae was the first to recognise the importance of technology. The concept of diminishing marginal production does not hold with regard to technological change. Rae (1834) recommended government support of technological development, which is a departure from the *laissez-faire* model put forward by Adam Smith. Rae also emphasised the importance of savings and claimed that differences in savings behaviours of countries can affect growth.

Karl Marx 1818-1883

Marx acknowledged the importance of capital to growth but also claimed that production methods generate political ideologies and friction. According to Marx, the struggle between labour and capital rather than free competition governed the market for production inputs. Marx believed that the industrial revolution will cause farmers who own their land to become industrial workers without capital and that, after a series of increasingly frequent crises, workers will revolt precipitating the collapse of the capitalist system. Marx correctly projected a series of economic boom and bust periods under the free market system, but he did not foresee the robustness of modern capitalism, which mixes economic freedom with political freedom and a welfare system in which the government addresses externalities and occasionally intervenes to insure a level playing field for fair competition.

The Harrod-Domar Static Model

Harrod (1939) and Domar (1946) developed separately a model that is based on two assumptions. The first is the existence of unemployment, i.e., the supply of labour does not constitute a constraint. The second is that production is proportional to the stock of capital equipment.

Accordingly,

$$(3-1) \quad GDP \equiv Y = f(K) \text{ and}$$

$$(3-2) \quad dY/dk = \text{constant} \equiv C$$

Thus,

$$(3-3) \quad d^2K/d^2Y = 0 \rightarrow dY/dY = Y/K,$$

$$(3-4) \quad s \cdot Y = S = I$$

and

$$(3-5) \quad \Delta K = s \cdot Y - \delta \cdot K$$

where δ is the rate of depreciation.

The implication of this model is that growth depends on savings, which equals investment. This model has been criticised on several levels. Many question the validity of the assumption of a fixed ratio between labour and capital equipment as well as the assumption of insufficient growth to eliminate unemployment. Others note that the model only explains economic booms and assumes that investors are influenced solely by output and not by relative prices. In addition, the model ignores issues of uncertainty and credit risk. To generate growth, the model prescribes that poor countries simply borrow money and invest it.

3.2.2 Sophisticated Growth Models

Solow (1956), (1957)

Robert Solow (1956) provided a basic economic growth model based on capital formation. According to this model, diminishing marginal productivity of capital-intensive enterprises tends to reduce long-term growth rates. Due to Solow and others, it was believed that poor countries are subject to a vicious cycle of under-investment and under-development. Poor countries have no savings and, therefore, no investments/ without investment and capital formation, there is no growth/ thus, poor countries remain poor while rich ones become richer.

At that time, aid to poor countries appeared to be the key to breaking this cycle of under-development⁹⁷.

In an empirical study conducted in 1957, Solow deviates substantially from his earlier capital formation model and concludes that technology, rather than capital intensity, constitutes the key driver of economic growth⁹⁸.

⁹⁷ Such opinions were supported by the successful Marshall Plan implemented in post-war Europe.

⁹⁸ Robert Solow received the Nobel Prize for his two papers.

The Robert Solow Neo-classical Model⁹⁹

This production model establishes the exogenous relation between aggregate inputs of capital and labour and aggregate savings and investment in the economy. “ Y ” denotes aggregate production in an economy, and $y = Y/L$ represents production per unit of labour. “ K ” denotes capital investment, while k signifies capital intensity per unit of labour, i.e., $k=K/L$. Assuming constant economies of scale, Solow employed the Cobb-Douglas production function to obtain:

$$(3-6) \quad y = f(k) = A \cdot k^\alpha$$

Accordingly, if there is no change in the technology (A), capital intensity k remains the sole source for generating growth in terms of output per labour. If one ignores government and international trade, the only final products in the economy are private consumption, investment and private savings = gross investment (I). If the savings rate out of disposable income Y is s , and the depreciation rate of capital is δ , then the net capital formation ΔK is:

$$(3-7) \quad \Delta K = s \cdot Y - \delta K$$

To determine the impact of capital intensity k , a proportional change of the term $k=K/L$ can be restated as:

$$(3-8) \quad \Delta k/k = (\Delta K/K - \Delta L/L) / (1 + \Delta L/L)$$

Multiplying both sides by $k = K/L$ and assuming that the amount of labour is constant and thus $\Delta L=0$, one can rewrite the above equation as follows:

$$(3-9) \quad \Delta k = \Delta K/L$$

⁹⁹ The review of Solow's model and its extension is based on the analysis in Mayshar (2008) and Helpman (2004).

By substituting $s \cdot Y - \delta K$ for ΔK and rearranging the terms of the Cobb-Douglas function, the following is derived:

$$(3-10) \Delta k = s \cdot y - \delta \cdot k = s \cdot A \cdot k^\alpha - \delta \cdot k$$

Accordingly, the annual change in capital intensity is a function of annual per capita (i.e., per labour unit) savings s / y minus the annual per capita depreciation.

The dynamic properties of the Solow model can be described as follows. The level of capital in a given period determines depreciation, output and, consequently, savings and investment in that period. Gross investment minus depreciation determines the level of capital for the coming period. The above dynamic process reaches steady state in which:

$$(3-11) \quad k^*/y^* = s/\delta$$

where k^* and y^* are capital investments per labour (Capital) and production (GDP) per labour. In the steady state, the ratio of capital per worker over production per worker equals the savings rate over the rate of depreciation.

The progression of growth according to Solow is illustrated in Figure 3.2, which depicts 100 years growth for initial exogenous parameters $k_I=1000$, $\delta=0.1$, $s=0.2$, $A=100$ and $\alpha=0.4$.

Figure 3.2 exhibits the results of the Solow model, which is based on the above input.

Figure 3.2 Progression of Annual Growth under the Solow Model

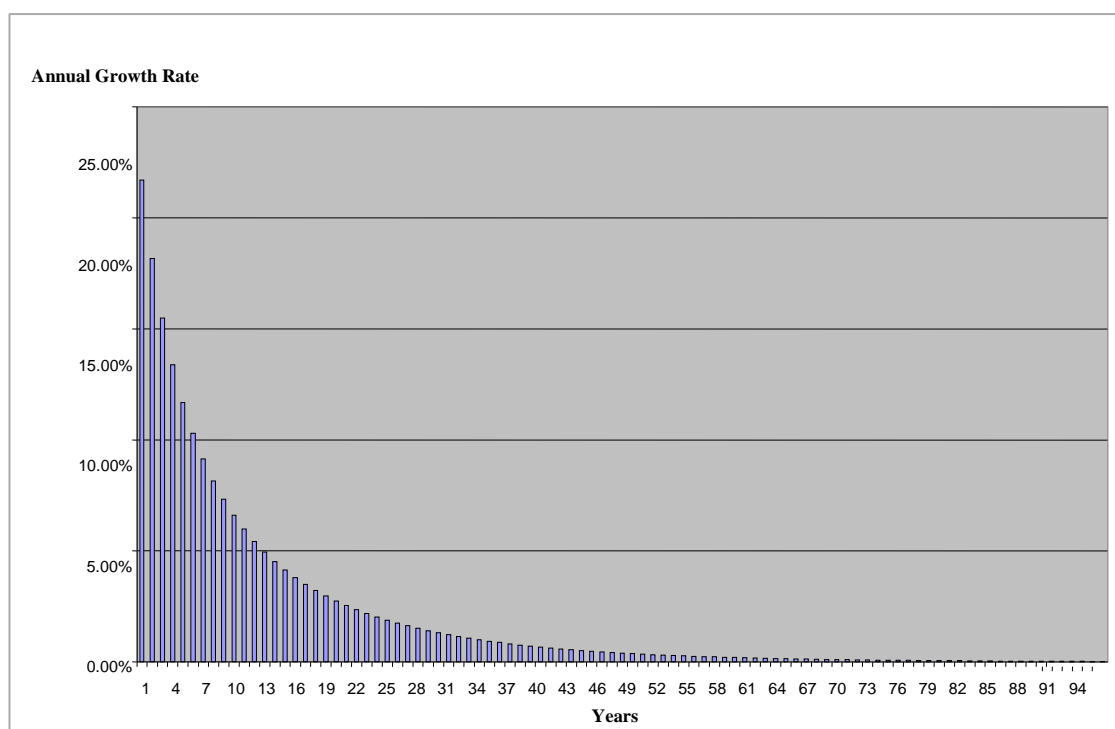


Figure 3.2 demonstrates the important insight rendered by the Solow model such that without technological change, economic growth discontinues and converges into a long-term steady state in which savings equal depreciation.

Three key conclusions can be drawn from Solow's basic model. First, in the long run, in the absence of technological change, growth in production per capita will come to a halt. Second, if the sole difference between two economies is capital intensity, in the long run, per capita production in the two will converge. Finally, in the long run, economies with higher proportions of savings will attain higher standards of living¹⁰⁰.

Chenery and Strout (1966) Two-Gap Model

Chenery and Strout (1966) extended Harrod-Domar and Solow's analysis as it applied to developing economies. They identified a second gap, a balance-of-payments gap, which serves to constrain economic development. According to their two-gap model one of two constraints may impede growth. If the effective constraint is the level of savings, then growth is constrained by the gap between savings and the critical level of investment that is required to insure a sustainable growth rate. It is also possible that

¹⁰⁰ The optimisation of either savings or per capita production does not constitute reasonable long-term goals. Per capita consumption is considered an economically reasonable goal. It can be seen that the "golden level" of savings to attain this long-term goal should equal α in the Cobb-Douglas function.

the effective constraint is the foreign currency that is needed for the investments that ensure sustainable growth. In that case, the balance-of-payments gap constrains growth. At a given period in time, either one of the two gaps can trap poor countries in a vicious cycle of low savings, under-investment and lack of growth.

According to Chenery and Stout, the vicious cycle generated by these two gaps can be overcome by the infusion of foreign development assistance (FDA). They constructed a three-stage model to describe the process of emergence from the gap to economic independence. In the first stage, an inflow of FDA funds is essential to close the gap between saving and investment. Namely,

$$(3-12) \quad I=S+FDA, \text{ where } I \text{ denotes total investment and } S \text{ represents local savings.}$$

In the second stage, investment exceeds savings, and foreign aid is required to close the gap between the import and export of goods and services. In this stage:

$$(3-13) \quad M=X+FDA, \text{ where } M \text{ denotes imports and } X \text{ denotes exports.}$$

In the third stage, the balance of payments deficit is closed.

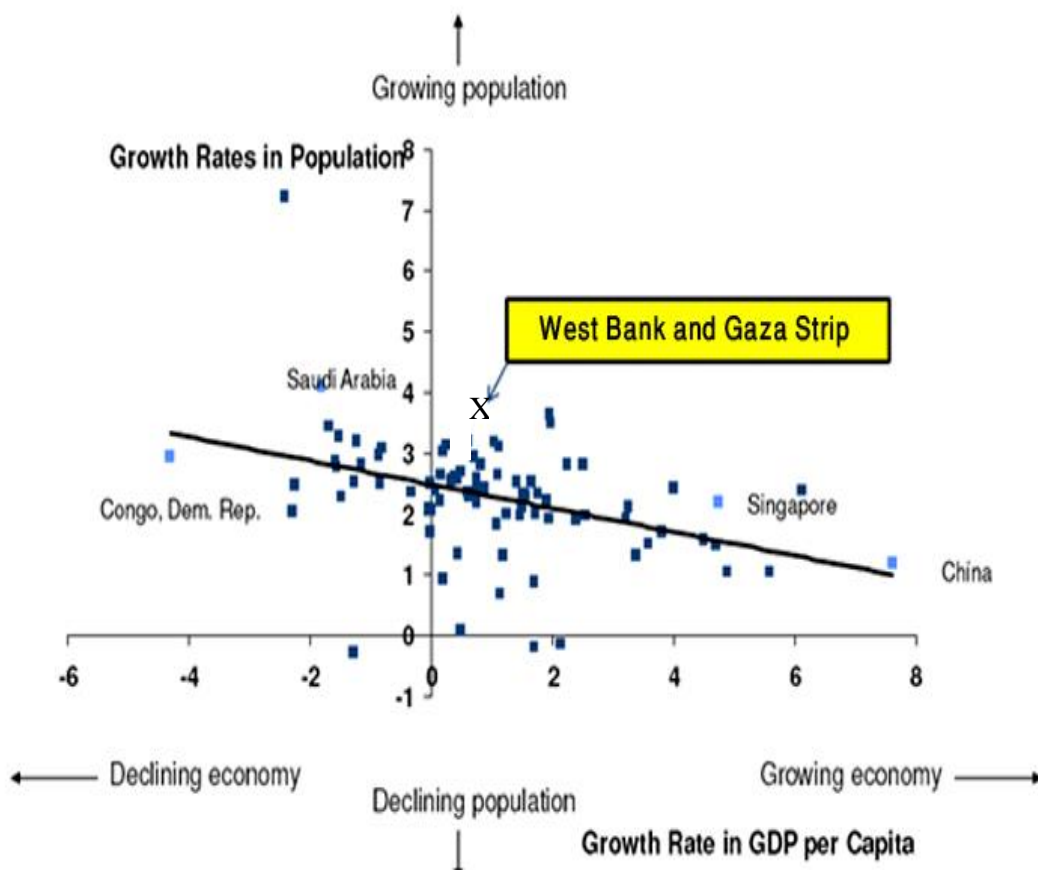
For further discussion on the two-gap model see Harms and Lutz (2004) who provide a detailed description, review and analysis.

3.2.3 Extending the Solow Model to Demographic and Technological Changes

The Demographic Factor

The possible impact of demographic factors on growth needs to be considered and incorporated into growth models. The clear negative correlation between GDP growth and population growth is exhibited in Figure 3.3.

Figure 3.3 Correlation between Average Annual World Population Growth Rates and GDP Per Capita Growth Rates, 1975-2004



© 2007 Population Reference Bureau

Source: Population Reference Bureau, Population & Economic Development Linkages 2007 Data Sheet. West Bank and Gaza added by author according to data based on annual reports from Israel Central Bureau of Statistics and Palestinian Central Bureau of Statistics.

Differences in productivity, technology and population growth can explain why economies do not converge in the long run to the same level of GDP as projected by Solow. Several empirical studies have examined Solow's conclusions regarding the steady state¹⁰¹. The primary conclusion of these studies is that major deviations can

¹⁰¹ For a review of this literature, see Helpman (2004).

occur as a result of endogenous demographic changes (Lucas 1988), technological changes (Arrow 1962; Romer 1986, 1990), interaction between economies (Frankel and Romer 1999; Grossman and Helpman 1991), endogenous savings rates (Lucas 1988), different production functions (Fagerberg 1994), political problems (Mauro 1995) and other factors (Barro and Sala-i-Martin 1995).

The basic aggregate production function is extended by adding the time t index to the original equation $GDP \equiv Y = f(K)$ to obtain:

$$(3-14) \quad Y(t) = A(t) \cdot [K(t)]^\alpha \cdot [L(t)]^{1-\alpha}$$

In this model, only Y and K are derived endogenously, while L and A are determined exogenously¹⁰². It is assumed that the exogenous population growth rate (denoted by n) is fixed over time. Under this assumption, the dynamic equation $\Delta K = s \cdot Y - \delta K$ is extended to the following:

$$(3-15) \quad \Delta k = s \cdot y - \delta k = s \cdot A(t) \cdot k^\alpha - (\delta + n) \cdot k,$$

and the steady state equation $y = f(k) = A \cdot K^\alpha$ becomes:

$$(3-16) \quad k^*/y^* = s/(\delta + n).$$

According to the above time-adjusted aggregate production function, the dynamic change in net capital formation per unit of labour is negatively affected by depreciation and population growth. In the steady state, the capital/GNP ratio is inversely related to the rate of depreciation and population growth rate, thereby explaining the negative correlation between per capita GDP and population growth. The per capita GDP of the West Bank and Gaza is partially consistent with the phenomenon presented in Figure 3.3, and its coordinates place it significantly above the regression line. This indicates that, given the high population growth in the West Bank and Gaza, one would expect the West Bank and Gaza to have negative per capita GDP growth. The numerous

¹⁰² The assumption of a given exogenous population growth rate is not vindicated by empirical research. It is well known that population growth is negatively correlated with wealth. Namely, poor countries exhibit high fertility rates and population growth. The causality direction in this correlation is most likely bi-directional.

additional factors that may contribute to the explanation of this deviation will be discussed later.

The Solow model takes into account production per unit of labour. The shift from production per labour unit to standard of living as reflected in per capita GNP should consider the per capita production/labour ratio while taking into account the following four factors:

- The number of working hours per employed person during the relevant period;
- The employment rate as a portion of the available work force;
- The rate of participation in the work force out of the total working age population;
- The ratio of the working age population to the total population.

These factors are vital to analysing GNP/GDP growth in an economy. In the case of the West Bank and Gaza, the high unemployment rate and the high rate of the population below the working age are especially meaningful and will therefore be discussed in detail in the next chapter.

Technological Changes

Assume that there is an annual exogenous growth rate (denoted by g) in the technology parameter A in (3-13). As a result, the equation $\Delta k = s \cdot y - \delta \cdot k = s \cdot A \cdot k^\alpha - \delta \cdot k$, which describes changes in capital intensity, can be extended to:

$$(3-17) \quad k^*/y^* = s/(\delta + n + g)$$

The following two conclusions can be derived from this adjusted equation. If two economies (i and j) differ solely in the basic starting technology (A_0), yet experience the same rate of technological change (g), then both economies k^* and y^* will grow at the same rate in the steady state, while the relative difference in production per worker will remain constant, namely, $y^*_j/y^*_i = y(A_0)_j/y(A_0)_i$. In addition, if the technological change factor g in one economy is greater than that of the second economy, then the steady state y^* will be higher, regardless of the technological starting point or other parameters.

Discussion: Technology and its Specifications

The level of technology can be determined exogenously, but it can also be shaped endogenously. Education policy from kindergarten to post-secondary education and economic policies supporting research and development can generate technological development¹⁰³. In addition, accumulated know-how and experience add considerably to the level of human capital. Basic research as well as clinical and applied research and development is crucial to technological change.

Technological development is not always welcome by countries as it causes unemployment among those skilled in traditional technologies. Many technological developments in the last two centuries came in jumps and precipitated meaningful changes in the lives of human beings¹⁰⁴ (Aghion and Howitt 1992). Technological developments are diffused through international interactions.

Even though the level of education in the West Bank and Gaza is relatively high¹⁰⁵, the technology cannot be considered a meaningful driver of the Palestinian economy. The limited mobility of the Palestinians and the types of low-level jobs Palestinians fill in Israel further limits access to new technologies in the West Bank and Gaza. There are four reasons for the negative impact of the above constraints on adaptations of technologies in the West Bank and Gaza. Firstly, there are almost no options to obtain permissions and visas to travel abroad, mainly from Gaza but also from the West Bank, to acquire knowledge. Israel is concerned that many youngsters who travel abroad may do so to be trained in various terrorist activities, and therefore, Israel attempts to prohibit them from returning to the West Bank and Gaza. Secondly, Israel employs only low level skilled employees with the only opportunities for high level skilled employees being in other countries and the way back from these countries for these employees is limited. Thirdly, high unemployment and fourthly, export restrictions constitute further constraints on the adoption of new technology. Given the high rate of unemployment, there are no economic incentives to adopt new technology that improves the productivity of labour as under the high unemployment rate, the cost of labour is very low. Also the restrictions on the export of goods and labour from the

¹⁰³ Israel is internationally a very good example of a country with a high technological level.

¹⁰⁴ For example, the inventions of external and internal combustion engines, cars, airplanes, telephones, the electric light bulb, antibiotics, transistors, computers, the Internet and others.

¹⁰⁵ In 2006, the literacy rate in the West Bank and Gaza was 92.4% (see CIA-the World Fact Book 2008) and the average schooling was 14 years.

West Bank and Gaza causes investment in technological changes to be unprofitable if the results of the changes are relevant only for the small market of the West Bank and Gaza. In most cases, only under open and relevant global markets can the high risk of technological investment be balanced.

Additional Factors Affecting Growth

Economic development can be constrained by many factors, including a lack of infrastructure (Bertrand-Albala (2008) and Siddiq (2008)); a lack of technical knowledge and human capital (Shell (1996) Lucas (1988), Romer (1986, 1990) and Fayissa and El-Kaissy (1999)); political factors such as type of regime (Boone (1996), Burnside and Dollar (2000) and Knack (2001)); social structure and income inequality (Kuznets (1995), Birdsall, Ross, and Sabot (1995) Barro (1999) and Knowles (2005)); and political unrest and terror (Alesina, Özler, Roubini and Swagel (1996), Abadie and Gardeazabal (2005), Blomberg, Hess and Orphanides (2004) and Selah (2004)).

3.3 Foreign Aid and Economic Development

3.3.1 Models of Foreign Aid and Economic Development

As noted above, empirical evidence indicates that a flood of cash flow from natural resources or foreign aid may lead to a lag in other economic sectors, and in some countries, it can also lead to de-democratisation and increased corruption. Sobovitz (2010) employed sixteen well-known international governance indices from the literature on corruption¹⁰⁶ to analyse the level of corruption of the Palestinian Authority in the years 1998 to 2008. The main findings are:

"The use of the WBI CC index in a TSCS multivariate regression model allowed an induction from a large dataset of cases into global cross-country explanations, and back, deducing into the one particular case of the PA. It found that although ranked in the top two deciles of corrupt countries, the PA's political performance is in fact less unique than what might otherwise be assumed. Due to its particular circumstances, the PA remains above expected levels of corruption even when controlling for global determinants of corruption, during almost all the measured years. Yet, its divergence is surprisingly low, falling not very far from the median of the distribution" (P. 44).

¹⁰⁶ The measurability, subjectivity and normativity of the governance indices is questionable, which is one of the reasons for ignoring corruption as one of the potential factors for inefficiency of foreign aid to the West bank and Gaza.

The inflow of foreign-capital increases also the demand for non-tradable goods and thus increases wage levels in the non-tradable sectors. Another potential impact is political in nature as the prevalence of revenues stemming from natural resources in some countries tends to sustain dictatorial regimes for longer periods [see, for example, Verwimp (2003), Coyne and Ryan (2008) and Easterly and Pfutze (2008)].

Foreign aid became a prevalent facet of international relations due to the Marshall Plan at the end of World War II. The food crisis in Africa in the 1980s and the financial crisis in South American countries along with the declining growth rate of international trade increased the demand for foreign aid, which soared to approximately US\$ 55 billion in 1989 to 1990 (World Bank Report 1991). Throughout this period, a debate regarding aid effectiveness continued. Many questioned the impact of foreign assistance on growth rates of recipient countries.

There is an ongoing bitter and harsh debate on the impact of foreign aid on economic development. The debate is well reflected in the paper. "A Primer on Foreign Aid" by Radelet (2006), who opened his paper by quoting the following:

“Rich countries must recognize that even with action on trade or agricultural subsidies, there is still a fundamental need to boost resources for developing countries. We estimate that it will take on the order of an additional \$40 to \$60 billion a year to reach the Millennium Development Goals--roughly a doubling of current aid flows--to approximately 0.5 percent of GNP, still well below the 0.7 target agreed to by global leaders, years ago. ... Does anybody really believe that the goal of halving absolute poverty by 2015 is not worth this investment?” World Bank President James Wolfensohn, 2002.2

“I have long opposed foreign aid programs that have lined the pockets of corrupt dictators, while funding the salaries of a growing, bloated bureaucracy.” U.S. Senator Jesse Helms, January 11, 2001.3

Chenery and Strout's two-gap model is the starting point for the debate on the effectiveness of foreign aid.¹⁰⁷ The rationale for foreign aid rests in the argument that foreign capital transfers can bridge either of the two gaps constraining economic development and boost growth to threshold target levels.

¹⁰⁷ For a comprehensive review of the investment-savings gap, see Basu (1997). For a discussion of the balance-of-payments, see also Bacha (1990).

Since Chenery and Stout's seminal work on the role of foreign aid in economic developments, other studies continue to point to the positive impact foreign aid can have on developing economies. Several support the claim that foreign aid increases savings and supports the exchange rate of developing countries¹⁰⁸. In some countries, such as Bangladesh and India, foreign aid has proven to be very effective¹⁰⁹. Collier and Hoeffler (2002) claim that foreign aid is particularly effective for countries emerging from civil war that have relatively stable regimes. Harms and Lutz (2004) discuss and compare the macroeconomic models behind the various empirical studies and conclude that most studies support the hypothesis that foreign aid has a positive impact on investment and growth. Watson and Wilson (2007) claim that much of the funds transferred from rich to poor countries are savings transferred by immigrants to their families. These transfers have a significant and positive impact on reducing poverty.

Despite the very appealing positive impact of foreign aid in theory, there is a growing body of empirical literature questioning the effectiveness of foreign aid on long-term economic growth. Nkusu (2004) reported on some low income African countries in which he diagnosed the full or partial impact of foreign aid on Dutch disease symptoms. Devarajan and Weiner (1989) suggested that the agricultural sector of Cameroon deteriorated due to foreign aid.¹¹⁰ Mosley, Hudson and Horrel (1987) find a negative correlation between foreign aid and growth. Boone (1996) supports this finding, concluding that foreign aid boosts consumption rather than development. Maizels and Nissanke (1984) claim that foreign aid rendered by superpowers serves their own interests rather than those of the recipient countries and is therefore less effective than theory would suggest¹¹¹. Durberry, Gemmel and Greenaway (1998) claim that foreign aid has a limited positive impact on growth as it is conditional on various factors such as macroeconomic policy environment, income level, level of foreign aid and

¹⁰⁸ See, for example, Chenery and Strout (1966), Papanek (1973), Gulati (1975), Gupta (1975), Over (1975), Levy (1987) and Islam (1992).

¹⁰⁹ For the positive effect of foreign aid in Bangladesh and India, see Cassen (1994).

¹¹⁰ There are more studies that provide conflicting impact of foreign aid and the diagnostic of Dutch disease. For a review of some of these studies, see Nkusu (2004).

¹¹¹ According to Table 5.10 (in chapter 5, p.156) in the years 2000 to 2007, 72% of the imports are from Israel. Thus, it is highly possible that Israel benefits considerably from the aid to the West bank and Gaza.

geographical location. Griffin and Enos (1970) claim that foreign aid increases consumption rather than investment and growth. The finding of their study, that foreign aid has a negative impact on savings, supports the hypothesis that foreign aid can be detrimental to GDP growth. The ineffectiveness of foreign aid as a catalyst to GDP growth is not surprising as foreign aid does not necessarily enhance human capital, an essential ingredient for growth. Birdsall, Rodrik and Subramanian (2005) claim that developing countries remain poor because of limited technological opportunities, yet these opportunities remain difficult to create as long as the countries are poor.

In addition, Griffin and Enos observe a negative correlation between aid and the ability of governments to collect taxes (see (Schultz 1961), (Becker 1964), (Nelson and Phelps 1966), (Otani and Villanueva 1989), (Lucas 1988), (Benhabib and Spiegel 1994).

Djankov, Montalvo, and Reynal-Querol (2006) reviewed much of the literature pertaining to the impact of aid on growth and examined the economic development of poor countries subsequent to the receipt of foreign aid. They reveal that the findings of empirical studies tend to be ambiguous with respect to the impact of aid on growth. Their study indicates that poor countries are trapped in a vicious cycle of chronic poverty because of a lack of human and financial capital. Djankov *et al.* claim that the additional foreign aid can lower the motivation of recipient governments to promote tradable economic activity and may increase government consumption and policies that tend to have a negative impact on GDP growth. They also find a negative correlation between foreign aid and democracy in poor developing countries¹¹².

Hence, foreign aid has both direct and indirect impacts on growth. The direct impact is measured by the GDP growth rate. Indirect affects, however, cannot be directly or easily measured but are discerned by monitoring the level of investment, government consumption and democratic processes. Djankov *et al.* suggest measuring both the intensity and the effectiveness of foreign aid against the following indicators:

¹¹² An increase in the share of the non-tradable sector along with a decrease in the share of the tradable sector and a decrease in exports are the well-known negative impacts of foreign aid (see Rajan and Subramanian, 2009). These phenomena are exhibited also in the West Bank and Gaza.

- Official Development Assistance (ODA), defined as the inflow of capital less the outflows of repayments in a given year. The official development assistance is an indicator of net foreign aid;
- Effective Development Assistance (EDA), defined as official development assistance plus inflows from foreign loans in a given year.

According to Djankov *et al.*, the servicing of loans plays an important role in foreign aid effectiveness. If most of the net capital inflow from loans is repaid and new loans are not secured, the net effective development assistance is low and foreign aid is ineffective.

There are five key findings of Djankov *et al.* which are as follows. One, foreign aid does not necessarily increase GDP. Two, there is a negative correlation between foreign aid and the integration of democratic processes in developing countries. This result is in stark contrast to the basic assumption underlying international development organisations that foreign aid supports democratic processes. Three, the inability to hold accountable those responsible for the mismanagement of foreign aid funds is one of the reasons for the negative impact of foreign aid. Four, foreign aid rendered in the form of loans is preferred to grants. In contrast to grants, loans can increase the responsibility of recipient governments. Five, conflicts of interest between donor countries have a negative impact on foreign aid effectiveness.

Similar to Djankov *et al.*, Barro and Sala-i-Martin (1995) claim that the effectiveness of aid depends on a variety of interacting factors. Burnside and Dollar (2000) claim that, even in countries practicing good political governance, foreign aid fails to provide incentives for success. In this thesis, I did not examine empirically whether the impediments to the positive impact of foreign aid on growth, found in these studies, are relevant for the case of the West bank and Gaza. While some of them may be relevant, further study will be necessary to substantiate this.

Between the proponents and opponents of foreign aid lies a vast body of theoretical and empirical literature covering the middle ground. Mosley (1980) claims that other variables affect the correlation between foreign aid and growth, and therefore, the impact of foreign aid on growth varies from country to country. Based on a sample of

83 developing countries, Mosley found that twenty five percent of growth can be explained by savings and foreign aid. At the same time, however, this positive impact was concentrated in the thirty least developed countries from among the 83 countries. Negative effects prevailed in the remaining 53 countries that comprised the sample.

Otani and Villanueva (1989) find a strong positive correlation between investment in human capital and growth. This finding indicates that foreign aid should be channelled toward human resource development. Fayissa and El-Kaissy (1999) conclude that a positive correlation exists between GDP growth and investment in human capital, foreign aid, domestic savings, exports, size of the labour force and civil and political freedom.

Collier and Dollar (2002) and Burnside and Dollar (2000, 2004) claim that foreign aid is neither categorically beneficial nor detrimental to economic growth. Departing from an approach that views development as a function of exogenous factors, they find that the macroeconomic policies of the recipient countries, rather than the aid itself, determine foreign aid effectiveness. Burnside and Dollar (2000) find that foreign aid is more effective in stable regimes. In response to Burnside and Dollar, Easterly (2003) concludes that the road to achieving “a beneficial aggregate impact of foreign aid remains a puzzle”.

Dalgaard, Hansen and Tarp (2004) claim that foreign aid accelerates growth in countries neighbouring the countries receiving foreign aid rather than in the recipient countries. In their study, they attempt to reconcile the conflicting results of previous studies and do so by identifying three generations of studies that explore the relation between growth and foreign aid. The first generation analysed empirical data in the years 1970 to 1972 and focused on the impact of foreign aid on aggregate savings. Based on the Harrod-Domar model, these studies identified the positive impact foreign aid has on savings and growth. The next generation of research analysed data spanning from the early 1970s to the early 1990s. These studies emphasised negative impacts, employing the concept of Dutch disease to explain the impact of foreign aid on investment. The third generation of research started with the study conducted by Boone in 1994. This and subsequent studies examined wider empirical data and considered foreign aid an endogenous as well as an exogenous factor.

The debate on foreign aid effectiveness continues and there is still little, if any, consensus regarding the overall impact of foreign aid or the mechanisms behind the apparently inconsistent empirical findings. Despite the substantial body of research, the support for either a correlation or causal relation between foreign aid and GDP growth has been inconclusive. Neither theory nor empirical research has been able to provide a comprehensive or internally consistent explanation as to when foreign aid works and when it fails. Roodman (2007) claims that the findings of the empirical studies conducted on the impact of foreign aid on growth are not robust and are highly sensitive to data expansion. Namely, longer or different periods under which the impact of foreign aid is examined can alter the findings. Doucouliagos and Paldam (2008) surveyed 97 studies on foreign aid effectiveness. The aggregate finding of 43 of these studies is that in approximately 25% of the cases, foreign aid increases investment. In 75% of the cases, the impact of aid on growth is negligible due to a growth in consumption, which comes at the expense of savings and investment. These aggregate results vary greatly, thus rendering the alleged contribution foreign aid makes to capital formation even more questionable.

3.3.2 Macroeconomic Analysis of the Effectiveness of Foreign Aid

The above survey of the literature reveals conflicting results concerning foreign aid effectiveness. The ambiguity stems, *inter alia*, from methodological differences in the compilation of data sets, the selection of variables (such as governance, institutional differences, corruption, poor administration, political dictatorship, terror, balance of powers, type of foreign aid and technology level and more) used to test the possible direct and indirect impacts and the macroeconomic models underlying the theoretical analysis.

This subsection discusses some of the macroeconomic models that provide the framework for the empirical studies on the impact of foreign aid on economic growth¹¹³. There appears to be consensus that foreign aid fails in the sense that its overall impact is less than the sum of its parts. This “micro-macro” paradox is reflected in the fact that investment in specific projects can be extremely successful, while overall macro-economic growth lags behind.

¹¹³ The discussion in this section is based on the survey by Harms and Lutz (2004).

The Two-Gap Model

According to Harrod's closed economy model, the growth rate (g) in the economy is a linear function given by:

$$(3-18) \quad g = s/c,$$

where s is the savings rate and c is the fixed ratio of capital to product. This model predicts that a target growth rate can be achieved by adjusting the level of investment.

An *ex-ante* gap exists between the level of savings and the required investment for attaining a given target growth rate. In an open economy, the formation of a second gap can occur due to an inability to finance foreign currency needs.

The two-gap model accepts the Harrod-Domar linear relation between output (Y) and capital (K) ($dY/dk = \text{constant} \equiv c$). Accordingly,

$$(3-19) \quad \frac{\dot{Y}}{Y} = \frac{\dot{K}}{K} = \frac{\dot{K}}{c \cdot Y} = \frac{I}{c \cdot Y} - \delta$$

where $\dot{Y} = dY/dt$, K is the capital stock, I is the investment, $1/c$ is the marginal productivity of capital under the constant marginal productivity of the Harrod-Domar model where, according to the model, c is the assumed fixed capital-output ratio and δ is the depreciation rate.

Accordingly, the minimum level of investment (I^*) to attain a given target growth rate of (g^*) is:

$$(3-20) \quad \frac{I^*}{Y} = c \cdot (g^* + \delta)$$

The second gap pertains to foreign currency required to attain target growth. Based on national accounts of equilibrium, we know that:

$$(3-21) \quad I = S_p + (T - G) + (M - X) = S + F$$

where S_p denotes private savings and $(T-G)$ denotes fiscal surpluses in the government budget. $S = S_p + (T-G)$ is the aggregate domestic savings and $M-X$ is the import/export deficit, which is financed by foreign aid, denoted as F , which serves as an additional source of savings that can increase investment.

The two-gap model assumes that the right-hand side of the equation is exogenous. Hence, I is constrained by $S+F$. If the minimal level of investment I^* exceeds $S+F$, a savings gap is created.

To derive the foreign exchange gap, Harms and Lutz (2004) draw a distinction between capital imports (M_k) and service and nondurable goods imports (M_c).

$$(3-22) \quad M = M_c + M_k$$

Assume that a fixed share m of all capital goods must be imported from abroad. Namely, $M_k = m \cdot I$, thus rendering:

$$(3-23) \quad I = \frac{1}{m} \cdot M_k = \frac{1}{m} \cdot (M - M_c)$$

As $M = X + F$, the above equation can be restated as:

$$(3-24) \quad I = \frac{1}{m} \cdot [(X - M_c) + F]$$

Supporters of the two-gap models assume that the level of capital imports, the balance of trade, and the level of foreign aid are given, and hence, a second gap exists if the minimal required investment I^* is lower than the sum derived from the right-hand side of equation (3-24).

Either one of the two gaps can constitute a constraint to growth, hence:

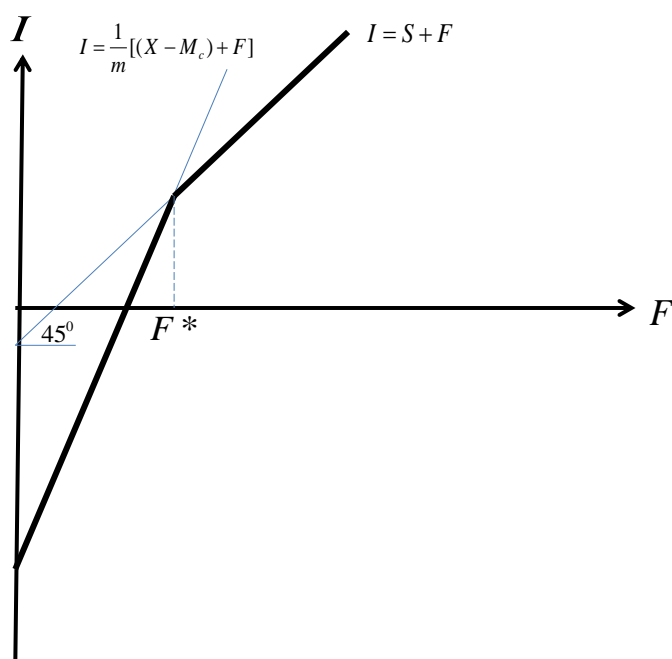
$$(3-25) \quad I \leq \text{Min}\left\{S + F, \frac{1}{m}[(X - M_c) + F]\right\}$$

The constraints envisioned in the two-gap model can be graphically rendered in Figure 3.4. In this figure, the vertical axis is the investment I and the horizontal axis is the foreign aid F . The area below the broken straight line is the area where inequality

$$(3-25) \quad I \leq \text{Min}\left\{S + F, \frac{1}{m}[(X - M_c) + F]\right\} \text{ holds. The line with a } 45^\circ \text{ slope}$$

represents the upper bound savings constraint of $I \leq S + F$.

Figure 3.4 Constraints to Growth According to the Two-gap Model



It is assumed in this figure that the savings S is negative, and thus, at $F = 0$, the line starts at a negative number. The steeper line represents the upper bound for investment due to the balance of payment constraint. Its slope is higher than 45° as $m < 1$, and for $F = 0$, it is extremely negative when the export X is much lower than the import M_c for consumption. Our empirical data indicate that this is the situation in the West bank and Gaza. The heavy, broken, straight line represents the effective constraint on investment. When foreign aid is below F^* , the balance of payment constraint is the effective one.

Note that the exchange gap constitutes a constraint when:

$$(3-26) \quad \frac{(X - M_c)}{m} \leq S$$

In other words, the exchange gap becomes increasingly crucial as exports decrease, imports of noncapital goods increase and the ratio of imports/investment increases. The hypothesis suggested in this dissertation is that this is the case in the West Bank and Gaza.

The two-gap model is highly criticised for over-simplifying the dynamics underlying foreign aid and economic growth. The assumptions made regarding the various agents and government are static. There is an implicit assumption that prices are fixed. The fixed ratio between capital and output represented by c is not vindicated in neo-classical theory or by studies that extended Solow's model to technological changes and human capital in development¹¹⁴. Finally, the assumption of the model that $I \leq S + F$ is the savings constraint equivalent to an assumption that all aid is only foreign development aid (FDA) that goes only to investment, while in actuality, consumption is significantly directly and indirectly affected by all forms of aid as well.

The Vicious Cycle of Aid and Poverty

According to the previous analysis, aid should generate growth by releasing the binding constraints placed on growth by the savings and foreign exchange gaps. However, once foreign aid dissipates, long-term growth reverts back to its previous low level. This raises the question as to the dynamics of poverty. Is long-term aid necessary to eliminate long-term poverty or can temporary aid save poor countries from a seemingly self-perpetuating *poverty trap*? To answer this question, we begin with the Solow model, which defines capital intensity as a function of per capita savings and output, initial investment and depreciation as follows (see the details in subsection 3.2 above):

$$\Delta k = s \cdot y - \delta \cdot k = s \cdot A \cdot k^\alpha - \delta \cdot k$$

This equation can be rewritten as follows:

$$(3-27) \quad \dot{k} = I - \delta \cdot K$$

Recall also that savings equals investment, $I=S$.

Harms and Lutz (2004) deviate from the Solow model by assuming that the constant savings rate s is positive only above a given threshold of consumption per capita. Namely, we assume that the poor countries do not have positive savings.

$$(3-28) \quad S = s \cdot [Y - \hat{C}], \text{ if } Y > \hat{C} \text{ and } 0, \text{ if } Y \leq \hat{C}.$$

¹¹⁴ See, for example, Arrow (1962) and Romer (1986, 1990), and recent empirical studies that are reported in Galor (2011) and Dalgaard and Srulik (2013).

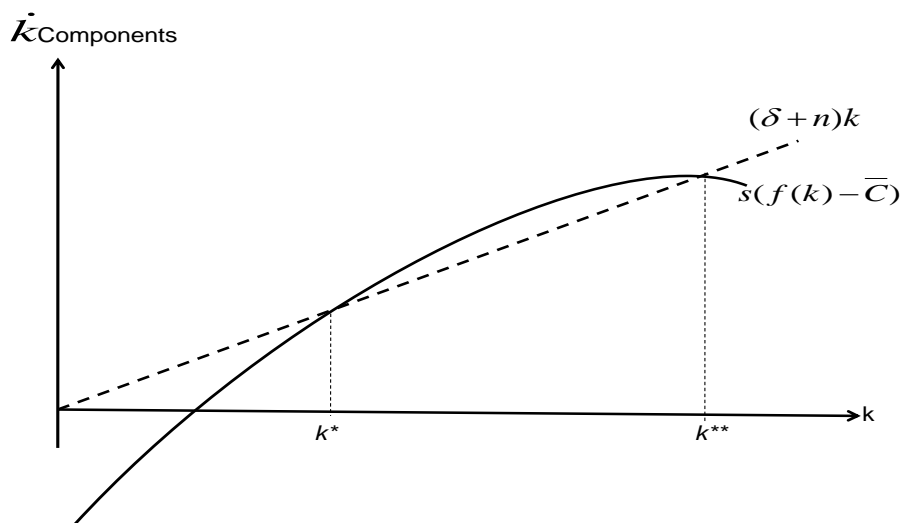
Let us combine the restated Solow equation $\dot{K} = I - \delta \cdot K$ with the above-mentioned threshold conditions for savings and under the stipulation that $I=S$. Considering the extension to Solow, in which the population growth rate n is taken into account,

(3-29) $\Delta k = s \cdot y - \delta \cdot k = s \cdot A(t) \cdot k^\alpha - (\delta + n) \cdot k$ and restating in terms of per capita, we obtain:

$$(3-30) \quad \dot{k} = s \cdot [f(k) - \bar{C}] - (\delta + n) \cdot k$$

This function is outlined in Figure 3.5. Figure 3.5 depicts the components of equation (30-3). The bold solid line is curved as $f(k)$ has diminishing marginal returns.

Figure 3.5 Extended Solow, Steady State Equilibrium Model



Thus, $\dot{k} = 0$ at two crossing points with the dashed line that reflects the term $(\delta + n) \cdot k$ which comprise the right side of (30-3). At a level of capital k^{**} , the economy reaches the stable steady state. On the other hand, the point k^* represents the threshold point of the poverty trap. This point is unstable as above k^* and below k^{**} also $f(k) > (\delta + n) \cdot k$, and thus \dot{k} is positive and k moves up away from this point. If $k < k^*$, then \dot{k} is negative and moving down and away from k^* , which is, in fact, the threshold point of the poverty trap. If the economy is pushed exogenously above k^* , then a positive growth rate can be generated. However, if the consumption per capita is below this critical threshold level, then s becomes zero and k decreases. Foreign aid should push

the economy above the critical unstable point k^* , thus stimulating an increase in local savings k . Growth will continue up to the long-term Solow equilibrium level.

3.4 Foreign Aid and Dutch Disease

The Wikipedia's definition of Dutch disease is as follows:

"In economics, the Dutch disease is the apparent relationship between the increase in exploitation of natural resources and a decline in the manufacturing sector (or agriculture). The mechanism is that an increase in revenues from natural resources (or inflows of foreign aid) will make a given nation's currency stronger compared to that of other nations (manifest in an exchange rate), resulting in the nation's other exports becoming more expensive for other countries to buy, making the manufacturing sector less competitive. While it most often refers to natural resource discovery, it can also refer to "any development that results in a large inflow of foreign currency, including a sharp surge in natural resource prices, foreign assistance, and foreign direct investment".

Source: http://en.wikipedia.org/wiki/Dutch_disease

The term first appeared in *The Economist*, November 26, 1977, pp-82-83. History contains numerous examples of Dutch disease (see, for example, Drelichman 2003 and Table 3.1). This apparently anomalous phenomenon was originally associated with windfall foreign currency revenues stemming from natural resource discovery and is named after developments in the Dutch economy subsequent to the discovery of natural gas deposits in the North Sea in the 1960s. Rather than leading to a burst of growth in the Dutch economy, the gas discovery and the flood of foreign currency resulting from it led to the appreciation of the local currency, which, in turn, triggered an imbalance in the economy. Ultimately, resources from manufacturing and export industries were diverted to the more immediately lucrative, but less productive, natural resource, commerce (imports) and services sectors, culminating in less rather than greater GDP.

Table 3.1 Historical Examples of Dutch Disease

Country	Example
Peru	Wealth from guano in the 19th century. The influx of currency prevented any real industrial growth in the country for 30 years.
Australia	The Gold Rush in the 19 th century.
Azerbaijan	Oil in the 2000s.
Alberta, Saskatchewan, Newfoundland, Labrador - Canada	Oil revenues exacerbated local labour shortages and supply bottlenecks in the 2000s
Chile	Copper in the 2000s.
Malaysia	Oil and natural gas in the 1990s and 2000s
Mexico	Oil boom in 1970s and early 1980s
Ireland	Property boom in the 2000s
Netherlands	Discovery of North Sea oil in the 1960s
New Zealand	Dairy industry boom in the 2000s
Nigeria and other post-colonial states	Oil in the 1990s
Norway	Oil from the late 1970s until the early 1990s, and from the 2000s until today
Philippines	FOREX inflows in the 2000s leading to appreciation of local currency and loss of competitiveness
Russia	Oil and natural gas in the 2000s
Spain	Inflow of gold and other wealth during the 16th century from the Americas
United Kingdom	Financial services boom in the 1990s and 2000s, while other industries have largely disappeared
United States	The American South of the early 19th century experienced retarded industrialisation because of cotton's dominance as an export good. Cotton price increases in the 1850s actually caused slave and free working populations to from cities and industrial trades to cotton-growing regions.
Venezuela	Exports of oil since the early 20th century have stunted industrialisation

Corden and Neary (1982) developed the economic model describing Dutch disease. According to this model, there is the non-traded goods and services sector and two traded good sectors - the booming sector and the lagging sector (also referred to as the non-booming tradable sector). The booming sector is usually the extraction of oil or natural gas, but can also be the mining of gold, copper, diamonds or bauxite, or the production of crops, such as coffee or cocoa. The lagging sector generally refers to manufacturing, but can also refer to agriculture.

A foreign currency flood will affect this type of economy in two ways. The flood causes production to shift from the industrial tradable lagging sector that loses competitiveness due to the lower foreign currency exchange rate relative to the booming non-tradable sectors that cannot be imported and also uses much less foreign currency. This shift in labour from the lagging sector to the booming sector is called direct de-industrialisation. However, this effect may be negligible as booming sectors, such as oil and minerals, generally employ few people (see Corden 1984). The spending effect occurs as a result of the extra revenue brought in by the resource boom, and it increases the demand for labour in the non-tradable sector, thus shifting labour away from the lagging sector. Corden and Neary refer to this shift from the lagging sector to the non-tradable sector as indirect de-industrialisation. As a result of the increased demand for non-traded goods, the price of these goods increases. In contrast, as prices in the traded goods' sectors are set internationally, they cannot be changed at the local level.

Bruno and Sachs (1982) attempt to expand the Harrod-Domar static model to Dutch disease. They identified the Dutch disease effect following the energy crisis of the 1970s. The increase in oil prices caused oil supply countries to shift production to non-tradable sectors.

Many explain the failure of foreign aid to generate growth in developing economies in terms of the diversion of resources precipitated by the inflow of foreign funds away from competitive production towards consumption, services, and non-tradable goods.

The claim in this thesis is that it is very possible that the West Bank and Gaza's Dutch disease is due to the long-term policy of Israel to employ Palestinians in Israel and remit their pay to the West Bank and Gaza. It is possible that this policy was initiated to deter industrial development within the West Bank and Gaza. Israel was apparently apprehensive that because of the low cost of Palestinian labour, Palestinian industries would successfully compete with Israeli industries. Thus, up to the first Intifada in the late 1980s, the employment of Palestinians in Israel increases dramatically (see Shaban 1993, Table 2 there). By the time of the second Intifada in 2000, employment of Palestinian workers in Israel was blocked and the borders were closed, thus curtailing the free movement of goods and labour (see Table 5.1 columns for Wages from abroad and exports in chapter 5, p.144). The infrastructure to generate alternative significant domestic economic activity was non-existent.

Transfer payments of foreign assistance and donations comprised the primary manifestation of economic activity. Since the turn of the century, foreign aid has averaged 48% of the GDP of the West Bank and Gaza¹¹⁵.

The resource curse, a term coined and developed by Gelb (1988) and Auty (1990), relates to the reduction of productivity and long-term growth associated with resource booms. Sachs and Warner (1995) find that countries that were based on natural resource exports in the 1970s experienced lower relative growth rates in the twenty subsequent years. They provided theoretical explanations for this observed phenomenon by using an endogenous growth model, which expanded the list of effects associated with Dutch disease.

The Sachs and Warner model is based on Matsuyama (1992), who defined three sectors in any economy. The first sector produces durable merchandises and goods. The second, the service sector, produces nondurable services. The third sector produces goods out of natural resources. Employment in the first sector upgrades human capital. Finding and exploiting natural resources raises the overall income for many periods. Part of this income is used in the consumption of nondurable goods such as services. As a result, production factors move to the service sector as most services cannot be imported. High income also generates a demand for goods, though this demand can be supplied by increased imports.

A country ought to specialize in areas in which it has comparative advantage. Accordingly, a country rich in natural resources would theoretically be better off specializing in the extraction of natural resources. In reality, however, the shift away from manufacturing can be detrimental. If natural resources approach depletion, or if there is a downturn in prices, the ability to rebuild the manufacturing sector may be in question, since competitive manufacturing firms do not return as quickly or as easily as they left. Since competition is one of the main drivers for technological change, their development tends to be lower in the non-competitive and non-tradable sectors such as public investment and consumption than in the more competitive tradable sectors.

¹¹⁵ See Tables 5.2 in Chapter 5, p.146.

Another partial argument for the causes of Dutch disease is given by Gylfason, Herbertsson and Zoega (1999), who claim that the volatility of natural resource prices and the subsequent increase in currency risk resulting from fluctuations in the real exchange rate may deter further investment as firms refrain from investing when they are uncertain about future economic conditions.

There are two basic ways to reduce the threat of Dutch disease. The first is to slow the appreciation of the local currency, and the second is to boost the competitiveness of the manufacturing sector. The first approach, to slow the appreciation of the local currency, means to sterilise the boom of revenues of foreign currency by generating national reserves of foreign currency and to increase governmental investments in foreign currency for various future purposes, such as investments in future retirement funds of public employees¹¹⁶. That is, to prevent the flood of foreign currency revenues from entering the country all at once, it is recommended that some revenues in foreign currency be saved abroad in special funds for future measured release¹¹⁷. This approach is very important in the West Bank and Gaza case as it may be a good idea to use part of the donations to establish pension funds (that currently do not exist) for the populations of the West Bank and Gaza. Additionally, enhancing technological change and supporting manufacturing investment by various methods, including investment in technological education and industrial infrastructure, can increase the competitiveness of the manufacturing sector.

It is difficult to diagnose Dutch disease as it is difficult to prove the relationship between an increase in natural resources, the real-exchange rate and a decline in the lagging sector. In the case of the West Bank and Gaza, the impact is not through the exchange rate as the Israeli and Jordanian currencies are used as the legal means of exchange. The diagnosis in our case will be analysed by the relationship among the GNP growth and the foreign aid to the West Bank and Gaza, export levels and the weight of the lagging industrial sector.

¹¹⁶ Such investments also lower the investment home biased tendency, which prevails more in countries with less developed economies and security markets.

¹¹⁷ For example, recently, Israel decided that part of the foreign currency from exporting gas will be kept in foreign currency funds for future educational, ecological and environmental purposes.

Many of the aforementioned critics of foreign aid and additional ones that will be presented below apply the concept of Dutch disease to development economics as they have found that foreign aid may, in fact, provide disincentives to capital investment. They argue that the flood of foreign currency precipitated by foreign aid, similar to that stemming from a windfall in natural resource exports, causes a diversion of resources from tradable productive to non-tradable sectors. Hence, rather than bridging the gaps to growth, foreign aid impedes economic development.

Much of the literature on foreign aid and growth as well as the empirical global data on growth is intensively reviewed in UNCTAD (2006-B). Kang, Prati and Rebucci (2013) used a heterogeneous VAR model to analyse the impact of aid shock on exports, imports and the per capita GDP growth panel. Their data are related to 37 developing countries with the aid to GDP ratio over 2%. While Israel was one of these 37 countries, the West Bank and Gaza were not among these countries. The time series in this study is 1960 to 2002. The results with respect to aid and growth are mixed but consistent with the Dutch disease hypothesis that aid increases (decreases) growth when the aid increases (decreases) exports and imports. Torvik (2002) develops a simple model under which Dutch disease is a result of the increased profitability of the rent-seeking sector relative to the profitability of the productive modern sector. Torvik further claims that the same model can be applied to foreign aid. Rajan and Subramanian (2011) provide a substantial amount of empirical data that supports the claim that aid has a negative impact on the competitiveness of the tradable manufacturing sectors of developing countries. Elbadawi (1999) and Munemo, Bandyopadhyay and Basistha (2007) also support the notion that foreign aid breeds Dutch disease. They claim that similar to the discovery of natural resources, which precipitates over-appreciation of a country's currency and drives down the profitability of exports, aid drives the prices of the non-traded sector up and leads to an over-appreciation of the effective exchange rate in developing countries.

Rajan and Subramanian (2005) model the causal relationship between foreign aid and growth by focusing on changes in the structure of economic activity. As evidenced in figure 3.6, they regress the average changes in the ratio of manufacturing to the GDP against the changes in the ratio of FDA/GDP for the years 1980 to 2000. If an increase in foreign aid is accompanied by a lower ratio of manufacturing/GDP, then the

possibility of negative causality between foreign aid and GDP is supported. Their results are depicted in Figure 3.6.

Figure 3.6 Average Manufacturing and Aid Levels, 1980-2000



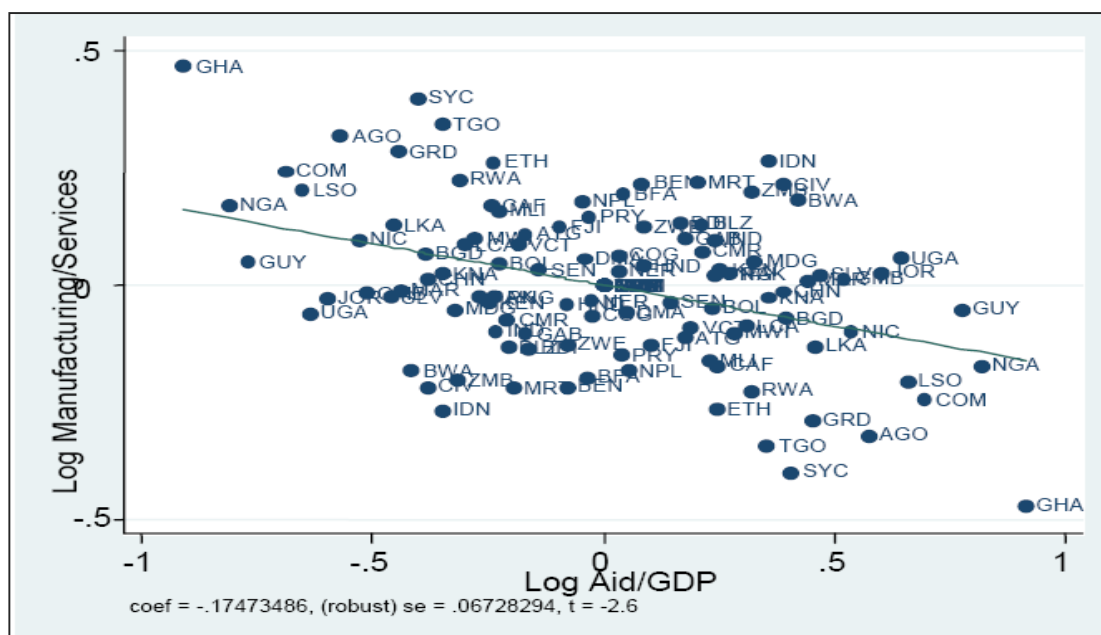
Source: Rajan and Subramanian (2006) based on Industrial Statistic Database, United Nations Industrial Organization-UNIO 2003. p.43.

The negative correlation between foreign aid intensity and manufacturing is evident in figure 3.6. Rajan and Subramanian interpret this correlation cautiously because this observed correlation is only statistical and does not prove causality. Moreover, it is possible that additional factors are responsible for this negative correlation. For example, the governing dynamic could be that poor countries receive more aid and the poorer they become the more aid they receive. This is, for example, the case of the West Bank and Gaza.

Table 5.9 of chapter 5 p.155, shows that the contribution of the industrial sector to GDP shrank consistently from 19.7% in 1994 to 9.9% in 2007. Table 5.1 (in chapter 5 p.144) indicates that in this period, the ratio of foreign aid with respect to foreign transfers and net capital transfers to the GDP fluctuated without any trend between 39% and 67%. Namely, the proportion of the manufacturing sector of the West Bank and Gaza is below the bottom in Figure 3.6 and the ratio of FDA/GDP is near the middle of the graph. The fact that the proportion of the manufacturing sector declined consistently during the period of heavy aid is evidence of possible Dutch disease infection in the

West Bank and Gaza. This result is consistent with the claims by Rajan and Subramanian as expressed in Figure 3.6. The causality between foreign aid and the GDP and the weight of the industrial sector in the economy of the West Bank and Gaza will be further analysed in Chapter 4. The relationship between foreign aid intensity and the ratio of the manufacturing sector to the services sector also exhibits the impact of Dutch disease. This relationship is demonstrated in Figure 3.7.

Figure 3.7 Foreign Aid Intensity and the Manufacturing/Services Ratio 1980-2000



Source: From Rajan and Subramanian (2006), based on the Industrial Statistic Database, United Nations Industrial Organization-UNIO 2003. p.44.

The negative correlation between foreign aid and the weight of the manufacturing sector relative to the service sector coincides with the claim that a flood of external funds leads to the development of the non-tradable sector towards the development of the tradable sector, a phenomenon that leads to weaker economic performance. In 1994, the proportion of manufacturing to services in the West Bank and Gaza was 30.4% (log of -0.51). In 2005, this proportion had declined to 14.1% (log of -0.85).

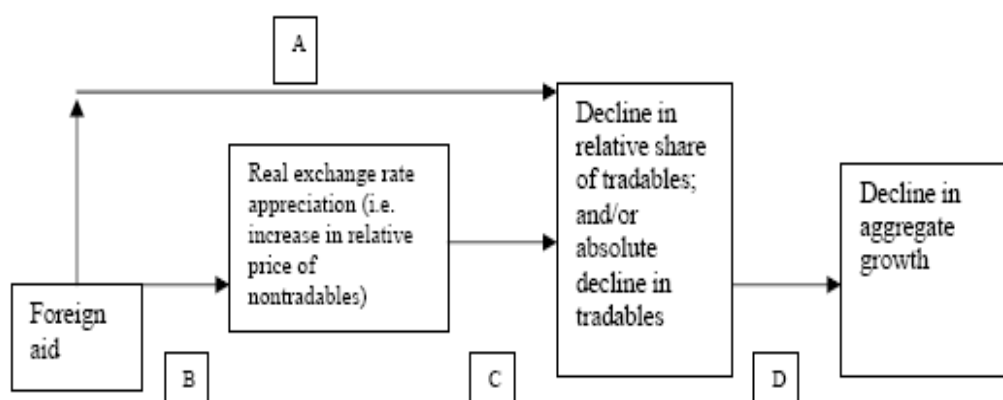
The analysis of Rajan and Subramanian differs from previous studies. Unlike their predecessors, they incorporate indicators of the relative deterioration (or failure of development) of the manufacturing sector, which is symptomatic of Dutch disease. They also explicitly analyse the impact of foreign aid on the exchange rate as projected by Dutch disease. In addition, they treat foreign aid as an endogenous factor, justifying this with the claim that poorer countries (ostensibly prone to mismanagement) attract

greater foreign aid. Namely, the negative correlation alone between foreign aid and the GDP does not necessarily support the claim that foreign aid induces Dutch disease. To support the claim of negative causality, one must investigate the indirect factors such as the currency rate appreciation as well as the weight of the tradable industry in the economy.

Rajan and Subramanian claim that the negative correlation between foreign aid and economic growth is mediated through the exchange rate. The infusion of funds from foreign aid, similar to windfall profits from natural resources, leads to over-valuation of the local currency, and this over-valuation, rather than the foreign aid itself, precipitates the diversion of an economy's resources from the tradable sector to non-tradable goods and services. To measure the direct impact of foreign aid, one must deduct the impact of over-valuation on the GDP and on the ratio between tradable and non-tradable sectors.

Figure 3.8 outlines the avenues of foreign aid impact based on the Rajan-Subramanian model. According to this diagram, foreign aid can adversely affect the GDP either directly or indirectly. Route A depicts a direct negative impact on the relative share of the tradable sector. In Route B, the negative impact on the tradable sector (C) is triggered by the appreciation of the local currency. Both routes culminate in a decline in aggregate growth.

Figure 3.8 The Impact of Foreign Aid on Growth According to the Rajan-Subramanian Model



Source: Rajan, R.G. and Subramanian, A. (2005). p.8.

Rajan and Subramanian conclude that foreign aid has a direct negative impact on the GDP even after adjusting for over-valuation of the local currency. They also find that foreign aid adversely affects growth in the labour market.

Rajan and Subramanian (2006) claim that foreign aid is similar to the “natural resource curse” that leads to Dutch Disease. This result is consistent with the previous claims on the positive correlation between aid and consumption and the negative correlation between aid and development.

3.4.1 The Political Implications of Dutch Disease

Knack (2001) and Brautigam and Knack (2004) claim that massive foreign aid provides rulers with an extra degree of freedom to apply bad governance and corruption. Conflicting political interests can aggravate the negative effects of Dutch disease. Lane and Tornell (1996) and Torvik (2002) consider Dutch disease a process in which different political groups seek rents from the wealth of a country as each political group attempts to maximise its own expected utility (wealth) by securing a larger share of the national income. Such struggles between these groups can lead to a decrease in investments and a reduction in growth rates. Jones (2013) studied the used Granger causality tests to examine the causality direction of foreign aid and growth.

Collier (1988) and Acemoglu and Robinson (2001) suggest that the inequality generated by the increase in natural resources increases pressures toward establishing democratic regimes. In contrast, Wantchekon (1999) and Ross (2001) find a positive correlation between long-term dictatorships and natural resources (for example, Iraq and Libya). Carapico (2002) finds that most foreign aid to the Arab world is through governments that attempt to retain political power through non-democratic agents. As a result, foreign aid is ineffective in promoting democracy in the Arab world.

Lam and Wantchekon (2003) investigate how the GDP, the distribution of income and the distribution of political power change as a result of the discovery of natural resources. They claim that inequality increases directly as the power of ruling elites increases and indirectly as a result of Dutch disease and its negative impact on the GDP. Lam and Wantchekon generate a rent-seeking model that extends and explains the effects of Dutch Disease by adding political factors. Furthermore, they assume that elites govern the country by a single dictatorial dynasty and that no meaningful

resistance to the elite is allowed. In addition, the power and claims of the elite on their share of income and wealth is inherited from previous generations. The Lam-Wantchekon model divides the economy into three sectors: durable goods manufacturers, non-tradable good producers, and natural resource exploiters. It is assumed that the natural resource sector does not require production inputs, and it is also assumed that, in addition to the elite, there are two plebeian groups that compete for what is left by the elite group.

In their study, Lam and Wantchekon prove three hypotheses. One, that new resources disproportionately increase the power and wealth of the elite. Two, that human capital diminishes as a result of new natural resources because the tradable goods sector, which employs a greater number of knowledgeable employees, shrinks. Three, that new resources increase the lobbying efforts of the lower class in an attempt to improve their ability to benefit from the new resources.

3.4.2 Dutch Disease and the Palestinian Economy

Most studies analysing the development of the West Bank and Gaza concentrate on the prospects in the wake of the Oslo Accords of 1993. While the West Bank and Gaza have always relied on aid and donations from abroad to some degree, the post-Oslo period coincides with the infusion of massive foreign aid¹¹⁸.

The World Bank (1999) and the Secretariat of the Ad Hoc Liaison Committee (1999) provide an initial glimpse into the effectiveness of aid in the West Bank and Gaza a few years after the Oslo Accords. Le More (2008) claims that the foreign aid to the West Bank and Gaza following the Oslo Accords was wasted money as it failed to enhance peace.

Petri (1997) and Astrup and Dessus (2002) claim that the Palestinian economy is plagued with Dutch disease. Petri (1997) states,

¹¹⁸ World Bank (1999) and the Report of the Secretariat of Ad Hoc Liaison Committee (1999) are the only studies that provided an initial glimpse at the effectiveness of aid in the West Bank and Gaza in the years following the Oslo Accord. Later data indicate that after the second Intifada, most of their conclusions do not hold and the most we can say is that the aid to the West Bank and Gaza prevented the entrenchment of deeper poverty. Saleh (2004) claims that the economic condition in the West Bank and Gaza is directly affected by terror.

"An especially dramatic example of the Dutch disease at work is provided by the structure of the Palestinian economy in the early 1990s. Despite its very small economic size, the West Bank and Gaza (WBG) exported only 14 per cent of its output. These exports paid for only one-fifth of imports, with the remaining 80 per cent financed by wages earned in Israel. As a result, the WBG's productive resources at home were engaged mostly in non-traded sectors, with tradable accounting for only 8 per cent of outputs. Nevertheless, wage rates were higher than those in neighbouring Jordan or Egypt. As the effects of Israeli border closures demonstrate, the shift to alternative foreign-exchange generating activities is difficult because the economy lacks a base for producing tradable" (p. 25).

According to Astrup and Dessus, the replacement of the wages of Palestinians formerly employed in Israel with foreign aid serves to increase the symptoms of Dutch disease in the West Bank and Gaza¹¹⁹.

Lasensky and Grace (2006) question the impact of aid on the economy of Palestine as well as its impact on the way to peace. Hever, S., (2006) claims that aid to the West Bank and Gaza inflames the conflict. UNCTAD (2006-A) claims that the main effect of the aid to the West Bank and Gaza was the creating of basic institutional and regulatory frameworks. In the AFP (2004), it is claimed that foreign aid for Palestinians funds Israel's occupation as more than 75% of the imports to the West Bank and Gaza are from Israel.

3.5 Conclusions and Suggested Potential Remedies to Dutch Disease

Dutch disease in developing countries can be induced by natural resource discovery. However, many factors other than the discovery of natural resources can trigger this phenomenon. Any sudden increase in wealth due to a booming sector that leads to a shrinkage of productive sectors, as well as any massive flow of funds from abroad, including foreign aid, donations, and repatriation of migrant worker wages and savings, can induce Dutch disease in developing economies. At this stage, I must emphasise that the claim that foreign aid generates Dutch disease is not conclusive, as the causality

¹¹⁹ See also Levy (2007).

direction is not clear, even if one finds a negative relation between foreign aid and growth.

Contrary to intuitive belief, a massive flow of funds can paradoxically lead to economic deterioration as a result of the weakening of the industrial and technological sectors that manufacture tradable goods. Dutch disease explains how this is precipitated by the over-valuation of local currency and the transfer of labour and capital to the non-tradable service sector. It was also observed that foreign aid and the sudden increase in wealth can lead to an increase in inequality and that they tend to promote non-democratic processes by facilitating ruling dictators to entrench political power.

Recent studies claim that due to the direct and indirect effects of Dutch disease, foreign aid may have a negative impact on economic growth, even though, generally speaking, foreign aid and donations alleviate the hardships of poverty. The primary problem regarding Dutch disease is the ability to regenerate economic growth after the discontinuation of the external flow of funds. The question is whether recovery from Dutch disease can be expedited in the 21st century. The answer is a definite yes, providing the following three measures are implemented amongst others. Rendering foreign aid in the form of developing infrastructures, providing technological rather than financial assistance and curtailing foreign aid instrumental in sustaining dictatorial governments are a few strategies that can be employed¹²⁰.

In the empirical part of my study, I examine whether the long period of cash flow from the sale of labour to Israel, which was subsequently replaced by massive foreign aid, generated Dutch disease in the West Bank and Gaza. Petri (1997) claims that the West Bank and Gaza are seriously infected by Dutch disease. The empirical portion of my thesis will examine the claim of Petri in the years that followed the Oslo Accords. A further question to be explored is whether Dutch disease can be cured and, if so, how, given that there is a connection between terrorism and the economy.

¹²⁰ Chauvet and Collier (2004) find that it takes, on average, 56 years for a country to rise from the status of low income countries under stress (LICUS).

Chapter 4 - Methodology of Research: The Foreign Currency Gap Model

4.1 Introduction

One of the main claims of this thesis is that almost all the supply of foreign currency to the West Bank and Gaza is exogenous and thus in line with the "Two Gap Model", GDP is almost entirely determined by the exogenous foreign currency constraint. This claim is based on the following assumptions. First, foreign aid to the West Bank and Gaza is determined exogenously, and its level is very high, in fact, foreign and capital transfers to the West Bank and Gaza financed sixty-four percent of imports over the period 1994 to 2007 (see Tables 5.1 and 5.2, p.144). Second, over the period 2000 to 2007, approximately ninety percent of the Palestinians' exports were directed to Israel and controlled by Israel (See Table 5.10, p.156). Third, between 1999 to 2007, approximately eighty-nine percent of compensation in the balance-of-payments for Palestinian employees was from Israel (See Table 5.7, p .153). Fourth, due to special political risk, the level of borrowing from abroad was very limited, and the reserve of foreign currency was small (See Table 5.7, p.153). Under these circumstances, if the relative weight of the tradable and non-tradable sectors is given and if the optimal levels of import out of total resources and investments under the constraints are employed and selected¹²¹, then the level of GDP is also determined by exogenous constraints and not by free economic demand and supply equilibrium.

This chapter develops the above claim in the following sections.

In section 4.2, national accounting identities establish a presentation of GDP and GNP as a function of the available foreign currency. In section 4.3, I use this representation of GDP and GNP to analyze the factors that affect the theoretical optimal proportions between the tradable and non-tradable sectors, under the assumption that there is a cumulative representative utility function of the economy. In section 4.4, the analysis is extended to examine the theoretical optimal investment path in the tradable and non-

¹²¹ I will claim later that if the non-tradable sectors are over weighted because less foreign currency is required in these sectors, then GDP may increase but welfare may be reduced. I will also provide rules for the optimal path of investments and discuss the negative implication of saving foreign currency by inefficient local production.

tradable sectors under the foreign currency constraint. Lastly, in section 4.5, the potential implications and limitations of the analysis of the previous sections are discussed.

4.2 GDP and GNP as a Function of the Available Foreign Currency

As explained in the introduction, 4.1, in the case of the West Bank and Gaza, the effective constraint according to the ‘two-gap model’ is the foreign currency constraint. The model developed in this dissertation focuses exclusively on the barrier to economic development posed by the gap between exports and the foreign currency required to finance capital investment, i.e., the balance-of-payments gap.

The “two-gap model” analyses two market failures that construct structural barriers to economic growth. The role of foreign aid is to clear the road for growth by bridging these gaps. In their review of the literature on foreign aid effectiveness, Harms and Lutz (2004) provide a description, review and analysis of the two-gap model. They note that although gap models and the mechanical approach to development they exemplify have come under heavy criticism in academic literature over the past 15 years, they remain highly relevant to policy makers.

The two-gap model starts with the simple Harrod-Domar static model of investment and growth and then focuses on constraints on economic growth by introducing two gaps. The first is the gap between savings and investment, where the claim is that poor countries are trapped in a vicious cycle of inadequate savings, underinvestment and lack of growth. The second gap is the balance-of-payments; there are not enough exports to provide the foreign currency that is needed for investment. Either of these two gaps can limit investment and thus growth. By bridging the relevant gap, foreign aid raises the feasible level of investment and the feasible growth rate. The model predicts that the impact will be less pronounced when the economy faces a savings gap.

The assumption supporting the development of my "two-gap" approach is that there is only one relevant gap confronting the Palestinian economy, which is the balance-of-payments gap. Exports are constrained exogenously due to closure on the West Bank and Gaza and thus cannot be increased by additional capital and labour. Under the closure situation, both labour and capital are underemployed, and foreign aid enables

an increase in imports and consumption expenditures. Accordingly, rather than bridging the gap to generate investment and growth, foreign aid contributes to the diversion of resources from productive sectors to non-tradable services and aggravates the symptoms of Dutch disease.

Expressing *GNP* in terms of balance-of-payments constraints can lead to a valuable model only if the impact of endogenous and exogenous parameters on this constraint can be determined.

4.2.1 Notations and basic equations

Notations

C_P - Private consumption

I - Investment

C_G - Governmental consumption

E_X - Export of goods and services

I_M - Import of goods and services

FTR - Financial transfers to the private and public sectors.

NCT - Net capital and transfers

W - Salaries of residents from abroad and net income from abroad.

Y - Gross national product (GNP)

Y_d - Gross domestic product (GDP)

β - Proportion of import out of uses.

Sources/uses parity

$$(4-1) \quad C_P + C_G + I + E_X + W = Y + I_M$$

The import function is:

$$(4-2) \quad I_M = \beta \cdot [C_P + C_G + I + E_X]$$

The balance-of-payments constraint can be expressed as:

$$(4-3) \quad E_X + FTR + NCT + W = I_M$$

By inserting I_M from (4-2) into (4-3) and solving for I , I obtain:

$$(4-4) \quad I = \frac{E_X + FTR + NCT + W}{\beta} - C_P - C_G - E_X$$

Let us now solve Y by restating I in (4-1) in terms of equation (4-4) and by replacing I_M in (4-1) with the import function in (4-3) to obtain:

$$(4-5) \quad C_p + C_G + \frac{E_x + FTR + NCT + W}{\beta} - C_p - C_G - E_x + E_x + W = Y + E_x + FTR + NCT + W$$

Solving for Y from the above expression yields:

$$(4-6) \quad Y \equiv GNP = \frac{1}{\beta} [(E_x + FTR + NCT)(1 - \beta) + W]$$

The GDP can be written as:

$$(4-7) \quad Y_d \equiv GDP = \frac{(1 - \beta)}{\beta} [E_x + FTR + NCT + W]$$

The ratio of $\frac{(1 - \beta)}{\beta}$ is the "foreign currency GDP multiplier". For example, if $\beta = 0.4$,

then $\frac{(1 - \beta)}{\beta} = 1.5$. Thus, if β is given, 1 USD of resources in foreign currency will

increase GDP by 1.5 USD. The lower β is, the higher the foreign currency GDP multiplier. Equations (4-6) and (4-7) express the following claim, 4-1.

4.2.2 Claim 4-1

In the short run, Y and Y_d are determined solely by the sources of foreign currency, E_x , FTR , NCT , and W , and by β , the ratio of imports to uses.

Equations (4-6) and (4-7) are merely an expression of the sources and uses parity of national accounting and the balance-of-payments parity. In all economies, FTR is assumed to be exogenous. In most economies, NCT is partially endogenous; at least in the short run, as borrowing and fluctuations in foreign currency reserves can affect this term. However, in some economies, such as the Palestinian economy, NCT is entirely exogenous. Given the fragile political situation in the West Bank and Gaza, borrowing in the free market is impossible, and foreign currency reserves are negligible. In most economies, W , E_x and β can be largely endogenous and can be derived from economic equilibrium conditions. However, in the case of the West Bank and Gaza, I assume that exports E_x and the remittances of wages from West Bank and Gaza residents abroad are primarily constrained by Israel. Hence, in our case, β remains the sole endogenous factor. Lowering β is possible either by lowering the production of tradable goods that have a high component of imports or by decreasing the level of investments in sectors

that have a high import component. The analysis of these alternatives is given in section 4.3 and 4.4.

4.3 Tradable vs. Non-tradable: Partial Real Economy Equilibrium Analysis

Let us assume that consumption is composed of tradable and non-tradable goods. Manufactured products are tradable goods that have a high import component¹²².

According to the distinction between tradable and non-tradable sectors, equations (4-1) and (4-2) can be restated as:

$$(4-1)' \quad C_T + C_N + I_T + I_N + E_X + W = Y + I_M$$

where C_T and I_T denote the consumption and investment of the tradable goods, and C_N and I_N represent the consumption and investment of non-tradable goods, respectively.

$$(4-2)' \quad I_M = \beta_{CN}C_N + \beta_{IN}I_N + \beta_T [C_T + I_T + E_X]$$

where β_{CN} and β_{IN} in (4-2)' denote the proportion of imports out of non-tradable consumption and investment, respectively, and β_T represents the proportion of imports out of tradable consumption, investment and export.

By restating (4-3) in terms of equations (4-1)' and (4-2)', I derive the following:

$$(4-6)' \quad Y = C_N * (1 - \frac{\beta_{CN}}{\beta_T}) + I_N * (1 - \frac{\beta_{IN}}{\beta_T}) + \frac{1}{\beta_T} * [(E_X + FTR + NCT) * (1 - \beta_T) + W]$$

Equation (4-6) is a private case of (4-6)' when $\beta_{CN} = \beta_{IN} = \beta_T = \beta$, i.e., the propensity to import is identical in the tradable and non-tradable sectors.

In our model, β_{CN} and β_{IN} are lower than β_T . Increasing the levels of C_N and I_N and decreasing the relative weight of tradable consumption and investment can increase Y . However, an increase in C_N and Y does not necessarily increase welfare.

¹²² It can be assumed that most services and the investment in infrastructure, such as highways, educational systems and housing, are considered non-tradable consumption and investment and have relatively low β .

4.3.1 Optimal Levels of C_N and C_T and Dutch Disease

Assume that despite the theoretical reservations (see Arrow (1950)) I aggregate the social utility of the economy. Under the given relative prices of imported products and local products and services, the balance-of-payments constraint and the given level of investments I_T and I_N generate a possibility trade-off between C_N and C_T , which is given in (4-8) below¹²³:

$$(4-8) \quad C_N = -\frac{\beta_T}{\beta_{CN}} * C_T + \frac{1}{\beta_{CN}} * [(1 - \beta_T) * E_X + FTR + NCT + W - \beta_T * I_T - B_{IN} * I_N]$$

The linear production possibilities constraint due to the foreign currency constraint in (4-8) is depicted in Figure 4.1.

For simplicity, let A denote the amount of available foreign currency expressed within the brackets on the right hand side of equation (4-8). Namely,

$$A = [(1 - \beta_T) * E_X + FTR + NCT + W - \beta_T * I_T - B_{IN} * I_N]$$

Thus, the linear production possibilities constraint can simply be written as:

$$(4-8)' \quad C_N = -\frac{\beta_T}{\beta_{CN}} C_T + \frac{1}{\beta_{CN}} A$$

Based on this simplified expression, one can see that when $C_N=0$, then the maximum

$$C_T = \frac{1}{\beta_T} A \text{ as plotted below the horizontal axis. When } C_T=0, \text{ then } C_N = \frac{1}{\beta_{CN}} A .$$

¹²³ The given prices assumption implies that the constraint is actually expressed in terms of real imported and local units of investments and consumptions.

Figure 4.1 The Optimal Combination of C_N and C_T

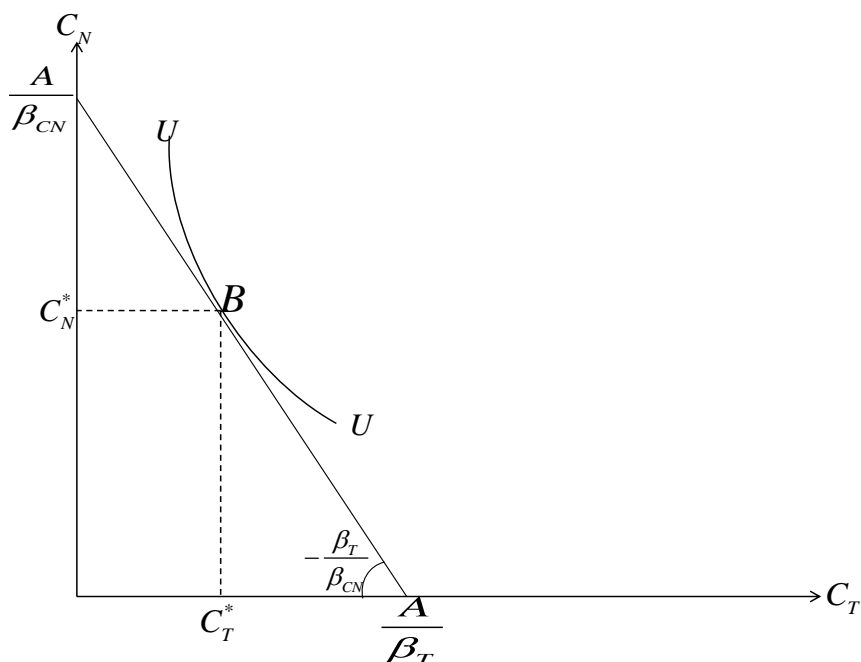


Figure 4.1 indicates that the highest indifference aggregate utility is obtained at the optimal point B and the optimal aggregate levels of C_N and C_T are C_N^* and C_T^* . These optimal levels are obtained at the point of tangency between the trade-off line and the social utility indifference curve UU . Because by assumption $\beta_T > \beta_{CN}$, then lowering C_T below C_T^* by given units will increase C_N by more units; therefore, GDP will increase. However, the aggregate utility from this higher GDP will decrease due to the deviation from the optimal point B. The higher the ratio of β_T/β_{CN} , the steeper the slope of the trade-off line in Figure 4.1. Given the social utility indifference curve, UU , is convex, the optimal consumption of non-tradable goods C_N^* will increase, and the optimal consumption of the tradable goods C_T^* will decrease, the higher the ratio of β_T/β_{CN} . In other words, under stringent foreign currency constraints, a higher ratio β_T/β_{CN} implies that optimality is contingent on an increase in the level of the ‘low-import’, non-tradable sectors of the economy.

The implication of this analysis to symptoms of Dutch Disease requires additional assumptions regarding the "income effect" on the slope of the indifference curve. The necessary and sufficient condition that a marginal increase in foreign currency increases the proportion of the non-tradable sector relatively to the tradable sector is given in Claim 4-2.

4.3.2 Claim 4-2

Assume partial equilibrium¹²⁴ conditions in which the aggregate utility function is maximised and subject to the foreign currency constraint. Then, a marginal increase of foreign currency resource A leads to a marginal increase in the proportion of the non-tradable sector relative to the tradable sector, if, at the equilibrium point, the following holds:

$$(4-9) \quad \frac{\partial U^2}{\partial C_N \partial A} \Big|_{C_N^*} > \frac{\partial U^2}{\partial C_T \partial A} \Big|_{C_T^*}$$

Namely, at the optimum point, an increase of A increases more the impact of C_N on U relative to the impact of C_T on U .

Proof:

At any point on an iso utility curve (utility indifference curve) the following differential equation holds:

$$(4-10) \quad dU = 0 = \frac{\partial U}{\partial C_N} dC_N + \frac{\partial U}{\partial C_T} dC_T$$

Thus, the slope of the indifference curve at any point is simply:

$$(4-11) \quad \frac{dC_N}{dC_T} = -\frac{\partial U / \partial C_T}{\partial U / \partial C_N}$$

The optimal equilibrium point is on the linear constraint (production possibilities line) where the slope of the indifference curve is identical to the slope of the production possibility line. That is:

$$(4-12) \quad \frac{\partial U / \partial C_T \Big|_{C_T^*}}{\partial U / \partial C_N \Big|_{C_N^*}} = \frac{\beta_T}{\beta_N}$$

When (4-9) holds, the marginal increases of A will lead to a higher increase in $\partial U / \partial C_N \Big|_{C_N^*}$ relative to the increase of $\partial U / \partial C_T \Big|_{C_T^*}$. Thus, the slope of the utility indifference curve will be lower than that of the constraint line. Based on the convexity

¹²⁴ The analysis is only a partial equilibrium in terms of real units, as I ignore price changes along the maximization of the aggregate utility function.

assumption of the utility indifference curve, the new equilibrium points C_N^{**} and C_T^{**}

are such that $\frac{C_N^{**}}{C_T^{**}} > \frac{C_N^*}{C_T^*}$.

The implication of Claim 4-2 is that assuming maximisation of the aggregate utility function, additional foreign aid will not necessarily lead to an increase in relative demand for the non-tradable sector. This theoretical conclusion is based on expected utility maximisation while holding prices constant. Thus, the analysis presents only a partial equilibrium model. It is an addition to the general convention related to the symptoms of Dutch disease that are based on the impact of a flood of foreign currency on the exchange rate. If the condition in (4-12) does not hold, then the impact of the maximisation of aggregate expected utility is in contrast to the impact of the exchange rate on the relative demand for the tradable sector.

4.4 The Optimal Level of I_N and I_T and Dutch Disease

Increasing investment lowers current consumption, but it may also increase future consumption. Equation (4-6)' reflects the fact that under the balance-of-payments constraint, increasing I_N and lowering I_T can lead to *GNP* growth. This increase is obtained due to the shift from investment in high-import enterprises to investments in low-import sectors and import-substitution industries.

The question remains as to the optimal mix of investments in tradable and non-tradable sectors. The profitability index (*PI*) rule that is used under capital rationing conditions can assist in answering this question. Under capital rationing, the maximum total net present value (*NPV*) is obtained when investments are ranked by the profitability index *PI*, i.e., the ratio of present value (*PV*) or *NPV* relative to total investment (*I*). The marginal project that is accepted must have a non-negative *NPV*. In our case, the relevant constraint is not total investment but rather foreign currency. Thus, the relevant capital rationing rule is as follows in claim 4-3.

4.4.1 Claim 4-3

Under balance-of-payments constraints, an investment project j is preferred over an investment project i , if and only if:

$$(4-13) \quad PI_j > PI_i * \frac{\beta_j}{\beta_i}$$

where PI_j and PI_i are the profitability indexes of project j and i , respectively, and β_j and β_i are the proportion of foreign currency to investments j and i ratios, respectively.

The proof is immediate because the contribution in terms of NPV per one unit of the constrained foreign currency is equal to $\frac{NPV_j}{\beta_j * I_j}$ and $\frac{NPV_i}{\beta_i * I_i}$ for projects i and j , respectively. Using the definition of PI and assuming positive β s complete the proof. Note, inequality (4-13) only states the conditions under which one investment is preferable to another, not that either of the projects is worthwhile. To accept a project, the PI , which is the NPV/ I should be positive.

The balance-of-payments trade-off line between I_N and I_T is given in equation (4-14).

$$(4-14) \quad I_N = -\frac{\beta_T}{\beta_{IN}} * I_T + \frac{1}{\beta_{IN}} * [(1 - \beta_T) * E_X + FTR + NCT + W - \beta_T * C_T - \beta_{CN} * C_N]$$

Note, that if only partial equilibrium optimality is considered, it is not necessary that the amount invested will be determined by the balance-of-payments constraint. If negative NPV for the marginal investment is obtained when investment is increased to make the balance-of-payment constraint effective, then it is preferred to lower investment instead of increase consumption until marginal positive NPV is restored.

Optimal levels of investment and consumption will be determined according to the Hirshleifer (1970) general equilibrium between consumption and investment.

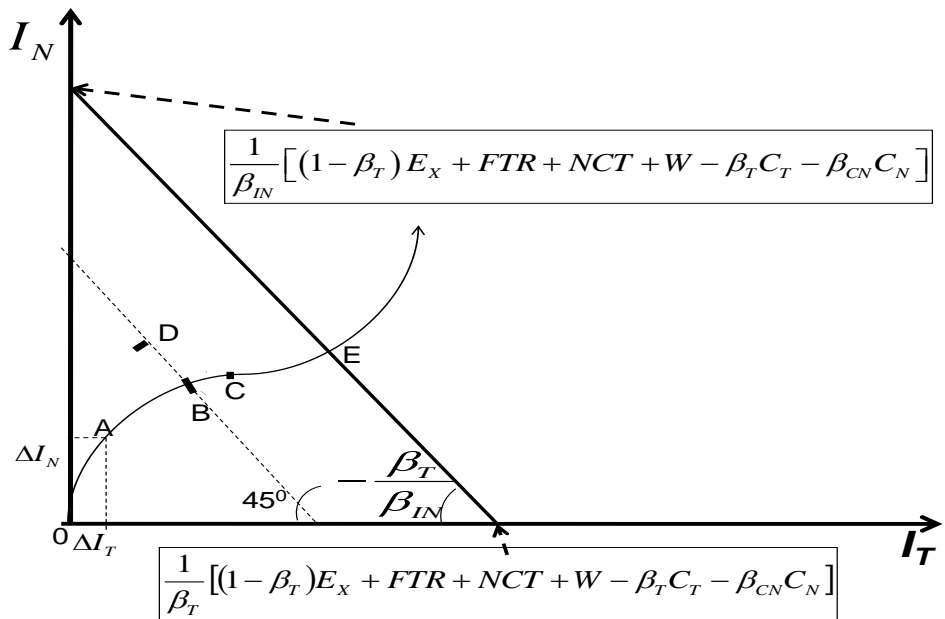
According to claim 4-3, regardless of the total investment I , which is composed of I_N and I_T , the optimal proportion between the two should guarantee that the profitability index PI of the marginal project meets the following condition:

$$(4-15) \quad \frac{PI^M_N}{PI^M_T} = \frac{\beta_T}{\beta_{IN}}$$

where PI^M_N and PI^M_T are the profitability indexes of the marginal investment in the tradable and the non-tradable sectors.

Equation (4-14) generates the foreign currency constraints on investments under the assumed level of consumption, and equation (4-15) generates a path of optimal proportions between I_N and I_T . The optimal path is described in Figure 4.2 below.

Figure 4.2 The Optimal Combination Path of I_N and I_T



Let start to construct the optimal path at point 0 while assuming given capital each sector. Assume that the additional investment in each sector is $\Delta I_N \equiv I^M$, generating positive NPV. If the proportions between these two marginal investments are

according to equation (4-15), $\frac{PI^M_N}{PI^M_T} = \frac{\beta_T}{\beta_{IN}}$, then a point such as A on the optimal path

line is obtained. Other points on the optimal path are obtained similarly. The optimal proportions between I_N and I_T are not necessarily fixed along the optimal path line because the relative marginal NPV of the investments in the sectors can vary at

different levels of invested capital. According to equation (4-6)', an increase in Y can be attained if we move from optimal points, i.e., from 0 to A, from A to B, and from B to C, where all of the points 0, A, B and C are on the optimal path line. Y can also be increased if we move to a suboptimal point such as D that is either below or above this line. The cost of such a decision is a suboptimal NPV and lower increase in Y . For example, point D is on a dashed line that lies parallel to the balance-of-payments line and crosses point B. On this line, the total foreign currency required for investment remains constant. However, as proved in claim 4-3, total NPV at point D is lower than the NPV of point B, which is on the optimal path line. Because NPV measures the additional Y , the additional GDP is lower due to moving from point A to point D rather than moving to point B.

As noted previously, a project contributes to growth only if its NPVs are positive. It is very possible that the marginal project has zero-NPV before the balance-of-payment constraint is effective. For example, if the marginal project of I_T approaches zero-NPV at point B, then according to the optimal path line condition (4-15), the NPV of the marginal project I_N also approaches zero. Because projects are ranked by their PI along the optimal path line, at any point on this line to the right of B, the NPV of subsequent projects is negative. In this case, the balance-of-payments constraint will be ineffective and over-employment of capital will likely result if the level of investment reaching up to point C, which is on the balance of payment constraint. In such a case, it will be worth increasing consumption and lowering the balance-of-payments constraint for investment up to the point in which B is on the balance-of-payment constraint line. According to the Hirshleifer's model, consumption should be increased until the NPV of the marginal project is zero. I expect that if investment becomes less attractive due to the various reasons, there should be a decrease in the ratio of investment to GDP.

The limitations on exports imposed on the West Bank and Gaza lower the attractiveness of developing industrial exports. In addition to these constraints, a lack of water and arable land limit the potential for agricultural exports. Dutch disease, in the case of West Bank and Gaza probably generated by the lack of profitable opportunities, will be perpetuated under these conditions and the continuing clashes with Israel. Using foreign aid to underpin investment in industrial and agricultural projects can generate

white elephant projects¹²⁵. According to my calculations, the years before the Oslo Accord (1968 to 1993), the net per capita productive capital remained almost constant. The average net productive per capita capital was US \$255 in the 1970s and US \$266 in 1993 (see Table 5.2, p.146). Since 1993 the per capita net productive capital has increased to US \$779.2, a nearly two hundred percent increase. At the same time, per capita GDP decreased from US \$1594 to US \$1351, and the contribution of the manufacturing and agricultural sectors to GDP fell from 32.9% in 1994 to 15.5% in 2007 (see Table 5.9, p.155). This decrease was in a period where the annual average total foreign aid in terms of per capita net transfers plus net capital transfers was US \$667 over the years 1994 to 2007 compared to only US \$208 over the years 1968 to 1993 (see Table 5.2, p.146).

4.5 Conclusion

In this chapter, I provided an analysis of the available GDP according to the constraint of foreign currency. Under the assumptions that this constraint is binding and almost all sources of foreign currency are exogenous, the macroeconomic models that determine the level of GDP according to endogenous demand and supply are of little relevance. This thesis contends that given the special political situation, mainly with Israel, almost all sources of foreign currency for the West Bank and Gaza are exogenous and the foreign currency constraint is binding. Thus, the foreign currency constraint determines the level of GDP. A partial equilibrium aggregate utility model for optimal proportions between tradable and non-tradable sectors was developed. According to the partial equilibrium model that holds constant the price of foreign currency and under specific assumptions on the marginal slopes of the indifference curves of the aggregate utility, an increase in the supply of foreign currency can generate an incentive to increase the relative demand for the products of the tradable sector. Under this situation, there is a demand factor that contradicts the well known claim that an increase in an external supply of foreign currency lowers the price of foreign currency and lowers the relative demand for the products of the tradable sector.

A theoretical optimal proportion path of investment in tradable and non-tradable sectors was proposed which demonstrated that if investment is not profitable for

¹²⁵ The above assertion is more readily observable in Gaza than in the West Bank.

various reasons, then based on Hirshleifer's model of optimal savings consumption, it is better to increase consumption and lower investment. Based on empirical data it is reasonable to conclude that aggregate capital investment in productive assets in the West Bank and Gaza since 1994 has probably had negative NPV which would be expected if Dutch Disease exists.

Chapter 5 - Data

5.1 Introduction

All data presented here concern the years of 1968 to 2007. Between the years 1968 and 1993, the data are based on the '*National accounts Judea Samaria and Gaza 1968-1993*' (Israeli Central Bureau of Statistics (ICBS) Publication No 1012), a regular publication of the Israeli Central Bureau of Statistics (ICBS). Between the years 1994 and 2007, the data are based on the following five publications from the Palestinian Central Bureau of Statistics: '*National Accounts at Current and Constant Prices (2000-2005)*', '*National Accounts at Current and Constant Prices (1994-2000)*', '*Palestine in figures (2004)*', '*Palestine in figures (2006)*' and '*Palestine in figures (2007)*'. During the first Intifada period in 1988 to 1993, the Israeli Central Bureau of Statistics (ICBS) experienced difficulties in collecting data, and in particular, data on exports and imports during this period are missing. For those years, data on imports and exports from Arnon *et al.* (1997) were used.

The next section of this chapter discusses problems with the reliability of the data. Section 5.3 presents the perpetual inventory method for estimating the capital stock using information on investments and the Israeli Central Bureau of Statistics (ICBS's) assumptions on the rates of depreciation of various types of capital stocks. Section 5.4 presents the collected data, and section 5.5 concludes the chapter. Appendices 5.1 and 5.2 present the methodologies of Israeli Central Bureau of Statistics (ICBS) and Palestinian Central Bureau of Statistics (PCBS). To the best of my knowledge these data I have compiled represent the most comprehensive set available on the West Bank and Gaza for these periods.

5.2 Reliability and Consistency

Before I present the analysis of the main empirical data, it should be noted that these data must be interpreted with extreme caution. Political instability in the region has created a number of problems in the collection and analysis of the economic data. There are four major problems with the empirical data.

The first major problem which is a source of inconsistency stems from the fact that during the period concerned, the data were collected by two different institutions. The

Israeli Central Bureau of Statistics (ICBS) was responsible for data collection up to the year 1993, and the Palestinian Central Bureau of Statistics (PCBS) has collected data since the year 1994. For political reasons, these two institutions use different definitions for some parameters. For instance, during the period in which the Israeli Central Bureau of Statistics (ICBS) collected the data, many Palestinians were not considered citizens for political reasons. In particular, Palestinians in the annexed part of Jerusalem were not counted as Palestinians in the West Bank. In the Gaza area, additional inconsistency occurred because the borders changed; in 1979-1982 the North Sinai area and the Rafiah area were ceded to Egyptian control. In addition, Palestinians who left the West Bank and Gaza for various reasons and were not allowed to return by the Israeli authorities, were not considered citizens by the Israeli Central Bureau of Statistics (ICBS) up to 1993, but were considered part of the population in 1994. As a result, from 1993 to 1994, the recorded population increased from 1.8 million to 2.11 million (an increase of 17.1%). This growth rate is much higher than the average annual growth rate in all other years, which was only 2.99%. It is possible that the unusually high growth rate observed in 1993-1994 is due to an actual increase in population because after the Oslo Accords, many Palestinians decided (and were permitted) to return, but it is also possible that the growth rate is partially due to political influences on the statistical methodologies of the two statistical Bureaus. Thus, I divide much of the per capita analysis into two periods: 1968-1993 and 1994-2007. Also note that up to 1993, most civil services were administered by the Israeli Military Authority, whereas after 1994, civil services were administered by the Palestinian Authority.

The second problem relates to the fact that the macro-economic data found in the publications of the Israeli Central Bureau of Statistics (ICBS) covering the period between the first Intifada and the Oslo Accords (1988-1993) is unreliable due to data collection difficulties during this period of clashes between Israel and the Palestinians. Thus, I supplemented the Israeli Central Bureau of Statistics (ICBS) data for this period with data from Arnon *et al.* (1997), but I did not examine the reliability of these data. Since 1994 the Palestinian Authority (PA) has taken responsibility for producing the official economic and social statistical data in the region. In 1994, the Palestinian Central Bureau of Statistics (PCBS) was established, and it has since ensured that modern international standards and recommendations were used for reporting of the National Accounts. Nevertheless, in the first years of its work, the Palestinian Central

Bureau of Statistics (PCBS) encountered certain inevitable difficulties in organizing the process.

The first Palestinian National Accounts appeared in 1994; however, I encountered many inconsistencies and gaps in the data from this year, and different estimation methods were used to fill in the missing data. For instance, foreign trade indicators were estimated using the residual methodology from the economic equation for the Gross Domestic Product (GDP) and were calculated using two different methods. The 1994 Census covered only establishments and did not include population or housing. Moreover, it was difficult to obtain reliable governmental data because only Gaza and Jericho were under Palestinian control at that time, while the rest of the territory was under the control of the Israeli civil administration. In the National Accounts from 1995 to 1996, the statistical coverage and comprehensiveness of the data were noticeably improved, although the problem of inconsistency and difficulty in displaying the data in detail remained. For the period 1997 to 1998, however, a significant shift in the estimation quality was achieved due to the higher level of coverage in the data and because of the use of Supply and Use Tables – a methodology that provides full, internally consistent data even at the disaggregated level. As a result, better estimates and adjustments were available at this stage, especially in fields such as foreign trade and agricultural statistics. The main task for the next stage of 1994 to 2000 was to produce the revised National Accounts time series using constant prices, which included re-weighting of the economic data from the years 1994 to 1996 based on the findings of the 1997 Establishments Census, as well as to redefine the borders of Jerusalem according to the 1997 Census. The period of the second Intifada (2000-2003) was also problematic for gathering data on economic activity in the area. As a result, statistics on trade with Israel during this period were only partially collected, and the reliability of other information was also reduced.

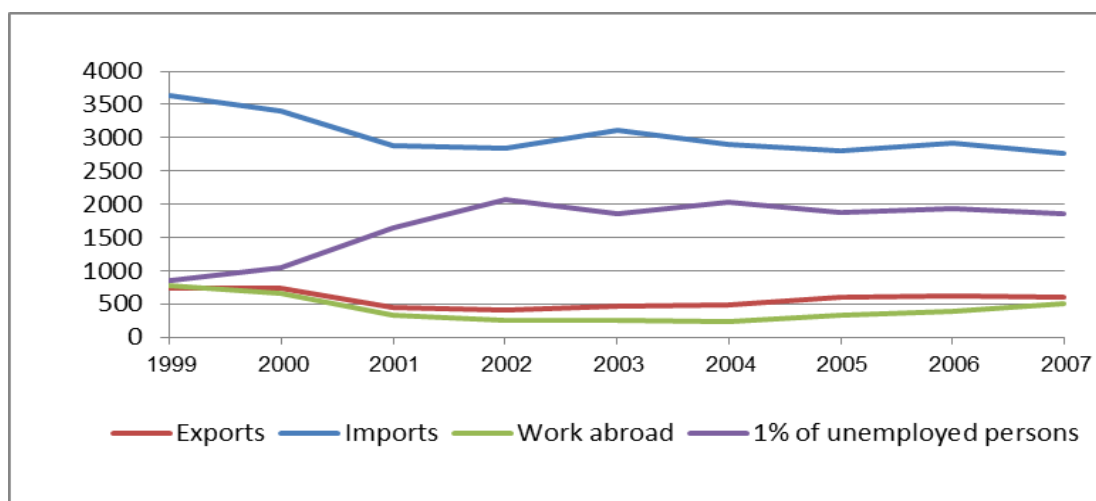
The third problem with the data relates to the political and economic separation between the West Bank and Gaza following Hamas control of Gaza in 2006. Since then, a tight closure has been imposed on Gaza, accompanied by severe economic deterioration¹²⁶. The GDP in Gaza in U.S. dollars (constant 2004 prices) fell from

¹²⁶ It should be noted that there are substantial economic distinctions between the West Bank and Gaza. See Arnon *et al.* (1997).

\$1,683 million in 2005 to \$1,272 million (-24%) in 2007, whereas in the West Bank, it increased from US \$2,877 million to US \$3,264 (+13%). The main reason for the extreme difference between the positive economic development of the West Bank and the economic deterioration of Gaza during these years is probably due to the different political situations in the two regions. In the West Bank, the Palestinian Authority had strong control, and thus almost all clashes between the Israelis and the Palestinians were avoided. In Gaza, the situation was entirely different; due to military clashes between the two sides, Gaza fell under an Israeli siege that damaged the economic situation there. As a result of this extreme difference between the West Bank and Gaza, major analysis was ended at the end of 2006. It is also important to mention that throughout the whole reported period, the movement of residents and goods between the Israeli economy and those of the West Bank and the Gaza area remained relatively free. The close economic ties between the regions complicate attempts to measure the volume of transactions between the residents of these regions. Consequently, some of the estimates are based on partial data and evaluations.

The low reliability of the following data should be particularly noted: import and export of goods and services from Israel, private consumption of goods and services from Israel, payments to employees from the West Bank working in Israel, revenue from industry and data on the construction sector. The reasons for the low reliability of these data are twofold. Firstly, informal commerce ("black dealings" and smuggling) occurs over the border between Israel and the West Bank. These black dealings included both merchandise and labour that was not recorded. The "Security Fence" that was erected in the years 2004-2007 caused a decrease in these dealings, but the borders cannot be entirely closed as there are many Israeli settlements in the West Bank. Secondly, in an economy with low level of unemployment, building houses and renovations are done by hired constructors. However, in the case of the West Bank and Gaza many unemployed Palestinians spend their free time building or renovating their homes and this activity is not and should not be recorded under the international principles of national accounting, but one can consider this activity as a kind of "hidden" GDP activity. The official levels for exports, imports, compensation from work in Israel and unemployment (in hundreds) in the period 1999 to 2007 is shown in Figure 5.1 below:

Figure 5.1 Exports, Imports, and Compensation from Work in Israel (thousands USD) and Hundreds of Unemployed Workers in West Bank and Gaza 1999-2007



Sources: Table 5.1 and 5.4 in Chapter 5 p.144.

Figure 5.1, which is based on the official recorded data, shows that after the outbreak of the second Intifada on September 2000, imports, exports and compensation for work in Israel all dropped dramatically. I do not have a way to estimate the level of informal trade with Israel, but such trade probably also declined after the erection of the dividing fence, which made smuggling more difficult. Thus, even long after the second Intifada subsided, unemployment continued to soar.

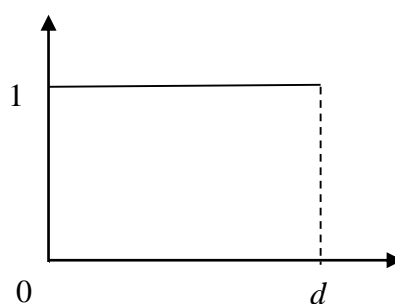
The fourth empirical problem relates to the large economic differences between the periods before (1968-1993) and after (1994-2007) the Oslo Accords. A dramatic increase in foreign aid began in 1994, when the Palestinian Authority (PA) started to develop an autonomous government system. Thus, I divided the analysis into two periods, and in the second period I analyzed only thirteen to fourteen years. Analyzing the impact of macroeconomic factors using a time series representing only one country without access to comparable data on other countries is a very difficult task. The small number of years in this second period also impairs the accuracy of this kind of time series analysis.

More specific and detailed information on the reliability and consistency of the data and on sources, methods and definitions is presented in the appendices 5.1 and 5.2.

5.3 Estimation Method of West Bank and Gaza Capital Stock

Capital stock was calculated according to the Perpetual Inventory Method (also called the continuous inventory method). The Perpetual Inventory Method model is recommended by the ESA95 (the European system of national and regional accounts) to calculate the Gross Capital Stock (GCS). The Perpetual Inventory Method creates an estimate of the capital stock by accumulating past asset purchases throughout the expected duration of the assets. Purchases and withdrawals are recorded starting from a benchmark stock value. Using this method, gross capital stock is estimated as the sum of the gross fixed capital formation in previous years for which the service life has not yet expired. This method assumes that the total investment of a certain asset does not deteriorate during its expected service life (d years) and that it is completely discarded after that period, as illustrated in figure 5.1¹²⁷.

Figure 5.2 The Perpetual Inventory Method Survival function



Assuming a straight line depreciation, gross capital stock can be estimated using equation (2) below:

$$(2) \quad GC_{t,t} = \sum_{i=0}^{d-1} I_{t-i} * P_{t-i,t}$$

Where:

$GC_{t,t}$ = stock of fixed assets (gross) in year t , measured in prices of year t

I_{t-i} = gross fixed capital formation in year t , measured in current prices

$P_{t-i,t}$ = price index of year t with base year $t-i$

d = expected service life

¹²⁷ For further analysis of the Perpetual Inventory Method IM see Meinen G., P. Verbiest and P.P Wolf (1998).

Consumption of fixed capital can be calculated as follows:

$$(3) \quad CFC_{t,t} = 1/d * GC_{t,t}$$

As a result, the net capital stock in year t in current prices can be estimated as stipulated in equation (4) below:

$$(4) \quad NC_{t,t} = \sum \{I_{t-i} * P_{t-i,t} - \sum CFC\}$$

The mortality function has a truncated normal retirement distribution. Assuming that the duration is normally distributed, the possible values of the duration are limited to those falling between 50 percent and 150 percent of the average duration. The depreciation function is linear; the constant market value price is reduced by a fixed amount each period. The depreciation average duration for machines, equipment and transportation is 8 years, and for buildings and other construction work it is 40 years (for all industries).

Assumptions:

- No investments were made before 1968.
- Investments in West Bank and Gaza between the years 1988-1993 occurred at the same level as in 1988.
- The chaining coefficient between 1986 prices in shekels and 1997 prices in dollars is 0.78021679 for all assets and industries.
- Distribution of the government's and local authority's investments between the buildings and equipment used to provide public services in Israel was calculated according to the ratio of parallel years.

5.4 Tables of Main Selected Economic Data

Variables Index of Notation

C_P - private consumption

I - Investment

C_G - Governmental consumption

E_X - Export of goods and services

I_M - Import of goods and services

FTR - Financial transfers to the private and public sectors

NCT - Net Capital and Transfers

NPC - Net Productive Capital

NC - Net Capital

W - Salaries of residents from abroad and net income from abroad

GNP - Gross national product

GDP - Gross domestic product

β - Proportion of import out of uses

Table 5.1 Selected Economic Indicators for West Bank and Gaza, 1968-2007
(in millions U.S. dollars, 2004 prices)

Years	Population ¹	GDP	GNP	β	Foreign Aid (FTR + NCT)	Wages from Abroad (W)	Import minus Export (IM-EX)	Export (EX)	Import (IM)	Net Capital ² (NC)	Net Productive Capital Stock (NPC ³)
1968	938	538	543	36.40%	176.3	5	182	127	308	588.4	235.4
1969	951	603	642	39.80%	241.7	38	280	120	400	579.2	207.6
1970	970	670	752	38.60%	213.8	82	296	125	421	634.1	224.4
1971	990	763	911	40.30%	188.7	149	337	178	515	696.9	248.2
1972	1011	892	1152	43.50%	213.7	260	474	213	687	773.8	271.3
1973	1037	857	1131	46.60%	268	274	542	206	748	909.7	300.3
1974	1069	1046	1322	43.90%	295.1	276	571	249	820	1049.3	297.8
1975	1092	1058	1388	47.00%	295.4	330	626	313	939	1230.7	296.4
1976	1111	1219	1551	44.70%	291.5	332	623	360	984	1443.5	291.7
1977	1134	1207	1544	47.20%	371.1	338	709	371	1080	1673.7	275.5
1978	1159	1362	1740	44.40%	291.9	378	670	418	1088	1916.8	263.7
1979	1167	1340	1780	45.80%	300.2	439	739	393	1132	2202.5	271.6
1980	1172	1536	1942	42.20%	287.9	406	694	427	1121	2530.2	285
1981	1191	1440	1888	46.30%	301.9	448	750	493	1242	2809.7	287.7
1982	1214	1564	2118	43.70%	185.6	554	740	475	1215	3083.2	284.8
1983	1246	1504	2093	45.00%	188	589	777	455	1232	3368.5	289.6
1984	1285	1580	2110	42.70%	224.7	530	754	422	1176	3638.8	305
1985	1323	1570	2055	43.20%	301.6	485	787	408	1195	3881.7	314.2
1986	1362	1873	2489	42.30%	272.5	616	888	484	1372	4138.6	324.1
1987, 1st Intifada	1408	1824	2604	45.30%	267.4	780	1047	464	1511	4462.6	358.3
1988	1459	1798	2470	38.60%	155.8	672	828	303	1130	4820.3	410.9
1989	1505	1838	2511	36.40%	120.8	673	793	257	1050	5115.8	422.7
1990	1563	2187	2968	30.90%	-87.8	781	693	286	979	5418.6	439.5
1991	1641	2095	2850	40.50%	364.2	755	1119	305	1424	5697.1	449.8
1992	1725	2595	3506	37.60%	295.5	911	1206	359	1566	5959.1	458.8
1993	1800	2870	3494	34.90%	596.4	624	1220	317	1537	6257.3	471.6
1994 post Oslo	2111	3014	3408	43.20%	1452.3	395	1847	442	2289	6593.7	486
1995	2217	3195	3685	41.10%	1245	490	1735	497	2233	7282.3	666.7
1996	2327	3287	3723	42.60%	1450.2	436	1886	553	2439	7918	837.5
1997	2,462	3703	4220	41.60%	1535.2	517	2052	587	2639	8611.9	1053.7
1998	2,547	4150	4872	41.70%	1518.4	722	2240	724	2964	9377.4	1271
1999	2,633	4514	5288	44.60%	2124.3	774	2898	732	3631	10295.7	1547.8

Table 5.1 Selected Economic Indicators for West Bank and Gaza, 1968-2007 (in millions U.S. dollars, 2004 Prices) – continued

Years	Population ¹	GDP	GNP	β	Foreign Aid (FTR + NCT)	Wages from Abroad (W)	Import minus Export (IM-EX)	Export (EX)	Import (IM)	Net Capital ² (NC)	Net Productive Capital Stock (NPC ³)
2000, 2nd Intifada	2,720	4120	4773	45.20%	2000.6	652	2653	746	3399	11630.6	2008.3
2001	2,801	3767	4098	43.30%	2102.2	332	2434	446	2880	12449.1	2258.1
2002	2,884	3265	3513	46.60%	2191.6	248	2440	408	2848	12760.6	2309.8
2003	2,970	3751	4013	45.30%	2387.6	262	2650	459	3108	12847.4	2315
2004	3,058	4198	4430	40.90%	2193.4	232	2425	484	2909	13140.9	2402.4
2005	3,155	4560	4897	38.10%	1866.3	337	2204	598	2801	13203.8	2263.4
2006	3,255	4322	4720	40.20%	1884.2	398	2282	629	2911	13522	2319.7
2007	3,357	4536	5048	37.90%	1655.9	513	2168	601	2769	13888	2615.8

Source: Israel Central Bureau of Statistics up to 1994 and Palestinian Central Bureau of Statistics (PCBS) from 1994.

¹Mid-year estimates.

²Net capital is calculated by assuming that 1968 initial capital is the average of net capital to GDP in 1980-1987. Annual net capital is calculated by a formula that is given to us by the Israeli Central Bureau of Statistics (ICBS). This method is based on the "perpetual inventory method" and normal distribution of the life of the assets with constraints of 50% and 150%. The expected life span is eight years for machines and equipment and 40 years for construction.

³ Only Equipment.

Table 5.2 Selected Macroeconomic Indicators for West Bank and Gaza in per Capita Terms 1968-2007 (U.S. dollars 2004 prices)

Years (1)	Population (000) (2)	GDP (3)	GNP (4)	β (5)	FTR + NCT (6)	Wages from Abroad (W) (7)	Net Imports IM-EX (8)	Exports (EX) (9)	Imports (IM) (10)	Net Capital (NC) (11)	Net Productive Capital (NPC)
1968	938	574	579	36.4%	188	6	194	135	328	627.3	250.9
1969	951	634	675	39.8%	254	40	295	126	420	609.1	218.3
1970	970	690	775	38.6%	220	85	305	128	434	653.7	231.4
1971	990	770	920	40.3%	191	150	341	180	520	703.9	250.7
1972	1011	882	1140	43.5%	211	257	469	211	679	765.4	268.3
1973	1037	827	1091	46.6%	258	264	523	198	721	877.3	289.6
1974	1069	978	1237	43.9%	276	258	534	233	767	981.6	278.5
1975	1092	969	1271	47.0%	271	302	573	287	860	1127.0	271.4
1976	1111	1097	1396	44.7%	262	299	561	324	885	1299.3	262.5
1977	1134	1064	1362	47.2%	327	298	625	327	952	1475.9	242.9
1978	1159	1175	1502	44.4%	252	327	578	360	939	1653.9	227.5
1979	1167	1149	1525	45.8%	257	376	634	336	970	1887.3	232.8
1980	1172	1311	1657	42.2%	246	346	592	364	956	2158.8	243.2
1981	1191	1209	1585	46.3%	253	376	630	414	1043	2359.1	241.5
1982	1214	1288	1745	43.7%	153	457	610	392	1001	2539.7	234.6
1983	1246	1207	1680	45.0%	151	473	624	365	989	2703.5	232.5
1984	1285	1230	1642	42.7%	175	412	587	328	915	2831.7	237.3
1985	1323	1186	1553	43.2%	228	367	595	308	903	2934.0	237.5
1986	1362	1375	1827	42.3%	200	452	652	355	1008	3038.6	237.9
1987 , First Intifada	1408	1295	1849	45.3%	190	554	744	329	1073	3169.5	254.5
1988	1459	1233	1693	38.6%	107	460	567	207	775	3304.3	281.7
1989	1505	1221	1668	36.4%	80	447	527	171	698	3398.7	280.8
1990	1563	1399	1899	30.9%	-56	499	443	183	626	3466.8	281.2
1991	1641	1277	1737	40.5%	222	460	682	186	868	3472.0	274.1
1992	1725	1505	2033	37.6%	171	528	699	208	908	3455.0	266.0
1993	1800	1594	1941	34.9%	331	346	678	176	854	3475.7	261.9
1994 post Oslo	2111	1428	1615	43.2%	688	187	875	209	1084	3123.5	230.2
1995	2217	1441	1662	41.1%	562	221	783	224	1007	3284.7	300.7
1996	2327	1413	1600	42.6%	623	187	811	238	1048	3402.7	359.9
1997	2,462	1504	1714	41.6%	624	210	834	238	1072	3497.9	428.0
1998	2,547	1629	1913	41.7%	596	283	880	284	1164	3681.8	499.0
1999	2,633	1714	2008	44.6%	807	294	1101	278	1379	3910.3	587.9

Table 5.2 Selected Macroeconomic Indicators for West Bank and Gaza in per Capita Terms 1968-2007 (U.S. dollars 2004 prices) – continued

Years (1)	Population (000) (2)	GDP (3)	GNP (4)	β (5)	FTR + NCT (6)	Wages from Abroad (W) (7)	Net Imports IM-EX (8)	Exports (EX) (9)	Imports (IM) (10)	Net Capital (NC) (11)	Net Productive Capital (NPC)
2000, Second Intifada	2,720	1515	1755	45.2%	736	240	975	274	1250	4276.0	738.3
2001	2,801	1345	1463	43.3%	751	118	869	159	1028	4444.5	806.2
2002	2,884	1132	1218	46.6%	760	86	846	141	987	4424.6	800.9
2003	2,970	1263	1351	45.3%	804	88	892	154	1047	4325.7	779.5
2004	3,058	1373	1449	40.9%	717	76	793	158	951	4297.2	785.6
2005	3,155	1445	1552	38.1%	592	107	698	189	888	4185.0	717.4
2006	3,255	1328	1450	40.2%	579	122	701	193	894	4154.2	712.7
2007	3,357	1351	1504	37.9%	493	153	646	179	825	4137.0	779.2

Source: Israel Central Bureau of Statistics (ICBS) up to 1994 and Palestinian Central Bureau of Statistics (PCBS) from 1994.

Table 5.3 β , GDP and Balance of Payments Components, as Percentage of GNP

Years	β	GDP	FTR + NCT	Wages from Abroad (W)	Net Imports IM-EX	Exports (Ex)	Imports (IM)	Net Capital (NC)	Net Productive capital (NPC)
1968	36.4%	99.04%	32.46%	0.96%	33.42%	23.29%	56.71%	108.31%	43.33%
1969	39.8%	94.02%	37.67%	5.98%	43.65%	18.63%	62.28%	90.26%	32.34%
1970	38.6%	89.04%	28.43%	10.96%	39.39%	16.56%	55.95%	84.32%	29.84%
1971	40.3%	83.69%	20.71%	16.31%	37.02%	19.50%	56.52%	76.48%	27.24%
1972	43.5%	77.42%	18.55%	22.58%	41.13%	18.49%	59.62%	67.17%	23.55%
1973	46.6%	75.77%	23.69%	24.23%	47.92%	18.17%	66.08%	80.42%	26.55%
1974	43.9%	79.12%	22.32%	20.88%	43.20%	18.84%	62.04%	79.38%	22.52%
1975	47.0%	76.21%	21.29%	23.79%	45.08%	22.56%	67.64%	88.67%	21.36%
1976	44.7%	78.60%	18.79%	21.40%	40.19%	23.23%	63.42%	93.05%	18.80%
1977	47.2%	78.15%	24.03%	21.85%	45.88%	24.04%	69.92%	108.37%	17.84%
1978	44.4%	78.25%	16.77%	21.75%	38.52%	24.00%	62.52%	110.13%	15.15%
1979	45.8%	75.32%	16.87%	24.68%	41.55%	22.06%	63.61%	123.76%	15.26%
1980	42.2%	79.11%	14.82%	20.89%	35.72%	22.00%	57.71%	130.30%	14.68%
1981	46.3%	76.28%	15.99%	23.72%	39.71%	26.10%	65.81%	148.82%	15.24%
1982	43.7%	73.83%	8.76%	26.17%	34.93%	22.44%	57.38%	145.55%	13.44%
1983	45.0%	71.85%	8.98%	28.15%	37.13%	21.74%	58.87%	160.91%	13.84%
1984	42.7%	74.90%	10.65%	25.10%	35.75%	20.01%	55.76%	172.49%	14.46%
1985	43.2%	76.38%	14.68%	23.62%	38.29%	19.83%	58.13%	188.88%	15.29%
1986	42.3%	75.26%	10.95%	24.74%	35.69%	19.45%	55.14%	166.29%	13.02%
1987	45.3%	70.04%	10.27%	29.96%	40.23%	17.81%	58.04%	171.40%	13.76%
1988	38.6%	72.80%	6.31%	27.20%	33.50%	12.25%	45.75%	195.15%	16.64%
1989	36.4%	73.21%	4.81%	26.79%	31.60%	10.22%	41.82%	203.76%	16.83%
1990	30.9%	73.69%	-2.96%	26.31%	23.35%	9.63%	32.98%	182.58%	14.81%
1991	40.5%	73.51%	12.78%	26.49%	39.27%	10.70%	49.97%	199.92%	15.78%
1992	37.6%	74.02%	8.43%	25.98%	34.41%	10.25%	44.66%	169.96%	13.09%
1993	34.9%	82.15%	17.07%	17.85%	34.92%	9.08%	44.01%	179.11%	13.50%
1994	43.2%	88.42%	42.61%	11.58%	54.19%	12.97%	67.16%	193.46%	14.26%
1995	41.1%	86.69%	33.79%	13.31%	47.09%	13.50%	60.59%	197.63%	18.09%
1996	42.6%	88.29%	38.95%	11.71%	50.66%	14.85%	65.51%	212.67%	22.49%
1997	41.6%	87.74%	36.38%	12.26%	48.63%	13.90%	62.53%	204.06%	24.97%
1998	41.7%	85.18%	31.17%	14.82%	45.99%	14.85%	60.84%	192.49%	26.09%
1999	44.6%	85.36%	40.17%	14.64%	54.81%	13.85%	68.67%	194.71%	29.27%
2000	45.2%	86.33%	41.92%	13.67%	55.59%	15.62%	71.21%	243.70%	42.08%
2001	43.3%	91.91%	51.29%	8.09%	59.38%	10.88%	70.27%	303.76%	55.10%
2002	46.6%	92.94%	62.38%	7.06%	69.44%	11.61%	81.05%	363.20%	65.74%
2003	45.3%	93.47%	59.49%	6.53%	66.02%	11.43%	77.45%	320.13%	57.68%
2004	40.9%	94.76%	49.51%	5.24%	54.74%	10.92%	65.66%	296.61%	54.23%
2005	38.1%	93.11%	38.11%	6.89%	45.00%	12.21%	57.21%	269.64%	46.22%
2006	40.2%	91.58%	39.92%	8.42%	48.34%	13.33%	61.67%	286.49%	49.15%
2007	37.9%	89.85%	32.80%	10.15%	42.95%	11.90%	54.86%	275.11%	51.82%

Source: Israel Central Bureau of Statistics (ICBS) up to 1994 and Palestinian Central Bureau of Statistics (PCBS) from 1994.

Table 5.4 Population, Labour and Unemployment 1968-2007¹

Years	West Bank ¹					Gaza				
	Unemployment	Employed	Labour	Total	Average	Unemployment	Employed	Labour	Total	Average
		Persons ² (000)	Force (000)	14+ (000)	Population (000)		Persons ² (000)	Force (000)	14+ (000)	Population (000)
1968	10.78%	88	98	314	578	17.5%	47	57	189	360
1969	4.10%	110	115	314	591	9.4%	53	58	189	360
1970	3.20%	115	119	324	603	6.4%	59	63	198	367
1971	2.42%	117	120	331	616	4.0%	60	62	202	374
1972	1.10%	126	127	338	628	2.3%	64	65	207	383
1973	1.01%	127	128	343	643	1.9%	68	70	213	394
1974	1.00%	138	140	357	661	2.0%	73	75	221	408
1975	1.19%	133	135	369	672	2.0%	73	74	228	420
1976	1.29%	131	132	374	680	2.0%	77	78	235	432
1977	1.23%	128	130	383	690	2.1%	78	79	244	444
1978	0.97%	133	134	394	702	2.8%	81	83	255	457
1979	1.03%	134	135	403	713	2.7%	80	82	249	454
1980	1.80%	136	139	406	721	3.1%	82	84	249	451
1981	1.46%	135	137	408	728	3.1%	83	86	254	463
1982	1.38%	143	145	411	741	3.6%	83	86	254	473
1983	2.02%	146	149	419	760	0.9%	86	87	267	486
1984	3.73%	152	158	435	783	1.2%	88	89	271	502
1985	5.03%	151	159	444	805	1.2%	91	92	279	519
1986	3.77%	166	172	442	826	1.5%	94	95	277	536
1987 1st Intifada	2.52%	178	182	456	853	1.6%	100	102	283	555
1988	2.71%	183	188	459	882	2.4%	99	101	292	577
1989	4.39%	181	189	470	906	2.5%	99	101	301	599
1990	3.56%	193	200	490	936	3.8%	104	108	314	627
1991	10.28%	180	200	508	982	3.7%	108	112	326	659
1992	4.75%	205	215	522	1029	3.5%	115	119	336	696
1993	7.92%	201	218	543	1068	4.6%	115	120	351	733
1994 ³	17.36%	213	258	638	1252	24.9%	103	138	394	859
1995 ³	24.30%	225	297	733	1315	40.6%	92	155	437	902
1996 ³	26.02%	241	325	775	1380	37.6%	106	169	465	947
1997	23.12%	272	354	818	1466	29.0%	125	176	493	996
1998	15.71%	316	375	849	1514	21.8%	147	188	516	1033
1999	12.99%	334	383	883	1562	18.0%	168	205	540	1071
2000 2nd Intifada	15.26%	341	403	920	1610	19.9%	172	214	567	1110
2001	23.79%	302	396	955	1655	35.4%	128	198	594	1146
2002	30.90%	275	398	994	1701	39.1%	131	215	624	1183
2003	25.87%	317	428	1024	1749	31.0%	167	242	647	1221
2004	25.36%	337	452	1061	1797	36.4%	157	246	676	1261
2005	22.65%	365	471	1099	1851	31.7%	177	259	707	1304
2006	21.51%	367	467	1058	1906	37.1%	158	251	695	1349
2007	20.61%	380	478	1111	1961	32.1%	186	273	718	1396

Source: 1968-1993 Israel Central Bureau of Statistics (ICBS), the estimates 1994-2007, Palestinian Central Bureau of Statistics (PCBS).

¹In the years 1968-1993, the Israeli Central Bureau of Statistics (ICBS) data exclude Jerusalem. The Palestinian's Central Bureau of Statistics data from 1994 include Jerusalem. In this table, I excluded Jerusalem from the years after 1994 by lowering by 17% the number of employed persons and labour force.

²Until 1993, the Israeli Central Bureau of Statistics (ICBS) considered only two categories, "employed" and "unemployed". Since 1995, the Palestinian's Central Bureau of Statistics has added a third category of "under-employed" to take part-time labour into account. I estimated that the underemployed work halftime.

³Populations for the years 1994-1996 are according to the estimates, which are based on growth rates in other years.

Table 5.5 Macro Figures as a Percentage of GNP

Years	Net productive Capital (NPC)	Net Capital (NC)	β	Imports (IM)	EX+W	Exports (EX)	Gross Capital Formation (I)	General Government Consumption Expenditure (C _G)	Private Consumption Expenditure (CP)	FTR + NCT	GDP
1968	43.33%	108.31%	36.41%	56.71%	24.25%	23.29%	8.64%	17.49%	106.34%	32.46%	99.04%
1969	32.34%	90.26%	39.85%	62.28%	24.62%	18.63%	13.60%	16.82%	107.25%	37.67%	94.02%
1970	29.84%	84.32%	38.59%	55.95%	27.52%	16.56%	7.77%	16.71%	103.94%	28.43%	89.04%
1971	27.24%	76.48%	40.31%	56.52%	35.81%	19.50%	12.13%	14.45%	94.13%	20.71%	83.69%
1972	23.55%	67.17%	43.51%	59.62%	41.07%	18.49%	16.32%	12.14%	90.09%	18.55%	77.42%
1973	26.55%	80.42%	46.59%	66.08%	42.40%	18.17%	15.64%	12.60%	95.45%	23.69%	75.77%
1974	22.52%	79.38%	43.95%	62.04%	39.72%	18.84%	22.32%	10.98%	89.02%	22.32%	79.12%
1975	21.36%	88.67%	47.02%	67.64%	46.35%	22.56%	18.81%	10.25%	92.23%	21.29%	76.21%
1976	18.80%	93.05%	44.66%	63.42%	44.63%	23.23%	21.38%	9.42%	87.98%	18.79%	78.60%
1977	17.84%	108.37%	47.22%	69.92%	45.89%	24.04%	21.57%	9.52%	92.94%	24.03%	78.15%
1978	15.15%	110.13%	44.41%	62.52%	45.75%	24.00%	24.28%	8.62%	83.87%	16.77%	78.25%
1979	15.26%	123.76%	45.79%	63.61%	46.74%	22.06%	22.18%	8.67%	86.02%	16.87%	75.32%
1980	14.68%	130.30%	42.18%	57.71%	42.89%	22.00%	27.99%	7.79%	79.05%	14.82%	79.11%
1981	15.24%	148.82%	46.32%	65.81%	49.82%	26.10%	23.67%	8.11%	84.21%	15.99%	76.28%
1982	13.44%	145.55%	43.73%	57.38%	48.62%	22.44%	24.12%	7.23%	77.41%	8.76%	73.83%
1983	13.84%	160.91%	45.03%	58.87%	49.89%	21.74%	22.21%	7.51%	79.27%	8.98%	71.85%
1984	14.46%	172.49%	42.68%	55.76%	45.11%	20.01%	21.34%	7.68%	81.63%	10.65%	74.90%
1985	15.29%	188.88%	43.21%	58.13%	43.45%	19.83%	23.06%	7.92%	83.69%	14.68%	76.38%
1986	13.02%	166.29%	42.29%	55.14%	44.19%	19.45%	23.88%	7.31%	79.76%	10.95%	75.26%
1987	13.76%	171.40%	45.31%	58.04%	47.77%	17.81%	20.93%	7.56%	81.77%	10.27%	70.04%
1988	16.64%	195.15%	38.59%	45.75%	39.44%	12.25%	19.83%	7.04%	79.44%	6.31%	72.80%
1989	16.83%	203.76%	36.36%	41.82%	37.01%	10.22%	18.88%	7.42%	78.51%	4.81%	73.21%
1990	14.81%	182.58%	30.92%	32.98%	35.94%	9.63%	18.86%	8.01%	70.18%	-2.96%	73.69%
1991	15.78%	199.92%	40.46%	49.97%	37.18%	10.70%	23.85%	8.07%	80.86%	12.78%	73.51%
1992	13.09%	169.96%	37.63%	44.66%	36.23%	10.25%	19.07%	7.94%	81.42%	8.43%	74.02%
1993	13.50%	179.11%	34.88%	44.01%	26.93%	9.08%	18.56%	8.14%	90.37%	17.07%	82.15%
1994	14.26%	193.46%	43.17%	67.16%	24.56%	12.97%	30.86%	21.89%	89.86%	42.61%	88.42%
1995	18.09%	197.63%	41.14%	60.59%	26.80%	13.50%	28.91%	20.89%	83.98%	33.79%	86.69%
1996	22.49%	212.67%	42.59%	65.51%	26.56%	14.85%	31.19%	24.30%	83.46%	38.95%	88.29%
1997	24.97%	204.06%	41.61%	62.53%	26.15%	13.90%	31.07%	22.50%	82.81%	36.38%	87.74%
1998	26.09%	192.49%	41.67%	60.84%	29.67%	14.85%	31.44%	21.55%	78.17%	31.17%	85.18%
1999	29.27%	194.71%	44.58%	68.67%	28.49%	13.85%	39.37%	21.71%	79.09%	40.17%	85.36%
2000	42.08%	243.70%	45.20%	71.21%	29.29%	15.62%	32.72%	25.73%	83.47%	41.92%	86.33%
2001	55.10%	303.76%	43.33%	70.27%	18.97%	10.88%	27.34%	28.72%	95.23%	51.29%	91.91%
2002	65.74%	363.20%	46.58%	81.05%	18.67%	11.61%	27.17%	31.91%	103.30%	62.38%	92.94%
2003	57.68%	320.13%	45.31%	77.45%	17.96%	11.43%	30.01%	27.20%	102.28%	59.49%	93.47%
2004	54.23%	296.61%	40.93%	65.66%	16.16%	10.92%	23.07%	27.11%	99.32%	49.51%	94.76%
2005	46.22%	269.64%	38.06%	57.21%	19.10%	12.21%	25.85%	21.03%	91.23%	38.11%	93.11%
2006	49.15%	286.49%	40.24%	61.67%	21.75%	13.33%	28.54%	22.45%	88.93%	39.92%	91.58%
2007	51.82%	275.11%	37.91%	54.86%	22.05%	11.90%	25.95%	20.22%	86.64%	32.80%	89.85%

Source: Israel Central Bureau of Statistics (ICBS) up to 1994 and Palestinian Central Bureau of Statistics (PCBS) from 1994.

Table 5.6 GDP per Effective Employee in West Bank and Gaza 1968-2007

Years	Per Employee GDP	NC per employee	NPC per employee
1968	3985	4358	1744
1969	3704	3556	1274
1970	3857	3653	1293
1971	4309	3937	1402
1972	4712	4088	1433
1973	4389	4658	1538
1974	4943	4959	1407
1975	5134	5974	1439
1976	5890	6973	1409
1977	5864	8133	1339
1978	6379	8978	1235
1979	6258	10282	1268
1980	7059	11628	1310
1981	6606	12889	1320
1982	6944	13691	1265
1983	6492	14538	1250
1984	6570	15130	1268
1985	6484	16033	1298
1986	7220	15954	1249
1987	6565	16064	1290
1988	6379	17099	1458
1989	6577	18303	1512
1990	7376	18275	1482
1991	7289	19823	1565
1992	8131	18669	1437
1993	9088	19814	1493
1994	9525	20842	1536
1995	10080	22978	2104
1996	9495	22871	2419
1997	9332	21702	2655
1998	8958	20244	2744
1999	8997	20523	3085
2000	8037	22688	3918
2001	8766	28971	5255
2002	8048	31451	5693
2003	7743	26518	4778
2004	8507	26627	4868
2005	8418	24377	4179
2006	8236	25767	4420
2007	8027	24579	4630

Source: Israel Central Bureau of Statistics (ICBS) up to 1994 and Palestinian Central Bureau of Statistics (PCBS) from 1994.

Table 5.7 Detailed Balance of Payments Items

Item	1999	2000	2001	2002	2003	2004	2005	2006	2007
Current account (net)	-1,285	-950	-572	-435	-931	-1216	-938	-813	-410
Goods (net)	-2,148	-1,960	-1,305	-1,222	-1,628	-1899	-2,171	-2,519	2600
Exports (free on board)	527	491	392	320	327	355	352	565	538
Imports (free on board)	2,676	2,451	1,697	1,542	1,955	2254	2,523	2,619	3139
Services (net)	-264	-294	-527	-489	-341	-302	-255	-284	-452
Exports	203	241	115	98	109	133	185	181	179
Imports	467	535	641	587	450	435	440	465	631
Income (net)	754	669	326	224	253	229	356	423	547
Receipts	776	709	342	232	255	263	392	431	555
Compensation of employees	706	620	200	141	204	204	269	310	380
Of which from Israel	687	601	179	106	168	162	221	260	315
Investment income	70	89	142	91	51	58	88	122	175
Payments	22	40	16	9	2	33	36	9	8
Current transfers (net)	374	636	934	1,052	785	756	1,132	1,283	2094
Inflows	459	728	1,000	1,115	877	858	1,226	1,389	2202
To the government sector	236	240	325	415	662	532	953	1,096	1048
Donors transfers	227	234	324	414	660	531	951	1,093	1044
To the private sector	223	488	675	700	215	326	272	293	1153
Outflows	85	93	66	63	92	102	93	106	107
Capital and financial account (net)	1,214	1,086	720	414	1,130	1298	1,050	894	228
Capital account (net)	271	189	216	291	289	660	388	272	395
Capital transfers (net)	270	188	215	291	289	660	388	272	394
Inflows	270	188	215	291	289	660	388	272	394
Outflows	0	0	0	0	0	0	0	0	0
Acquisition / disposal of non-produced	1	0	1	0	0	0	0	0	0
Financial account (net)	943	897	504	123	841	638	661	622	-167
Direct investment (net)	102	-156	-345	-337	-31	60	6	-121	-16
Change in investment abroad (net)	-87	-218	-364	-346	-49	12	-40	-139	-44
Change in investment in Palestine (net)	189	62	19	9	18	49	47	19	28
Portfolio investment (net)	-57	-1	-65	-79	-25	22	5	-8	-126
Assets (net)	-72	-13	-79	-87	-38	14	-9	-8	-126
Liabilities (net)	15	12	14	8	13	8	14	0	0
Other investment (net)	863	1,145	898	553	997	584	625	773	67
Assets (net)	661	1,087	902	591	1,074	513	512	775	86
Currency and deposits	527	970	769	379	897	415	544	765	67
Liabilities (net)	202	58	-4	-38	-78	71	112	-2	-19
Loans	119	121	42	43	27	55	52	11	9
Currency and deposits	78	-61	-41	-80	-105	16	61	-13	-29
Net errors and omissions	71	-136	-148	21	-199	-83	-112	-81	182
Overall balance	-35	91	-16	15	101	27	-26	22	91
Financing	35	-91	16	-15	-101	-27	26	-22	-91
Change in reserve assets (+ = Decrease)	35	-91	16	-15	-101	-27	26	-22	-91

Source: Palestinian Central Bureau of Statistics (PCBS) from 1994.

Table 5.8 GDP by Main Branches in the West bank and Gaza 1968-2007
(percentage of GDP)

Years	GDP	Agriculture forestry and Fishing	Industry	Construction	Public and Community Services	Other
1968	100	33.9	6.7	3.4	18.4	37.6
1969	100	36	7.4	5.5	17	34.1
1970	100	32.6	8.3	6.3	17.7	35.1
1971	100	33.98	8.5	6.6	16.4	34.5
1972	100	35	7.7	8.9	14.8	33.6
1973	100	32.2	7.8	11.4	15.8	32.8
1974	100	39.7	8.3	12.6	15	24.4
1975	100	28.8	8.7	15.7	15.2	31.6
1976	100	33.1	7.9	15.4	13.1	30.5
1977	100	29.3	8.3	15.8	13.7	32.9
1978	100	33.2	8.4	15.8	13.5	29.1
1979	100	28.1	8.3	19.1	13.1	31.4
1980	100	32.9	7.3	15.8	13	31
1981	100	29.1	6.8	17.9	16.1	30.1
1982	100	26.1	7	18.6	15.9	32.4
1983	100	23.7	7.1	18.5	18.1	32.6
1984	100	18.4	7.7	17.5	20.5	35.9
1985	100	19.7	8	16.9	17.3	38.1
1986	100	29.4	8.4	15.2	11.5	35.5
1987	100	18.8	13.5	22.2	19.8	25.7
1988	100	20	11	23	22	24
1989	100	18	11	22	22	27
1990	100	18	12	19	23	28
1991	100	18	13	18	22	29
1992	100	16	12	21	21	30
1993	100	14	12	22	20	32
1994	100	13.2	22.1	8.9	18.8	37
1995	100	13	20.5	6.9	20	39.6
1996	100	14.7	16.8	8.4	21.3	38.8
1997	100	11.6	15.3	7.8	20.3	45
1998	100	11.6	14.8	8.9	19.5	45.2
1999	100	10.4	14.6	13.7	19.7	41.6
2000	100	9.8	13.2	8.9	21.1	47
2001	100	9.1	16.4	5.5	27.5	41.5
2002	100	7.7	16.4	3.9	28	44
2003	100	7.9	17	5	27.8	42.3
2004	100	7.1	17.1	5.7	25.1	45
2005	100	5.2	17	6.8	24.8	46.2
2006	100	5.6	15	7.2	26.3	45.9
2007	100	5.6	13.8	6.2	26.3	48.1

Source: Israel Central Bureau of Statistics (ICBS) up to 1994 (with a comment that the data for the years 1988-1993 is based on rough estimates) and Palestinian Central Bureau of Statistics (PCBS) from 1994.

**Table 5.9 Economic Activity in the West Bank and Gaza, 1994-2007
(percentage of GDP)**

Economic Activity	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Agriculture and fishing	13.2	13	14.7	11.6	11.6	10.4	9.8	9.1	7.7	7.9	7.1	5.2	5.6	5.6
Mining, manufacturing, electr. and water	22.1	20.5	16.8	15.3	14.8	14.6	13.2	16.4	16.4	17	17.1	17	15	13.8
Mining and quarrying	1	0.9	0.8	0.7	0.7	0.8	0.6	0.6	0.8	0.6	0.7	0.6	0.5	0.4
Manufacturing	19.7	18.4	14.9	13.3	12.8	12.6	11.4	12.5	11.8	12.6	13.2	13	11.7	9.9
Electricity and water supply	1.4	1.2	1.1	1.3	1.3	1.2	1.2	3.3	3.8	3.8	3.2	3.4	2.8	3.5
Construction	8.9	6.9	8.4	7.8	8.9	13.7	8.9	5.5	3.9	5	5.7	6.8	7.2	6.2
Wholesale and retail trade	17.9	15.2	10.9	11.4	10.5	11	11.3	9.6	11.9	9.8	9.8	9.4	9.6	9.2
Transport, Storage and Communications	3.4	3.2	3	3.9	4.6	5.1	5.4	5.6	5.6	4.6	6.1	5.8	6.6	7.5
Financial intermediation	1.2	2	2.2	2.7	3.2	3.7	4.4	3.6	4.2	4.1	3.6	4.4	4.3	5.2
Other services	23.7	21	20.1	20.6	20.3	19.5	21.8	21.5	23.5	22.8	22.8	23	19.6	22.2
Real estate, renting and business services	12.1	10.5	9.7	10.4	9.8	8.9	11.8	10.3	11	10.3	10.4	10.3	7	7.6
Community, social and personal services	0.7	0.6	0.6	0.6	0.6	0.6	0.7	0.8	1	1.2	0.9	1.2	1.1	1.5
Hotels and restaurants	1.5	1.3	1.1	1.2	1.3	1.3	0.8	0.5	0.2	0.4	0.7	0.8	0.9	0.7
Education	5.6	5.1	5.4	5.9	5.9	5.9	5.9	7.1	8	7.6	7.8	8.2	7.9	9.6
Health and social work	3.8	3.5	3.3	2.5	2.7	2.8	2.6	2.8	3.3	3.3	3	2.5	2.7	2.8
Public administration and defence	9.4	11.4	12.6	11.9	10.9	11	12.6	17.6	16.7	16.9	14.3	14.1	15.7	13.9
Households with employed persons	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0	0.1	0.1
Public owned employed persons	0	0	1	2.4	2.8	3.5	4.7	2.8	3.6	4.5	3.7	3.4	4.5	5.8
Less: FISIM	-0.7	-1.2	-2	-2.3	-2.5	-2.9	-3.8	-3.1	-3.1	-3	-2.8	-2.6	-3	-5.7
Plus: Customs duties	0	1.7	5.7	7.1	7.3	4.6	4.8	4.5	2.7	4.4	4.8	5.9	6.7	6.3
Plus: VAT on imports, net	0.7	6.1	6.4	7.4	7.4	5.6	6.7	6.7	6.7	5.8	7.7	7.6	8.1	9.9
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Source: Palestinian Central Bureau of Statistics (PCBS) from 1994.

Table 5.10 Destination of Exports and Origin of Imports to West Bank and Gaza, 2000-2007 (million U.S. dollars)

	2000	2001	2002	2003	2004	2005	2006	2007
Total Palestinian Exports	401	290	241	280	313	335	367	513
Total Palestinian Imports	2382	1516	2034	1800	2373	2667	2759	3141
Palestinian Net balance Trade	1981	1743	1275	1521	2061	2331	2392	2628
Total National Exports	295	218	178	196	216	235	264	348
Total Re Exports From Palestine	106	73	63	84	97	101	103	165
Total Exports From West Bank	323	252	208	234	273	294	333	491
Total Exports From Gaza	78	38	33	45	35	41	34	22
Total Palestinian Imports From Israel	1739	1352	1117	1310	1748	1873	2002	2307
Total Palestinian Exports to Israel	370	273	216	256	281.1	290.6	326.6	455
Percentage of Palestinian Imports From Israel	73.0%	89.2%	54.9%	72.7%	73.7%	70.2%	72.6%	73.4%
Percentage of Palestinian Exports to Israel	92.3%	94.0%	89.7%	91.5%	89.9%	86.6%	89.1%	88.7%

Source: Palestinian Central Bureau of Statistics (PCBS) from 1994.

5.5 Conclusion

The data in this chapter is basically based on the figures of the Israeli Central Bureau of Statistics (ICBS) up to 1993 and the data of the Palestinian Central Bureau of Statistics (PCBS) from 1994 and on. The basic difficulties with obtaining reliable macroeconomic' long period (1968-2007) time series data due to the very unique situation of West Bank and Gaza were outlined. The main difficulties stem from different political issues that are reflected in different actual calculations of the Israeli Central Bureau of Statistics (ICBS) that generated the national accounting data from 1968 and up to 1993 and the Palestinian Central Bureau of Statistics (PCBS) that generated the data from 1994. Examples of such differences are:

- Who is considered a permanent resident? Residents of East Jerusalem; are they citizens of Israel or West bank? What is the residency status of Palestinians who went abroad and were not allowed to come back?
- How should GDP that is generated in the annexed area of East Jerusalem be apportioned?
- Only partial data had been collected by the Israeli Central Bureau of Statistic (ICBS) at the time of the first Intifada.
- Data from Gaza are not reliable since 2006-2007 when Hamas replaced the Palestinian Authority.

- Data on labour in Israel and exports and import are not reliable because of the black economy and smuggling that occurs and the level of these activities depends on security along the border.
- Unemployed Palestinians build their homes and this activity is not measured. In most cases, this activity is done by professionals through the construction market and thus contributes to GDP.

In order to overcome some of these difficulties with the data, the analysis undertaken in chapter six was divided into two periods; 1968 to 1993 and 1994 to 2007. All in all it seems that at least in terms of consistency over time the data are reasonable to consider the very significant political events. Missing data at the time of the first Intifada were obtained from Arnon *et al.* (1997) and the annual accumulated capital was estimated according to the standards of the Israeli Central Bureau of Statistics (ICBS).

Two detailed appendices provide an insight on the methodological methods of the Israeli Central Bureau of Statistics (ICBS) and the Palestinian Central Bureau of Statistics (PCBS).

Appendix 5.1 Data from the Israeli Central Bureau of Statistics (ICBS) 1968-1993 (Publication No 1012)

Collection scope

This publication presents estimates for the national accounts for Judea, Samaria¹²⁸ and the Gaza for the years 1968-1993. The accounts include: expenditure on the gross domestic product and its components; disposable national income; estimates of domestic product by major economic branches and disposable private income. In addition, this publication provides tables which present background data on: population, labour force, balance of payments, quantities and value of agriculture output; cultivated agriculture area, private building area; wages and data on households which own durable goods, have running water and electricity in their dwellings. Most of the series cover both region together and each region separately.

Consistency across time periods

The accounts of gross domestic product relates to Judea and Samaria and to the Gaza area, excluding the Israeli localities in these regions. The series of data in the tables relating to the Gaza area refer to the region which was under the Israel Defence Forces' administration; its boundaries changed during the period under review: in May 1979 the North Sinai area was ceded to Egyptian control and as was the Rafiah area in April 1982. In December 1993 control of Gaza area was transferred to the Palestinian authority. These controls also included responsibility for official system statistics.

Reliability of the data

The free movement of residents and goods (without registration at custom stations) and the close ties between the Israeli economy and those of Judea, Samaria and the Gaza area, make it difficult to measure the volume of transactions between the residents of these regions and residents of Israel. Furthermore, there are no comprehensive statistics throughout the accounts. Consequently, some of the estimates are based on partial data and evaluations.

The low reliability of the following items should be particularly noted: import and export of goods and services from Israel; private consumptions of goods and services

¹²⁸ Judea and Samaria is equivalent to the West Bank.

from Israel; payments to employee from Judea and Samaria working in Israel; consumptions of services of non-profit institutions; revenue from industry and data on the construction branch.

In periods of sharp price rises, the calculation of constant price estimates involves difficulties. In such times, certain factors have a greater effect, e.g. selection of the base year of weighting, distribution of expenditure over the entire year, using non-weighted prices indices and using price indices of similar items for deflating series for which no special index was compiled. The only indices for these regions which were compiled thoroughly and in great detail are the Consumer Price Index and the price indices for Agriculture Output. Other prices indices were usually estimated according to price indices of similar items in Israel or by evaluation.

Due to the irregular situation in Judea and Samaria which began in 1988, there have been difficulties in gathering data on economic activity; data on trade with Israel were not collected and the reliability of some of the other surveys was harmed.

Population background Judea & Samaria¹²⁹

In 1968, the population in Judea and Samaria numbered nearly 590,000 residents. During the period 1969-1993, the population grew by 86% - an average growth of 2%-3% per annum and in 1993, there were 1,080,000 residents in the region.

The population growth reflects high birth rates of about 44 per 1000 for most of the years. However, there was a negative migration balance for most of the years due to emigration to Arab countries. Only in 1990-1993, after the Gulf Crisis, was there a positive migration balance; in these years the population's growth reached nearly 5% per annum, compared to 2%-3% in prior years.

Population background Gaza

In 1968 there were 380,000 residents in the Gaza. Between 1969 and 1993 the population grew by 98% - an average growth 3% per annum – and in 1993 numbered 730,000 residents in the region.

¹²⁹ Without Jerusalem.

This population growth reflects high birth rates of about 54 per 1000 for most of the years. However, there was a negative migration balance for most of the years due to emigration to Arab countries. Only in 1990-1993, after the Gulf Crisis, was there a positive migration balance; in these years the population's growth reached nearly 5% per annum, compared to 2%-3% in prior years.

Sources and Methods , Israeli Central Bureau of Statistics (ICBS)

Value of the Gross National Product

The value of the product was obtained by the "national expenditure" method, as well as by the "national income" method. According to the "national expenditure" method, the estimated value of the product is obtained by summing expenditure on consumption and capital formation plus the value of goods and services exported, after deduction of the value of imported goods and services. The estimate obtained using the "national income" method is the sum of the estimated income (net product) derived from each of the industrial branches.

In most branches (agriculture, manufacturing industry and construction) the estimate of the total income accrued is obtained by deducting the estimate of purchased input from the estimate of output. In order economic branches, income is measured directly by summing up production factor payments. By definition, the estimate obtained by the "national income" method is identical to the estimate obtained using the "national expenditure" method after deducting net indirect taxes and depreciation. However, as the calculation of the two estimates is mostly based on independent statistical series and is made by two different methods, the two results differ – the discrepancy appearing on the national income side as "errors and omissions"

Private Consumption Expenditure Estimation

In the estimates of private consumption expenditure on agricultural produce, separate estimates were made for fruit and vegetables and for other agricultural produce. Private consumption expenditure on fruits and vegetables was calculated by multiplying the quantities of produce consumed by average annual prices. Estimates of quantities are based on data on supply of fruit and vegetables to local markets, and the data on prices was collected in the framework of the Consumer Price Index in Judea, Samaria and the Gaza area.

Private consumption expenditure on other agricultural produce consists of expenditure on local products plus imports. The net import value of agricultural produce (excluding fruits and vegetables), from Israel and from other countries, is based on the foreign trade statistics with the addition of "profit margins". The value of consumption of agricultural produce from local production (excluding fruit and vegetables) is calculated by multiplying the quantities consumed by the average annual prices. Quantities are estimated by type in the framework of the "agriculture branch accounts", and the prices are based on data collected in the framework of the Consumer Price Index, for Judea, Samaria and the Gaza area.

Consumption expenditure on industrial goods locally manufactured is estimated on the basis of the average revenue per employed person, obtained in the framework of the industrial indices; the number of persons employed in industry was estimated according to the Labour Force Surveys. The estimate of consumption of imported industrial goods is based on foreign trade statistics, with the addition of "profit margins".

The value of services of non-profit institutions is estimated for education institutions according to the total number of pupils and the average expenditure per pupil in government and United Nations Relief and Welfare Agency institutions. In health institutions, the value of the services is estimated according to the number of hospitalization days, and the corresponding average expenditure (per hospitalization day) in government institutions.

General Government Consumption Expenditure

The estimate of expenditure by the Civilian Administration and the local authorities is based on a summary of the relevant items which are obtained from an analysis of the financial statements or from the budgets of these bodies.

Gross Capital Formation in Fixed assets

The estimate is based on the following sources:

Reports or development budgets of the Civilian Administration and Local authorities:

[a] Reports or development budgets of the Civilian Administration and the local authorities.

[b] Data on works in infrastructure by the Israel Government (the Ministry of Housing, Public Work Department, the Ministry of Defence) and the Jewish National Fund.

[c] Data on area of buildings begun and completed, which are obtained from the following reports: 22 local authorities report using a special questionnaire; civil administration offices; UN welfare and employment agencies; reports of mukhtars in 80 small localities in Judea and Samaria, which are a representative sample of hundreds of small localities (mostly rural).

Increase in Stocks

The estimate was made only for olive oil. Due to the periodicity in olive output, changes in stocks of olive oil are particularly large. The increase in stocks was calculated as the difference between the value of output and the value of domestic consumption and exports. The estimate was based on a survey of olive-presses, exports of olive oil and the estimates of its consumption by the population.

Imports and Exports of Goods and Services

The data on trade in goods between Judea, Samaria and the Gaza area and Jordan and overseas countries are based on customs registrations. The estimate of imports of vehicles is based on the registrations of the licensing offices in Judea, Samaria and Gaza area.

The data on trade in goods between Israel and Judea, Samaria and the Gaza area a gross evaluation based on a sample enumeration of movement of goods through the main transit points.

Estimates at Constant Prices

The estimates for each year are weighted at the previous year's prices. The quantity changes obtained by these estimates are Laspeyres quantity changes. On the other hand the implicit price changes (obtained by dividing the nominal change by the quantity change) are of a Paasche type. That is, the prices of each component receive weights according to the component's share in the expenditure in the current year.

Estimates at 1986 prices were chained according to the quantitative changes which I computed annually at the previous year's prices, each expenditure component

separately and for the total of the components; thus, the total of the components obtained in this way might differ from the summary of the various components:

[a] *Private consumption expenditure (excluding consumption expenditure of non-profit institutions)*

The consumption of agricultural products and olive oil was estimated by multiplying the quantity consumed of every product in fixed prices. The consumption expenditure on industrial products (excluding olive oil) and services, by components, was estimated by dividing the current values by the changes in the appropriate item of the Consumer Price Index.

[b] *The consumption expenditure of private non-profit institutions and general government consumption expenditure:*

Compensation of employees, at constant prices, was estimated according to changes in the number of employees. The expenditure on current purchases of goods and other services, at constant prices, was computed by dividing the value at current prices by the appropriate price indices for the main components of purchases.

[c] *Capital formation in buildings, other construction works, equipment and vehicles*

At constant prices, is based on the change in average wages in the construction branch and on input prices in this branch, and on prices of vehicles and equipment imported from Israel.

[d] *The change in stocks of olive oil*

At constant prices, was calculated by multiplying the current year's quantity by the previous year's price.

[e] *Imports and exports of goods and services*

At constant prices, were generally calculated by dividing the value by major types of goods and services (according to characteristic production branch and group of services) by the appropriate price indices. Exports of olive oil and citrus fruit, at constant prices, were calculated by multiplying the current year's quantity by the previous year's price.

[f] *Gross domestic product*

At constant prices was obtained as the sum of the estimates, at constant prices, of private and general government consumption expenditure, of capital formation and of exports, after deduction of imports.

[g] *Gross national product*

Was not calculated at constant prices, due to the difficulty in estimating, at constant prices, net income of the local production factors from abroad, which is mainly income from work in Israel. There is no unique and unequivocal price index by which this income can be deflated. From the employer's point of view, this income can be seen as the amount of work supplied (under arbitrary assumptions concerning the productivity), and the average price per work unit. From the employee's point of view, this income should be deflated in accordance with its purchasing power, i.e., according to the prices of goods and services which can be bought with his income.

[h] *Disposable national income*

At constant prices, includes, in addition to domestic product, financial flows such as net income of production factors and net transfers from abroad, that can be divided into quantity and price only under arbitrary assumptions. In consideration of specific purposes of analysis, for which disposable national income is to be presented in terms of purchasing power, at constant prices, national disposable income at constant prices was calculated after deflating the value at current prices by a weighted price index of the domestic product and of imports of goods and services.

[i] *Private disposable income, per person*

At constant prices, was calculated by deflating the current value by the implicit price index derived from private consumption.

Appendix 5.2 Data from the Palestinian's Central Bureau of Statistics 1994-2005¹³⁰

Collection scope

This publication presents estimates for the national accounts for the West Bank Jerusalem¹³¹ and the Gaza for the years 1994-2005. The accounts include: expenditure on the gross domestic product and its components; disposable national income; estimates of domestic product by major economic branches and disposable private income. In addition, this publication provides tables which present background data on: population, labour force, balance of payments, quantities and value of agriculture output; cultivated agriculture area, private building area; wages and data on households that own durable goods, have running water and electricity in their dwellings. Most of the series cover both region together and each region separately.

Population background West-Bank¹³²

In 1993, the population in the West-Bank numbered 1,080,000 residents. During the period 1994-2005, the population grew by 87% - an average growth of 5.4% per annum and in 2005, there were 2,023,000 residents in the region.

Population background Gaza

In 1993 there were 730,000 residents in the Gaza. Between 1993 and 2005 the population grew by 92% - an average growth of 5.6% per annum – and in 2005 numbered 1,389,000 residents in the region.

¹³⁰ 'Annual National Accounts Tables at Current Prices (2000-2005)' and 'National Accounts Tables at Current Prices (1994-2000)'.

¹³¹ That part of Jerusalem, which was annexed after the 1967 occupation by Israel. In this work we excluded that data.

¹³² Without Jerusalem.

Sources and Methods [Palestinian's Central Bureau of Statistics] (1994-2000)¹³³

The Palestinian Central Bureau of Statistics (PCBS) was established in 1993 under the name of the Palestinian Bureau of Statistics. Palestinian's Central Bureau of Statistics has right from the outset worked on building datasets for main economic statistics necessary for the compilation of National Accounts; consequently, Palestinian National Accounts were created in 1994. The publication of such continued on annual basis until revised time series covering 1994-2000 in constant and current prices was achieved.

The Making of the National Accounts: Developmental Stages

Palestinian's Central Bureau of Statistics took up the responsibility of producing the official economic, social, and geographic statistical data using the latest statistical systems to attain accurate and sufficient data. Henceforth, Palestinian's Central Bureau of Statistics has ensured utilizing the most modern international standards and recommendations in respect of preparation of National Accounts. SNA 93 was therefore adopted as a guiding framework of the statistical efforts related to the economy. The making of the National Accounts came across a number of developmental stages in a relatively short period:

First: The National Accounts 1994

The first estimates for National Accounts started from zero. Its cornerstone was the Establishments Census 1994, which constituted the sampling method of the entire economic surveys that took place for the first time in 1994 as time reference. These surveys Industry, Domestic Trade, Services (both market producers and non-profit institutions), and Building and Construction Contractors were the statistical databases necessary for the compilation of the National Accounts. The National Accounts was based on administrative records. The first Palestinian National Accounts emerged in 1994; however, this experiment encountered many gaps including the following nine. First, calculating the net exports and imports by using the residual methodology through the economic equation of the Gross Domestic Product (GDP) based on production and expenditure approaches due to lack of foreign trade statistics for that year (1994).

¹³³ *National Accounts Tables at Current Prices (1994-2000)*'.

Second, estimating the formal and informal transport activity since there were no surveys covering them.

Third, covering the compensation of employees from Israel only when the Gross National Income (GNI) was calculated. Also, the net revenues of foreign investment were not covered.

Fourth, using a sample to cover the data of local government (municipalities and village councils).

Fifth, the difficulty of estimating the government's data since only Gaza and Jericho were under Palestinian control at that time; the rest was under the control of the Israeli civil administration.

Sixth, different periods of the Palestinian Household Expenditure and Consumption Survey and the Labour Force Survey were inconsistent with the reference year 1994. Hence, we used values deflation to provide that year's estimates.

Seventh, preparing the National Accounts using accrual basis, could not reveal places of internal data inconsistencies of production and expenditure sides.

Eighth, the experiment of conducting all surveys including the Establishments Census 1994 was relatively new; henceforth some problems were unavoidable.

Nine, establishments Census 1994 lacked comprehensiveness with respect to coverage since it was an establishments census; population and housing were not included.

Second: National Accounts 1995 and 1996

The National Accounts of 1995 and 1996 were prepared together at this stage after conducting field surveys using two separate questionnaires for both years. The 1996 questionnaire was detailed whereas the 1995 questionnaire was abridged. The aim was to bridge the time gap in producing more recent National Accounts. The updating of the economic surveys of this period was based on the administrative records and a number of field visits. Technical advances especially with respect to coverage and comprehensiveness marked this stage. Firstly, a Formal Transport Survey was conducted to cover transport activities; whereas estimates were used in 1994. Financial Intermediation activities were covered through a comprehensive and organized survey covering banks, insurance companies, insurance brokers and money exchangers. Thirdly, foreign trade statistics of exports and imports were available thus avoiding estimates by using the residual methods. Fourthly, preparing the Palestinian Balance of Payments for both years (1995 and 1996) enabled the calculation of GDP and Gross Disposable Income (GDI). The Palestinian Balance of Payments provided estimates on

services from foreign trade. Fifthly, economic surveys were conducted based on the Establishments Census 1994; these were updated by including establishments founded after 1994. However, this updating did not take into consideration the faults of the 1994 Census.

Despite the advances made in statistical coverage, the preparation of data remained based on accrual basis of the GDP whether by using the output or production approach, the expenditure approach, or the income approach. However, the problem of being unable to reveal in details the inconsistent data remained. Henceforth, we were unable to carry out the required adjustments of the economic activities and dealings in an organized methodology.

Third: Supply and Use Tables: National Accounts 1997 and 1998

Two factors marked this stage, which constituted a significant technical shift for the estimates of the National Accounts:

Firstly, it was based on the Population, Housing, and Establishment Census 1997, which enabled a better level of coverage and comprehensiveness whether in respect of sampling method of economic surveys (establishments' record) or estimates of households' expenditure in accordance with the findings of the Population Census.

Secondly, using Supply and Use Tables as a methodology to prepare and construct the National Accounts. Such methodology is characterized by achieving full internally consistent data even on the disaggregated level. Equilibrium is then established between the supply and use sides by adjusting the data of lower quality to be consistent with those that are believed to be more reliable. Undoubtedly, this would achieve a higher level of quality and data consistency compared to previous years.

This stage revealed a number of data inconsistencies on the disaggregated level and sometimes led to important adjustments to some data sources such as foreign trade and agricultural statistics. Additionally, better estimates of the informal sector after it covered the activities of establishments and transport only were achieved at this stage. This contributed to deepening the understanding of those preparing the data of the structure of the national economy and its different interactions.

Fourth: Revised Time Series in Current and Constant Prices (1994-2000)

A series of accounts that could not assist in holding comparisons, derivations, or rates of growth of the national economy was produced. This inconsistency failed to enable data users to benefit from analysing the state of the economy of the country. Henceforth, it was unavoidable to carry out a comprehensive review in order to produce a revised time series that meets the minimum requirements, which would allow holding comparisons of analysing the total economy throughout the years. Producing National Accounts in constant prices for the first time marked this stage. It was the actual base to judge the level of development in the total economy. The creation of the time series for the National Accounts required a number of procedures and technical handling including:

1. Re-weighting of the economic surveys of 1994-1996 based on the findings of the Establishments Census 1997 including redefining the limits of Jerusalem according to 1997 Census.
2. Recompiling and processing of the data from sources other than the economic surveys including updating administrative records (including mainly local and central government data and the data of the United Nations Relief Works Agency .
3. Making use of the Supply and Use Tables prepared throughout two consecutive years to decide the required adjustments to balance values on accrual basis on both sides of Production and Expenditure.
4. Preparing the required price deflators to create the revised time series in constant prices.

Fifth: Future Projects and Plans

1. **Institutional sectors' accounts:** The National Accounts department has currently started producing institutional sectors' accounts separately. Such accounts provide clear pictures in respect of the growth of each sector and an overview of the performance of the economy in general. They also reveal the most widespread sector in the national economy and provide detailed description of the various stages of the economic production including output calculation, income generation, income distribution and utilization, and financial and non-financial accounts.

The System of National Accounts divides the economy into five economic sectors, these being: Financial sector; Non-financial sector; Non-profit household serving sector; Government sector; Family sector In addition the rest of the world account shows interactions between the domestic economy and the outside world.

Providing detailed data on the GDP, GNI, GD1 according to economic sector provides a clearer picture of the performance of the economy and enables researchers and decision-makers to make more accurate decisions with respect to the nature of required projects and the type of decisions need to be made. It also provides a clearer view for investors concerning the performance of the economy in the country.

2. Short term indicators and quarterly accounts: They represent a significant shift in the creation of the Palestinian National Accounts. Quarterly accounts aim to produce data on the National Accounts on a quarterly basis. They reflect the economic growth taking place over short periods in time in order to enable analysts, investors, and decision makers to understand the performance of the economy throughout each quarter of the year. Quarterly accounts are used for the purpose of short-term analysis where annual accounts become insufficient.

Short-term indicators, which are the main tool for the making of the quarterly accounts, are represented in the monthly survey, which Palestinian's Central Bureau of Statistics conducts on a monthly basis. This survey covers the most prominent economic indicators of the industry, domestic trade, services transportation, stockpiling, and communication surveys as well as the Establishment Survey and other short-term indicators including the Labour Force Survey and the Household Monthly Expenditure and Consumption Survey. The last is conducted by Palestinian's Central Bureau of Statistics on monthly basis and covers the most prominent indicators of the expenditure and consumption of the Palestinian households.

3. Time series future estimates: Once the quarterly National Accounts are made, time series future estimates follow and provide futuristic view of the economic performance.

Table A5.1 Sources and Methods (Palestinian's Central Bureau of Statistics)
(2000-2005)¹³⁴ Data sources for the GDP from the Production side

Activity	Source	Notes
Agriculture and Fishing	- Agriculture Statistics - Palestinian Expenditure and Consumption Survey - Oil Presses Survey	- The compensation of employees obtained from the Labour Force Survey. - Estimates available about the intermediate consumption of the Fishing production due to lack of data. - Oil presses survey provides estimates about farmers' production from pressing olives as a secondary activity.
Mining and Quarrying	Industry Survey	
Manufacturing	- Industry Survey - Oil Presses Survey - Palestinian Expenditure and Consumption Survey	
Electricity and Water Supply	- Industry Survey - Local government budgets - Palestinian Expenditure and Consumption Survey	
Construction	Contractors' Survey (Formal Sector) Existing building survey (Informal Sector)	LFS data for the compensation of employees were used in estimating them for the informal sector.
Wholesale and Retail Trade	Internal Trade Survey	
Hotels and Restaurants	Services Survey	
Transport	Transport Survey (Formal Sector) Informal Transport Survey (Informal Sector)	
Financial Intermediation	Finance Survey	
Real Estate, renting and Business services	- Services Survey - Palestinian Expenditure and Consumption Survey - Estimates for the Imputed rents from the economic surveys	
Public Administration and Defense	- Central Government Budget - Local Government Budget - Government abroad Budgets	
Education	- Services Survey - United Nations Relief and Welfare Agency Budget - Ministry of Education budget	
Health and social work	- Services Survey - United Nations Relief and Welfare Agency Budget - Ministry of Health budget	
Community, social and personal services	Services Survey	
Households with employed persons	- Palestinian Expenditure and Consumption Survey	

¹³⁴ 'Annual National Accounts Tables at Current Prices (2000-2005)'

Table A5.2 Data Sources for the GDP from the Expenditure Side

Transaction	Source	Notes
Household Final Consumption	Palestinian Expenditure and Consumption Survey	
Government Final Consumption	Administrative records from: - Central Government - Local Government - Extra Budgetary institutions - Government Abroad - Palestinian Expenditure and Consumption Survey	
NPISH Final Consumption	- Services Survey - UNRAWA Budget - Palestinian Expenditure and Consumption Survey	
Gross capital formation	For Buildings (Contractors Survey) For Non buildings (Imports of capital goods from the Foreign trade statistics)	
Changes in inventories	Economic surveys	
Exports	Foreign trade statistics exports of goods) Rest of the world estimates (exports of services)	
Imports	Foreign trade statistics (imports of goods) Rest of the world estimates (imports of services)	

Table A5.3 Data Sources for the GNI and GNDI

Transaction	Source	Notes
Income vis-à-vis nonresidents, net Compensation of employees (residents) receivable abroad Compensation of employees (nonresidents) payable abroad	Balance of Payments	
Property Income, net Property Income receivable Property Income payable	Balance of Payments	
Current Transfers from abroad, net Current Transfers receivable from abroad Current Transfers payable for abroad	Balance of Payments	

The Main Basis for Revision Process

During the process of compiling this time series, many economic indicators changed and a cumulative process of expertise was achieved. Based on the following it was necessary to have a revised time series for the National Accounts covering the period 2000-2005 based on the following considerations:

1. The updating process of the data sources when it was possible depending on the latest administrative records available from mainly the Government and United Nations Relief and Welfare Agency.
2. Unifying the methodologies from the various data sources based on the latest one, such as the methodologies for estimating the government production, imputed rent and the gross capital formation. Using the latest methodologies improve the data quality for data compilation.
3. Unifying the data coverage for the data by economic activities. This was accomplished by revising the economic surveys data based on the results of the Establishments Census 2004 since based on this, it showed that there was under coverage in the frames for compiling the economic surveys for the years 2000-2003 that depended on the 1997 Census.
4. Improving the consistency of the data by checking the framework of the data, such as checking the proportion of the inputs to the outputs, the value added per employee, in addition to the logic of the growth rates for the output and value added, in addition to the regional distribution for the data.
5. Balancing the GDP from both the production and expenditure sides at current prices.
6. Re checking for the data at current prices after compiling those at constant prices based on the general overview about the performance of the economy.

Revised Time Series at Constant Prices

The methodology for compiling the National Accounts at constant prices is based on a set of price indices and dilators. Mainly Palestinian's Central Bureau of Statistics produce three types of indices (Consumer price index, producer and wholesaler price index) based on the average of the year 1996 as a base year.

The process for deflating divided into two steps: First step by compiling the necessary deflators in format and details of the SUT, while in the second step those deflators were used in order to deflate the various transactions in the SUT.

Table A5.4 Various Indices used to Deflate Various Transactions

Transaction	Source	Notes
Output Output from Goods Output from buildings Services	Pal-PPI Special Index based on the components of the output Pal- CPI	Palestinian's Central Bureau of Statistics Palestinian's Central Bureau of Statistics Palestinian's Central Bureau of Statistics
VAT on Imports	Pal-WPI	Palestinian's Central Bureau of Statistics
Intermediate Consumption From Goods From Services	Pal-WPI Isr-WPI	Palestinian's Central Bureau of Statistics Israeli Abstract
Final Consumption Household Final Consumption Government Final Consumption NPISH Final Consumption	Pal- CPI Special Index based on the production of Government Pal-WPI	Palestinian's Central Bureau of Statistics Palestinian's Central Bureau of Statistics Palestinian's Central Bureau of Statistics
Gross Capital Formation Gross Fixed Capital Formation Changes in Inventories	Pal-WPI Pal-WPI	Palestinian's Central Bureau of Statistics Palestinian's Central Bureau of Statistics
Exports of goods and services	Pal-PPI	Palestinian's Central Bureau of Statistics

Institutional National Accounts

The methodology for compiling the Institutional National Accounts is based mainly on the Annual Basic National Accounts, therefore the results of this report as for the institutional accounts depend on the annual national accounts for the years 2000-2005 as a basis for the institutional distribution for institutions and based on the recommendations of the SNA' 93. Two approaches were used to compile the institutional national accounts based on the sources of the data and there particularity.

First Approach consists of:

Agriculture and Fishing: classified as Household sector.

Financial Intermediation: Financial Institutions Sector.

Public owned enterprise: Non-Financial Institutions.

Public Administration and Defence: Government Sector.

Household Services: Household Sector.

Second Approach consists of:

All activities where data are collected from the economic surveys, and data classified by their institutional sectors based on the legal entities.

A percentage contribution for each sector was used as a basis for distributing the data for each sector.

Quarterly National Accounts

Before talking about the quarterly national accounts, it is necessary to introduce the main sources for the QNA.

The QNA depend on a set of short-term indicators that serve as a tool for the compilation; those indicators must have a periodicity of monthly or quarterly basis.

Table A5.5 Main Data Sources for the Compilation

Activity	Source	Notes
Agriculture and Fishing	Number of Employees in Agriculture	The recommendations were to use the quantity of agricultural production.
Mining and Quarrying	Industrial Production Index	Within the recommendations
Manufacturing	Industrial Production Index	Within the recommendations
Electricity and Water Supply	Quantity of consumed water	Within the recommendations
Construction	Number of Employees in Construction Building Licenses Quantity of imported cement	Within the recommendations
Wholesale and Retail Trade	Number of Employees in Trade	The recommendations to use the average of the household consumption
Hotels and Restaurants	Number of Bed night	Within the recommendations
Transport	Number of licensed vehicles Number of Employees in Transport	Within the recommendations
Financial Intermediation	Credit facilities PMA assets and liabilities Checks clearances	Within the recommendations
Real Estate, renting and Business services	Number of Employees in Renting service	The recommendations to use the number of new building.
Public Administration and Defense	Revenues and expenditures for central government Budget	Within the recommendations
Education	Revenues and expenditures for the Ministry of Education	Within the recommendations
Health and social work	Revenues and expenditures for the Ministry of Health	Within the recommendations

The QNA methodology:

The following steps are used for the compilation of QNA:

- Collecting the necessary short-term indicators for all economic activities in order to derive the GDP at constant prices. The data must be monthly or quarterly.
- From those indicators, indices were derived for each activity based on the format of the Supply and Use Tables.
- Based on the results of the annual national accounts, the value added for each activity was distributed based on the derived indices.

Definitions

National Accounts - The National Accounts System of Judea and Samaria and the Gaza area is based on a guidebook of the U.N. Statistical Office: UN, A system of National Accounts and Supporting Tables, Studies in Methods, Series F, No.2, Rev. 3, New York, 1968, with the exception of the following differences:

[a] Expenditure on general government consumption and on consumption of services of private non-profit institutions does not include the imputed expenditure on pensions for general government employees, for whom the employers does not set aside special funds for this purpose. Furthermore, it does not include the value of depreciation of fixed assets which served the Civil Administration, the local authorities and the private non-profit institutions.

[b] Expenditure on services of private non-profit institutions, which were supplied to households free of charge, was not itemized separately from expenditure on private consumption of households.

[c] Gross domestic product, at market prices, does not include taxes on imports, but does include subsidies on exports.

Below are definitions based on the U.N. guidebook mentioned above:

Gross domestic product, at market prices, is the net value of goods and services, prior to deduction of allocations for consumption of fixed capital assets, produced by factors of production in Judea, Samaria and the Gaza area, excluding Israeli localities. It is equal to the sum of: private consumption expenditure + general government consumption + gross domestic capital formation expenditure + net exports (exports less

imports) of goods and services. It also equals the sum of gross value added, at market prices, of all domestic economic branches.

Gross national product equals the gross domestic product plus net factor incomes received from abroad. In Judea and Samaria and the Gaza area, the main addition is the income of residents employed in Israel.

Gross disposable national income equals the income of the residents of Judea, Samaria and the Gaza area from all sources. It is equal to the gross national product, at market prices, plus net current transfers from abroad.

Private consumption expenditure includes the consumption expenditure of households together with the value of services of non-profit institutions, without distinction.

General government consumption expenditure is the value of current expenditure on goods and services undertaken by the local authorities and the Civilian Administration in Judea, Samaria and the Gaza area. It includes payments to employees and purchases enterprises in Judea, Samaria, the Gaza area and abroad, less current sales to enterprises and households.

Gross domestic capital formation represents the gross value of assets added to domestic capital inventory in Judea, Samaria and the Gaza area, excluding the Israeli localities. It includes expenditure on acquisition of fixed assets and the value of physical changes in stocks.

Capital formation in fixed assets includes the free on board value of goods and services sold abroad and to Israel plus subsidies. This item comprises: merchandise, supply transportation services, insurance and other non-factor services; they do not include factor income from abroad and from Israel.

Imports of goods and services comprise the Cost, Insurance and Freight value of goods and services purchased from abroad plus taxes. They do not include factor payments to abroad.

Net factor income payments from abroad are earnings of residents working abroad (in Israel, Jordan and other countries), less the corresponding factor payments made abroad and income of the residents of Judea, Samaria and the Gaza area, such as rent, interest, dividends and profits of direct investment enterprises.

Net current transfers from abroad are net current income in cash or in kind received from abroad, where there is no quid pro quo.

Transfers to abroad mainly include taxes and national insurance payments and payments to insurance funds on income from wages of workers in Israel.

Chapter 6 - Empirical Findings, Discussion of Findings and Policy Implications

6.1 Introduction

The purpose of this chapter is to close an empirical gap in the analysis of the economic history of the West Bank and Gaza during the occupation period. What is probably the most profound and detailed macroeconomic study of the West Bank and Gaza was conducted by Arnon *et al.* (1997). Their analysis began immediately after the Oslo Accord, and the optimistic projections of their study reflect the optimism of the Oslo Accord. Unfortunately, their study used data collected only until 1994, and their optimistic projection was destroyed by the reality of the second intifada. Unfortunately, Arnon *et al.*'s study completely ignored the effect of foreign aid on the relation between endogenous parameters and the GDP. This study intends to incorporate missing component. Arnon *et al.* separated the West Bank from the Gaza Strip. According to their analysis, private consumption in a given year is a function of consumption in previous years and disposable income in the year under consideration. Governmental consumption is a function of direct and indirect taxes. I adopted their assumption that the level of exports to Israel is exogenous to the Palestinian economy and contingent on the GNP of Israel. Exports to other countries, which are quite small, are contingent on the production of agricultural crops (mainly olives) and the exchange rate of the Jordanian dinar. Later in this chapter, I will show that the regression analysis of Arnon *et al.* supports my finding that the ration of imports to total uses (β) is fairly constant.

The goal of this chapter will be attained by empirically answering the following questions that are not addresses in earlier studies such as Arnon *et al.* :

1. Is the GDP of the West Bank and Gaza almost entirely determined by an exogenous foreign currency constraint? If so, then growth is determined according to the two-gap model of Chenery and Strout (1966) and the analysis of Harms and Lutz (2004) with the assumption that the balance-of-payments gap is the effective constraint. One should consider that according to the two-gap model, investment and therefore growth of the GDP are determined by either the savings gap constraint or by the foreign currency gap constraint and not by equilibrium of investment and consumption.

2. Is the economy of the West Bank and Gaza infected by symptoms typical of Dutch Disease? Did the symptoms exist in both periods, from 1968-1993 when foreign aid was relatively low but income from work in Israel was relatively high and in the post-Oslo period of 1994-2007 when foreign aid was much higher but the inflow from work in Israel was much lower? These questions will be answered by identifying the correlation between the shocks of aid and political conditions and the GDP, exports, imports, and the tradable and non-tradable sectors (see Corden and Neary 1982; Matsuyama 1992; Sachs and Warner 1995; Djankov *et al.* 2006, 2008; Kang *et al.* 2013; Rajan and Subramanian 2005, 2008, 2011).

3. If there are positive answers to the previous questions and if the West Bank and Gaza economy is infected by Dutch Disease, then what are the sources of this infection? To examine these questions, I applied a multiple regression diagnostic test that considers only rates of annual change in the GDP while examining the direction of causality by considering lags between the dependent and independent variables. The classical literature on Dutch Disease identifies the appreciation of the real exchange rate (RER) as the intermediate source of Dutch Disease¹³⁵. Namely, the excessive inflow of foreign currency appreciates the RER under equilibrium. However, in the case of the West Bank and Gaza, there is no national currency, and thus there is no exchange rate. In addition, if in the case of the West Bank and Gaza, the two-gap model is valid, all sources of foreign currency are exogenous and the ratio of import to total uses (β) cannot be changed in the long run, then the GDP is almost entirely determined by exogenous constraints rather than by conditions of equilibrium; thus, in the case of the West Bank and Gaza, the analysis will not include the element of RER¹³⁶. Accordingly, I examined only the effect of direct sources for the symptoms of Dutch Disease such as firstly, the Israeli policy of using low-cost labour from Palestine to develop the economy of Israel rather than supporting the development of the Palestinian economy, secondly, the effectiveness of foreign aid in times of military clashes and terror and thirdly, exogenous constraints on the economy that are imposed by Israel. I would like to emphasise at this preliminary stage of the chapter that currently there is no literature

¹³⁵ See Corden and Neary (1982), Rajan and Subramanian (2011) and others.

¹³⁶ Cali (2011) estimated the RER by comparing the prices of various products in the West Bank to the prices of the identical products in annexed East Jerusalem. I do believe that this methodology provides only rough estimates of the RER.

that analyses the specific and combined effects of multiple individual sources of Dutch Disease under conditions that prevailed in the West Bank and Gaza. Thus, it is nearly impossible to quantify the contribution of each factor to the phenomenon of Dutch Disease in the West Bank and Gaza, and some of the questions that I have raised will not have well-quantified, empirical answers.

4. One should examine also the causality direction of the relation between foreign aid and GDP because even if there is a negative correlation between foreign aid and GDP, it is quite possible that the negative correlation is simply because greater poverty leads to more foreign aid.

The next section in this chapter investigates the first question and provides a positive answer. Section 6.3 demonstrates the major Dutch Disease symptoms that existed before the Oslo agreement and with greater impact than after the Oslo agreement. The main symptoms are increased foreign aid, lower growth rates of GDP and exports, an increase in the non-tradable sector, increased unemployment and the relation between these phenomena and various additional factors such as terror and political constraints. Section 6.4 presents statistical limitations of the analysis. This section is presented before the application of additional multiple regression analysis related to the sources of Dutch disease. In this section, I will analyse various statistical difficulties including the difficulty of determining the causality directions of the correlations between the independent and dependent variables while eliminating the potential simultaneity biases because of endogenous relations between the dependent and independent variables. Section 6.5 presents multiple regression analysis to examine the factors that possibly caused the symptoms of Dutch Disease. Section 6.6 presents additional efforts to diagnose the effect of the political environment on GDP using multiple regressions. Section 6.7, the last section of the chapter, concludes the argument.

6.2 Is GDP of the West Bank and Gaza Determined Exogenously?

One of the basic claims in this thesis is that the terms in the bracket on the right side of equation (4-7),

$$Y_d \equiv GDP = \frac{(1-\beta)}{\beta} [E_x + FTR + NCT + W]$$

are exogenous terms and β , the ratio of import to total uses of the economy, is nearly constant. This is most likely because of the inability or low profitability of replacing imports by local production. If in the case of the West Bank and Gaza, the above claims are justified empirically, then the analysis of growth according to the two-gap model is strengthened. To answer the question at the beginning of this section, let me first review and analyse the basic related data in the tables in Chapter 5 and then add more calculations.

Recall that the term FTR+NCT includes all types of capital and financial transfers from abroad such as financial assistance to the public sector, donations to the non-government sector and all other capital and financial accounts such as foreign direct investment, loans, changes in foreign currency reserves and remittances. According to Table 5.2, the average annual FTR+NCT per capita from 1994 to 2007 amounted to USD 667, approximately 47% of the GDP. The dollar value of average per capita FTR+NCT from 1994 to 2007 is more than three times the average from 1968 to 2003. Immediately after the two *Intifadas*, direct foreign investment and investment in financial assets and loans, which were previously low, declined even further because such investments are negatively correlated with political risk and terror. The average currency deposits reserve during the years 1999-2007 were USD 593 million (see Table 5.7). Such a low level can only finance approximately three months of the balance of payments deficit; thus, it is nearly impossible to use foreign currency deposits as a sustainable supply source of foreign currency that can respond to endogenous demand pressures on foreign currency.

Exports, imports and the demand for foreign currency are normally endogenous factors that are determined by supply and demand equilibrium conditions. However, the basic claim in the case of the West Bank and Gaza is that these factors are exogenous factors. As is evident in Table 5.10, in the years 2000 to 2007, between 87% to 94% of Palestinian exports were destined for Israel although approximately 72% of its imports

originated from Israel¹³⁷. Exports to Israel and the rest of the world are administrated by Israel, which controls land, air and sea access to the West Bank and Gaza. The main reason stated by Israel for exercising this control is security and fear that materials used in terrorist attacks will be smuggled into the West Bank and Gaza with civilian goods. However, other factors may also play a part in this control. For example, economic and public health considerations are used to justify restricting entry from the West Bank and Gaza to Israel of both agricultural, fresh and processed products and pharmaceutical products to prevent competition with Israeli farmers and manufacturers. A detailed presentation of the various constraints and their costs is given in the report of the Palestinian Ministry of National Economy (2011). The executive summary of this report declared,

".... This "exploitative" policy has been coupled by the desire of Israel to prevent any Palestinian competition with Israeli economic interests. This attitude is summed up by Yitzhak Rabin, while holding the post of Israel's defense minister in 1986: "There will be no development initiated by the Israeli Government, and no permits will be given for expanding agriculture or industry, which may compete with the State of Israel" (UNCTAD 1986). This has been (and still is) reflected in a series of Israeli obstacles related to customs, transportation and infrastructure which have prevented the development of a competitive Palestinian tradable sector and of Palestinian trade with non-Israeli partners...The total costs imposed by the Israeli occupation on the Palestinian economy which we have been able to measure was USD 6.897 billion in 2010, a staggering 84.9% of the total estimated Palestinian GDP. In other words, had the Palestinians not been subject to the Israeli occupation, their economy would have been almost double in size than it is today."¹³⁸

Accordingly, for all intents and purposes, exports from the West Bank and Gaza are exogenous. The level of imports to use, which is denoted in the model as β , is the ratio of imports to the total national use. The average β for the period 1968-2007 is 42.0% (see Table 5.1, p.144), with a standard deviation of only 3.7%. Thus, empirically β is virtually constant, and the small changes that do occur are temporary ones and are

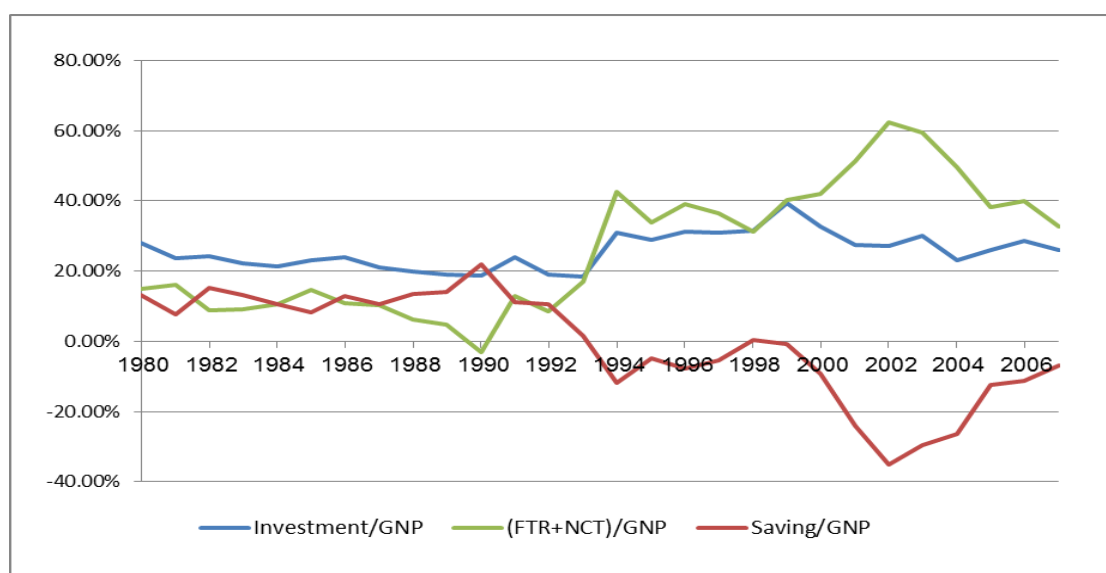
¹³⁷ Note that the first two years of *Al Aqsa Intifada* (2001-2002) are exceptions. In 2001, the proportion of imports from Israel was 89.2% whereas in 2002, imports from Israel amounted to only 54.9%. It is possible that there are errors in the data that shifted imports from 2002 to 2001. However, it is also possible that there were real changes in imports from Israel during these abnormal years of intense and violent clashes.

¹³⁸ Without denying the existence of the various constraints, I would like to note that the above calculations are debatable because they ignore the immense positive effect of the well-developed Israeli economy on the economy of the West Bank and Gaza, at least in the first years that the two economies began to interact.

primarily because of political events. Thus, it is reasonable to believe that the Palestinian GDP is determined exogenously by the parameters of Equation (4-7)¹³⁹. The support of the above claim and its implications are exhibited in the following analysis.

According to the two-gap model, either foreign currency or the level of savings is the crucial constraint on development. Figure 6.1 below presents the simple fact that in the case of the West Bank and Gaza, the investment rate was much higher than the savings rate. In fact, following the dramatic increase in FTR+NCT after 1990, the savings rate decreased and has remained negative since 1994.

Figure 6.1 The Ratios of Savings, Investment and FTR+NCT of GNP, West Bank and Gaza, 1980 – 2007

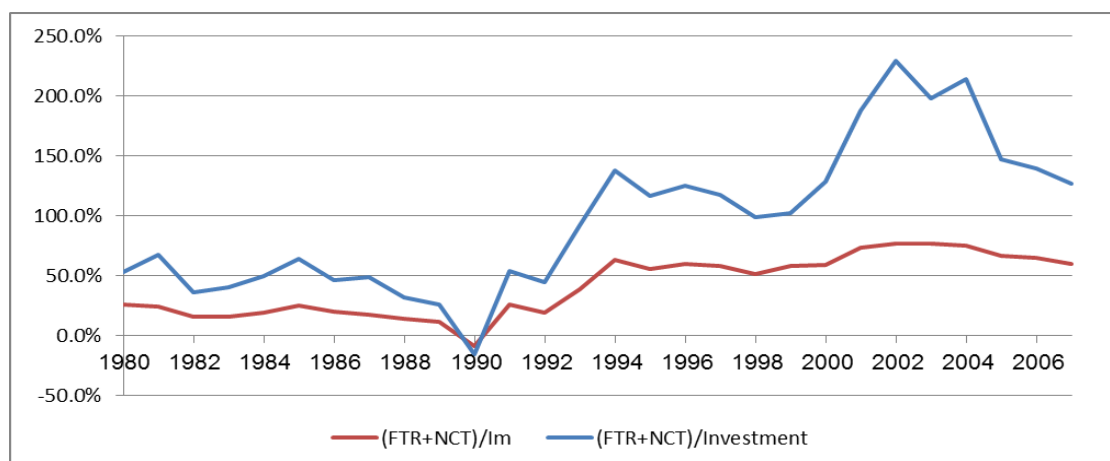


Source: Table 5.5 in Chapter 5, p.151.

Figure 6.1 clearly indicates that even before 1994, investments had to be financed by FTR+NCT. Since 1994, savings is negative; however, the average annual investment rate is higher and the rate of FTR+NCT of GNP is much higher. The entire investment is financed by the exogenous sources of foreign currency. The dependency of investment on the available foreign currency can also be observed in Figure 6.2 below.

¹³⁹ Because birth rate is determined mainly by cultural and religious factors and immigration is restricted, the per capita GDP is also exogenous.

Figure 6.2 The Ratios of (FTR+NCT) to Imports and Investments, West Bank and Gaza, 1980 – 2007



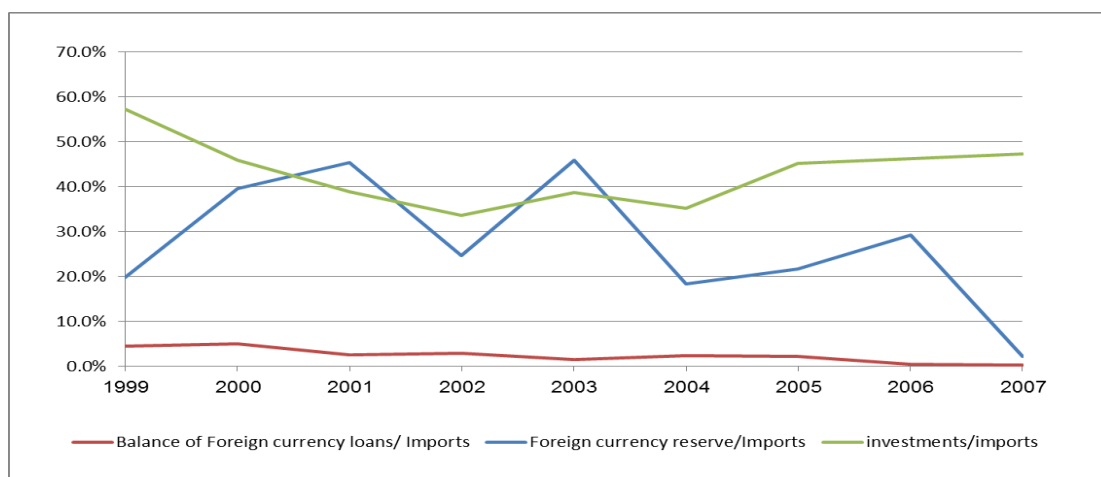
Source: Table 5.1 and Table 5.5 in Chapter 5 p. 144.

Figure 6.2, indicates that after 1994, FTR+NCT financed more than half of imports and that the level of FTR+NCT was higher than the level of investments. In some years, FTR+NCT are more than twice the investment. Figure 6.2 emphasises the strong dependence between imports and investments and the sources of foreign aid post-1994, including remittances. It can be observed in figure 6.2 that over the entire period (FTR+NCT)/Imports are highly and positively correlated with the ratio of (FTR+NCT)/Investment (correlation of 0.96 with $p < 0.00$). This result is because of a positive correlation between investments and imports and the positive correlation between imports and FTR+NCT.

I now investigate whether $FTR+NCT$, E_X and W , of Equation (4-7) are exogenous parameters. Exports to Israel are exogenous to the Palestinian economy and contingent on the GNP of Israel. Exports to other countries *are contingent* on the production of agricultural crops (mainly olives) and the exchange rate of the Jordanian dinar. The sum of foreign transfers and net capital transfers (FTR+NCT) represents total foreign development aid plus foreign direct investments (FDA+FDI) and remittances to the West Bank and Gaza. These terms are estimated as the deficit in the current account of the balance of payments minus revenues from workers' compensations from outside the West Bank and Gaza, primarily from Israel. In any economy, it is reasonable to assume that Financial Transfers (FTR) are determined exogenously whereas the Net Capital Transfers (NCT) can be a function, *inter alia*, of the fluctuating supply and demand of foreign currency because of various economic supply and demand factors.

Generally, in a "normal" economy, an increase in the level of investment and growth of GDP is accompanied by an increase in the demand for foreign currency. This demand can be supplied by foreign currency loans, changes in currency reserve and changes in the exchange rate. In the case of the West Bank and Gaza, there is no national Palestinian currency; thus, induced changes in the exchange rate are not possible. As was previously explained, great political risk, including the risk of recurring violence, reduces the degree of freedom for endogenous NCT changes; in addition, loans are not available. Given the low level of currency reserves both in aggregate terms and relative to the trade deficit (see Figure 6.3 below), the margin for policy-induced sustainable changes in the currency reserves is extremely slim.

Figure 6.3 The Ratios of Foreign Currency Reserve, Loans and Investment to Imports, West Bank and Gaza, 1999 - 2007

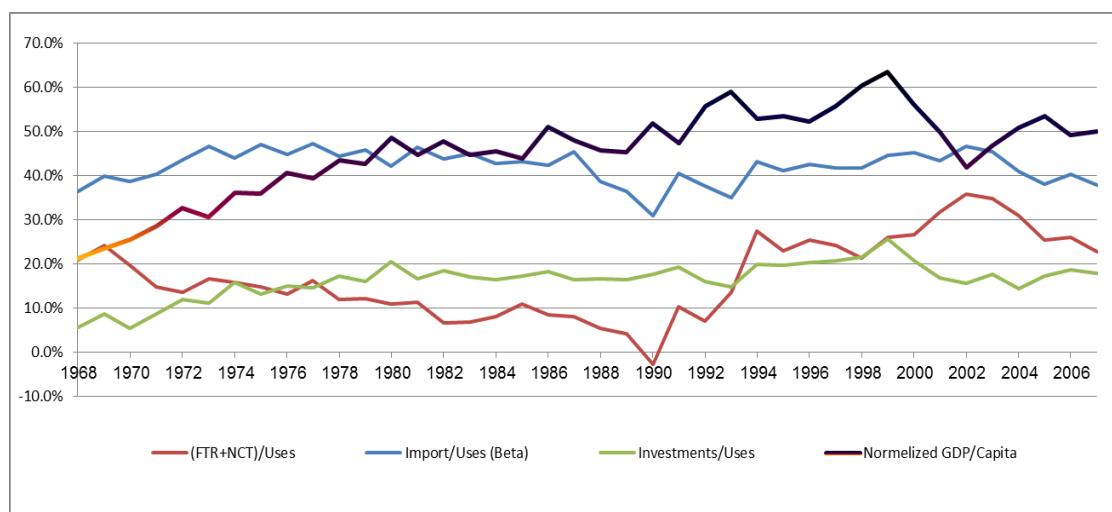


Source: Table 5.5 and 5.7 in Chapter 5 p.151.

Figure 6.3 shows that the ratio of the reserve of foreign currency to imports was volatile (45% to 5%). However, these changes were insignificantly correlated with the ratio of investments to imports. The balance of loans was quite low relative to imports. Thus, we can conclude from the two figures that the level of investments was related to the level of FTR+NCT and that the level of investment could not be significantly increased or decreased by loans or by a sustainable change in the level of the reserve of foreign currency.

Figure 6.4 below shows that over the entire period from 1968 through 2007, β , the ratio of imports to $C_p + C_G + I + E_x$, was relatively constant.

Figure 6.4 (FTR+NCT)/Uses, β , Investments/Uses and Normalised Per Capita GDP (to 50% in 2007)



Source: Tables 5.2 and 5.5 in Chapter 5, p.146.

The average β in the period was 42.0% with a standard deviation of only 3.6%. The main decrease in β was in the period of the first intifada (1988-1990). However, in that period, the Israeli Central Bureau of Statistics (ICBS) encountered difficulties collecting data; thus, the data from this period is less reliable. Excluding these years from the calculations, the standard deviation drops to 3.1%, and in the post-Oslo period, the standard deviation drops to only 2.5%. The above results support the basic claim of the model that GDP was determined by exogenous parameters in nearly all periods with the exception of periods of extreme violence in the region.

Figure 6.4 presents additional significant and relevant phenomena. First, the ratio of FTR+NCT to total use was much more volatile than β . Thus, dependence on foreign aid increased the risk and the volatility of the economy. Second, β was significantly and positively correlated to the ratio of FTR+NCT to total use. Between 1968 and 1993, this correlation was only 27.0% ($p < 0.12$); however, in the period of 1994 to 2007, it soared to 0.63% ($p < 0.015$). These correlations indicate again that the balance of payments gap was financed by the various types of foreign aid. Third, there was a strong and significant negative correlation between the ratio of (FTR+NCT) to total use and the ratio of investment to total use. In the period from 1968-1993, the correlation is -73.5% ($p < 0.00$); and in the period from 1994-2007, this correlation is -56.2% ($p < 0.04$). Namely, (FTR+NCT) support relatively more consumption than

investment. These results suggest that relatively, foreign aid and remittances did not contribute either directly or indirectly to the share of investments of use. These results coincide with what is shown in Figures 1.7 and 1.8, which present the official destinations of foreign aid. Whether the flow of foreign currency did indeed induce Dutch Disease symptoms will be analysed in the next section of the chapter.

6.3 Are the West Bank and Gaza Infected by Dutch Disease

Symptoms?

The basic claim in the literature of Dutch Disease is that a flood of foreign currency induces appreciation of the real exchange rate (RER) of the local currency and consequently the tradable sectors of the local economy cannot compete with the imported products that become relatively cheaper. Corden and Neary (1982) presented an equilibrium model of Dutch Disease that described the phenomena that diagnosed Dutch Disease. Oomes and Kaclicheva (2007) presented in the abstract of their paper the following four symptoms of Dutch Disease:

- (1) Real exchange rate appreciation, (2) Slower manufacturing growth, (3) Faster service sector growth, and (4) Higher overall wages.

Corden (1984) added more signs of Dutch Disease such as investment in the non-tradable sectors, increased unemployment, and migration from areas in which tradable goods are manufactured. The literature regarding the growth of underdeveloped countries that analyses the effect of foreign aid on Dutch Disease also considers other factors such as unemployment and slower growth of the GDP in addition to the appreciation of the RER. This literature also considers the dependency on foreign aid and various additional factors (such as politics, governmental control, democracy, corruption and more) that generate this dependency and reduce the effectiveness of foreign aid (For a review of this literature see this thesis Chapter 3, page 118, Brautigam and Knack, 2004 and Jones, 2013).

The following section will demonstrate the effect of foreign aid in various time periods in a series of measures and calculations of correlations. In the next section I will further present regression analysis in an effort to identify the factors that led to the Dutch Disease phenomena in the West Bank and Gaza.

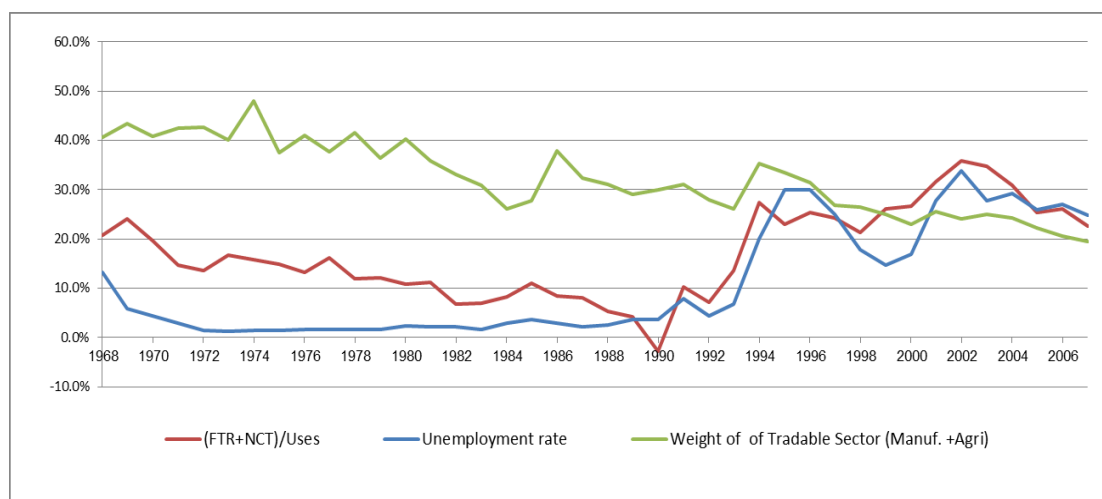
Figure 6.4, presented previously, includes a graph of "normalised GDP in %". This graph is simply the per capita GDP in which the actual terms were normalised to 50%

in 2007. Actual per capita in 2007 is denoted by 50%, and the per capita GDP in any other year is simply the per capita GDP of that year times 50% over the per capita GDP in 2007. This procedure was conducted only to have a visible exposition of the correlations. Figure 6.4 above indicates a strong negative relation between the ratio of FTR+NCT to total use and the "normalised" per capita GDP which can be clearly observed. From 1968-1993, this correlation was -77.0% ($p < 0.00$), and after the Oslo Accord (1994-2007), the correlation was -68.2% ($p < 0.007$). These results appear to provide a strong indication of Dutch Disease's infection during the two periods, (before and after the Oslo Accord). However, from 1968-1994, the most significant political event was the first intifada, which began in the autumn of 1987 and continued until 1990. Figure 6.4 shows that the effect of the first intifada on the per capita GDP was much weaker than the effect of the second intifada. During the first intifada, the ratio of FTR+NCT to total use decreased dramatically whereas during the second intifada, this ratio increased; GDP decreased and the ratio of FTR+NCT to total use increased. Thus, at least during the second intifada, it cannot be concluded that FTR+NCT caused the decrease in the per capita GDP because it is quite possible that the per capita GDP decreased because of military clashes and the economic and military retaliations from both sides. The increases in the ratio of FTR+NCT to total use during that period simply reflects the international rescue operations intended to avoid a dramatic humanitarian disaster. However, although the second intifada actually subsided in 2002, the correlation between the ratio of FTR+NCT to total use and GDP in the period of 1992-2007 is also negative (-0.75 with $P < 0.08$). This last result supports the conclusion that the higher the proportion of foreign aid in terms of FTR+NCT of use, the lower the per capita GDP. Thus, foreign aid can generate Dutch Disease symptoms.

Figure 6.5 below presents the 1968-2007 annual ratio of FTR+NCT to uses, unemployment rates in those years and the weight of the tradable sector (agriculture, manufacturing, electricity, water supply, mining and quarrying) during the period of 1994-2007. The phenomena that are exhibited in Figure 6.5 are striking in the sense that "a picture is worth a thousand words". The figure shows that during all the years between 1968-2007, unemployment rates were positively correlated with the ratio of FTR+NCT to total use. The correlation in 1968-2007 was 0.83 ($p < 0.00$); however, from 1968-1993, it was only 0.28 ($p < 0.05$) because employment of Palestinians in Israel played an important role during this period. However, from 1994-2007, the correlation was much greater: 0.46 ($p < 0.10$). In addition, Figure 6.5 demonstrates that

the long-term trend of the share of the tradable sector (industry and agriculture) decreased over time during both periods. This decrease is an indication of Dutch disease.

Figure 6.5 (FTR+NCT)/Uses, Unemployment Rates and Weight of the Tradable Sector, 1968- 2007

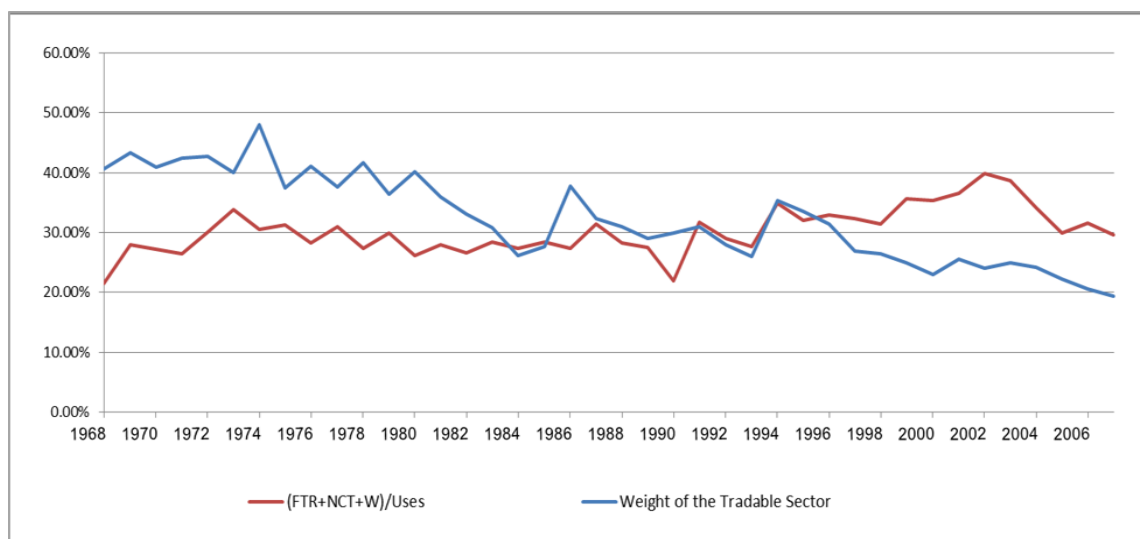


Sources: Tables 5.4, 5.5 and 5.8 in Chapter 5, p.149.

FTR+NCT was combined with W (the compensation for Palestinian workers who reside in the West Bank and Gaza but work abroad, mainly in Israel) to analyse further the source of the decreasing level of the tradable sector (see Figure 6.6). I combined FTR+NCT with W because according to my claim, W can also generate Dutch Disease symptoms¹⁴⁰. Figure 6.6 exposes additional striking phenomena that support the claim of Dutch disease infection on the West Bank and Gaza. In this figure, whereas the weight of the tradable sector is decreasing over time, the alternative sources of foreign funds, (FTR+NCT +W) are not decreasing and are nearly stable. From 1968-2007, the correlation between the (FTR+NCT)/Uses and the weight of the tradable sector was -0.41 (p<0.008). Notably, in Figure 6.5 above, the ratio of FTR+NCT to use is quite volatile (a mean of 17.1% with a SD of 9.0%) whereas FTR+NCT+W (in Figure 6.6) is much more stable (a mean of 30.2% with a SD of only 3.9%). This result simply indicates that FTR+NCT mainly compensate for the changes in income from Israel.

¹⁴⁰ Recall that previous discussion that the policy of Israel during 1968-1993 to employ Palestinians in Israel rather than developing tradable sectors in the West Bank and Gaza was possibly intended to avoid competition between the tradable sectors in the West Bank and Gaza and the tradable sectors in Israel.

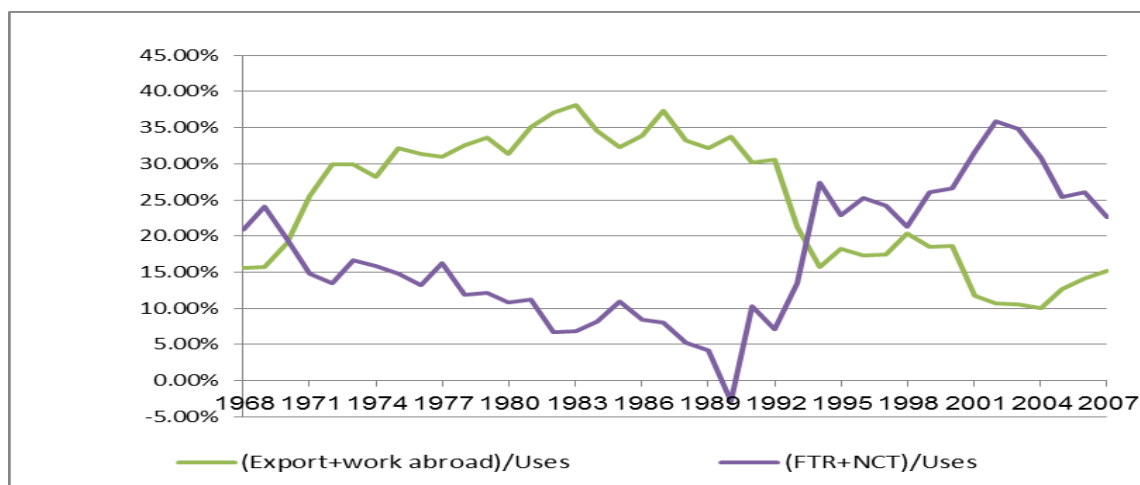
Figure 6.6 The Ratio of FTR+NCT+W to Total Use and the Weight of the Tradable Sector (Industry and Agriculture), West Bank and Gaza, 1968- 2007



Source: Table 5.1 and Table 5.8 in Chapter 5, p.144.

The compensating correlation between FTR+NCT and export and work abroad is also clearly exhibited in Figure 6.7.

Figure 6.7 (FTR+NCT)/Uses and (Export + compensation from Work Abroad)/Uses, 1968-2007



Source: Table 5.5 in Chapter 5, p.151.

Figure 6.7 demonstrates that nearly every year, an increase or a decrease in foreign currency from exports and compensation from work abroad (mainly in Israel) was accompanied by a move in the opposite direction of (FTR+NCT)/Use. The correlations between (FTR+NCT)/Use and (Ex+W)/Use are as follows: during the period of 1968-2007, -91.8% ($p < 0.00$); and in the sub-periods of 1968-1993 and 1994-2007, the

correlation was -77.5% ($p < 0.00$) and -81.0% ($p < 0.00$), respectively. It is reasonable to assume that FTR and NCT compensated for the reduction in income from Israel and not vice versa since both exports and compensation from work abroad were almost entirely linked to Israel and change in this policy is definitely related to various security and political situations. It appears that increased FTR and NCT are the only possible alternatives that can prevent an humanitarian disaster because of the limited free mobility of manpower and merchandise across the borders.

In general, an additional important factor in the diagnosis of Dutch Disease is the negative effect on exports of the foreign flow of funds. This negative effect is because of the appreciation of the RER. However, in the case of the West Bank and Gaza, there is no exchange rate; thus, the negative effect of foreign aid on export merchandise and labour (E_X+W) is because of the dependence on foreign aid, and that foreign aid simply compensates for the difficulty of working in Israel and exporting to Israel. It can be concluded that the above correlation results indicate the existence of Dutch Disease phenomena in the West Bank and Gaza.

The correlations between the ratios of the main variables, which are parts of the national macro relatively accounting for GNP¹⁴¹ are analysed in further detail to continue to examine the phenomenon of Dutch Disease in the West Bank and Gaza. These correlations are presented in Table 6.1 where the index of variables in the table are:

C_P - private consumption

I - Investment

C_G - Governmental consumption

E_X - Export of goods and services

I_M - Import of goods and services

FTR - Financial transfers to the private and public sectors

NCT - Net Capital and Transfers

W - Salaries of residents from abroad and net income from abroad

GNP - Gross national product

GDP - Gross domestic product

β - Proportion of import out of uses

¹⁴¹ The correlations when the ratios are relative to the GDP or total use rather than to GNP are not significantly different.

Of interest in this analysis are the correlations between $\frac{FTR_t + NCT_t}{GNP_t}$ and the other variables in the table.

Table 6.1 Correlations between Ratios of Factors to GNP, 1968-1993 and 1994-2007

	$\frac{FTR_t + NCT_t}{GNP_t}$	$\frac{C_{p_t}}{GNP_t}$	$\frac{C_{G_t}}{GNP_t}$	$\frac{I_t}{GNP_t}$	$\frac{E_{X_t}}{GNP_t}$	$\frac{EX_t + W_t}{GNP_t}$	$\frac{I_{M_t}}{GNP_t}$	β_t
$\frac{FTR_t + NCT_t}{GNP_t}$	1							
$\frac{C_{p_t}}{GNP_t}$								
1968-1993	0.957***	1						
1994-2007	0.881***							
$\frac{C_{G_t}}{GNP_t}$								
1968-1993	0.841***	0.914***	1					
1994-2007	0.904***	0.746***						
$\frac{I_t}{GNP_t}$								
1968-1993	-0.545***	0.753***	-0.858***	1				
1994-2007	-0.219	-0.619**	-0.258					
$\frac{E_{X_t}}{GNP_t}$								
1968-1993	0.427**	0.263	0.170	0.169	1			
1994-2007	-0.602**	-0.828***	-0.437	0.662***				
$\frac{EX_t + W_t}{GNP_t}$								
1968-1993	-0.439**	-0.578***	-0.659***	0.730***	0.496***	1		
1994-2007	-0.668***	-0.912***	-0.524*	0.757***	0.925***			
$\frac{I_{M_t}}{GNP_t}$								
1968-1993	0.628***	0.464**	0.277	0.083	0.861***	0.424**	1	
1994-2007	0.883***	0.575**	0.848***	0.191	-0.203	-0.241		
β								
1968-1993	0.239	0.066	-0.130	0.397**	0.747***	0.751***	0.891***	1
1994-2007	0.665***	0.258	0.676***	0.477**	0.100	0.109	0.936***	

Source: Table 5.5

* Less than 10% two-tailed significance level

** Less than 5% two-tailed significance level

*** Less than 1% two-tailed significance level

First it can be noted that in both periods, there is a very high and significant correlation between $\frac{FTR_t + NCT_t}{GNP_t}$ and the ratio of private consumption, $\frac{C_p}{GNP_t}$ and governmental consumption, $\frac{C_g}{GNP_t}$. These correlations again indicate that the share in the economy of both public and private consumption was positively correlated with the flow of foreign currency. It is reasonable to assume that governmental consumption is mainly based on non-tradable products (such as labour in education, administration, and security). I have not investigated the tradable and non-tradable composition of private consumption. Thus, these results at most partially support the previous findings, reflected in Figure 6.5, that foreign aid increased the share of the non-tradable sector. Table 6.1 also shows that $\frac{FTR_t + NCT_t}{GNP_t}$ was negatively correlated with the ratio of investments to the GDP, $\frac{I_t}{GNP_t}$ (-0.545*** from 1994-2007 and -0.219 from 1968-1993). These correlations are consistent with the findings in Figure 6.4, in which were it was observed that Investments/Uses are negatively correlated with (FTR+NCT)/Uses.

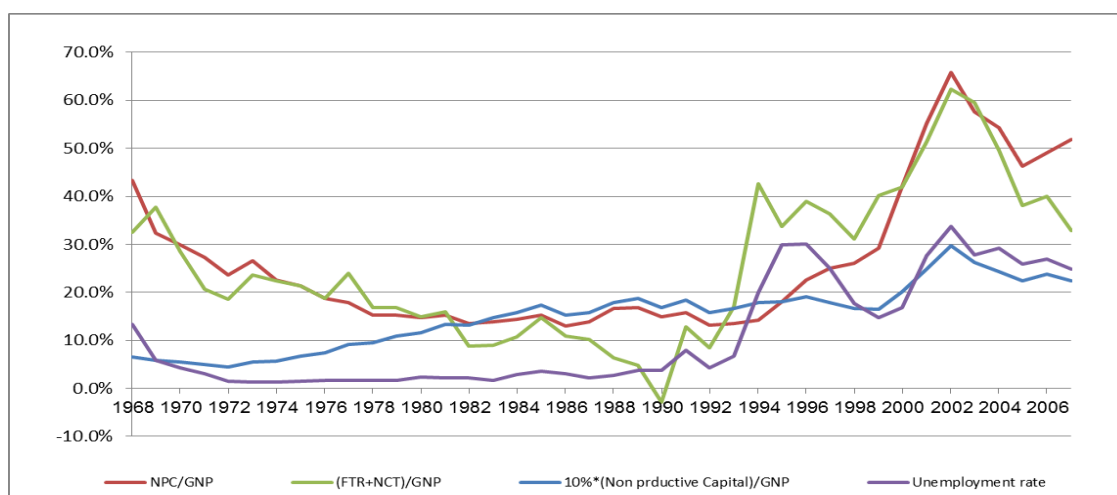
The relation between (FTR+NCT)/GNP and Ex/GNP was positive only in the first period but negative in the second. However, because both exports and compensation from work abroad are mainly to Israel, it is more reasonable to consider the correlation between (FTR+NCT)/GNP and (Ex+W)/GNP rather than with Ex/GNP; similar to the results in Figure 6.7, these correlations were significantly negative during both periods. As expected, in nearly all periods (FTR+NCT)/GNP was positively correlated with imports and β . However, only in the first period was Ex/GNP positively correlated with β . Notably, the ratio of net FTR+NCT to GNP was significant and positively correlated with the ratio of net productive capital to the GNP (NPC/GNP). This result appears to contradict the negative correlation between (FTR+NCT)/GNP and the ratio of investment to the GNP (I/GNP). However, the starting level of NPC/GNP in 1968 was so low that even relatively low investments tended to increase it. Figure 6.8 below shows that the level of the ratio of net productive capital to the GNP began to increase only after the Oslo Accord in 1993. The figure also highlights a surprisingly high fit between NPC/ GNP and (FTR+NCT)/GNP. Over the period 1968 and 2007, the correlation between the two was 0.833 ($p < 0.00$): from 1968-1993, the correlation was 0.790 ($p < 0.00$), and from 1994-2007, the correlation was 0.673 ($p < 0.008$). These correlations clearly indicate that FTR+NCT positively affected the intensity of

productive capital. The overall capital intensity (NC/GNP) also includes non-productive investments (such as housing). A positive correlation between (FTR+NCT)/GNP and NC/GNP of 0.581 ($p < 0.000$) can be observed for the entire period from 1968-2007. However, over the period 1968 to 1993, a negative correlation of -0.791 ($p < 0.000$) was observed. This negative correlation was because of the trend in non-productive capital (mainly houses) which increased over all periods, including periods in which (FTR+NCT)/GNP declined.

As observed in Figure 6.8, from the seventies to 1988, the unemployment rate was quite low. Unemployment began to soar after the first intifada in 1987. From that year on, we identify quite a strong correlation between (FTR+NCT)/GNP and the unemployment rate of 0.895 ($p < 0.000$). The causality direction of the above correlation was examined by the addition of two lagged correlations¹⁴². In the first one, I examined the correlations between the unemployment rate in the years $t-1$, beginning in 1987 and ending in 2006 with (FTR+NCT)/GNP at t , in the years 1988 to 2007. In this correlation, unemployment is one year before (FTR+NCT)/GNP. In the second correlation, the unemployment rate is one year after (FTR+NCT)/GNP. In the second correlation (FTR+NCT)/GNP are for the years 1987-1986, and unemployment is for the years 1988-1986. If the correlation that is observed in the first calculation is significantly higher than the correlation in the second calculation, then we can claim that unemployment that presents a difficult economic situation leads to foreign aid. If the opposite is true, then foreign aid leads to unemployment, and we can then conclude that foreign aid generates Dutch disease.

¹⁴² In section 6.4 of this chapter (pages 197- 203), I present a detailed discussion of the causality issue and possible solutions.

Figure 6.8 NPC/GNP, (FTR+NCT)/GNP, 10% of NC/GNP and Unemployment Rate in the West Bank and Gaza, 1968-2007



Source: Tables 5.5 and 5.9 in Chapter 5 p.151.

The results of the two additional correlations in the years 1987-2007 are as follows: When the unemployment rate is one year in advance of (FTR+NCT)/GNP, the correlation is only 0.769 ($p < 0.000$). When (FTR+NCT)/GNP are one year in advance of the unemployment rate, then the correlation is higher and reaches 0.875 ($p < 0.00$). Thus, it is more reasonable to claim that foreign aid has a stronger effect on unemployment than to claim that unemployment leads to foreign aid. However, both correlations are quite high and quite close to the correlations without lags. Thus, either the two causality directions appears to be true, or more rigorous tests are required to determine the direction of causality and the sources of the visible Dutch Disease symptoms in the West Bank and Gaza. These additional tests are conducted by multiple regressions that are presented in section 6.5.

6.4 Theoretical Statistical Difficulties

In addition to the data-collecting difficulties that I confronted, there are also severe theoretical difficulties that should be considered while evaluating the robustness of my findings. The statistical difficulties are related mainly to the correlations between time series of dependent and independent variables. The issues that require investigating are simultaneity, causality, serial correlation and multicollinearity. The analysis that embodies the proposed statistical solutions relate mainly to GDP as a dependent variable and FTR+NCT as one of the independent variables. Recall that the above factors are the major terms in equation (4-6) and (4-7), and their analysis is important in diagnosing Dutch Disease. During the theoretical discussion of the statistical difficulties, I will present some empirical findings that are related to the empirical questions of my thesis.

6.4.1 Simultaneity

The first problem that I discuss is the potential simultaneity between the parameters on the right hand and left hand sides of Equations (4-6) and (4-7). Unlike a single equation model in which there is one endogenous variable that is a function of one or more exogenous (independent) variables, simultaneity occurs when there is more than one endogenous (dependent) variable that is determined simultaneously. An example is the supply and demand equations, in which both quantity and price are endogenous variables appearing in the supply equation and in the demand equation and are determined jointly in equilibrium.

The equations (4-6) and (4-7) that express GNP (Y) and GDP (Y_d) are rewritten as follows:

$$(4-6) \quad Y = \frac{1}{\beta} * [(E_x + FTR + NCT) * (1 - \beta) + W]$$

$$(4-7) \quad Y_d = \frac{(1 - \beta)}{\beta} * [E_x + FTR + NCT + W]$$

In general, variables on both sides of these equations are determined endogenously and simultaneously. In general, under equilibrium, variables on the right side of the equations such as IM, which is the numerator of β and EX, and on the left, Y and Y_d , are determined jointly¹⁴³. The other variables are basically exogenous and include foreign aid (FTR and NCT) and work in Israel (W) that is a function of the political and

¹⁴³ Recall that regarding the West Bank and Gaza, I claim that all the terms on the right side of (4-6) and (4-7) are nearly exogenous and their level represents a constraint. However, because the terms are not entirely exogenous, I must consider the simultaneity issue.

error conditions. In other words, the problem arises because the dependent variables Y and Y_d as well as the independent variables E_X and I_M are both at least partially endogenous¹⁴⁴. This indicates that a change in the disturbance term will not only change the dependent variable but also change the independent (explanatory) variables. Simultaneity causes the ordinary least square (OLS) estimated coefficients and standard errors to be biased. That is, if simultaneity is ignored and the OLS method is applied to estimate the unknown parameters in the regression model, then the estimates will be biased and inconsistent. Therefore, predictions and tests of hypotheses that are based on the biased estimates will also be biased and invalid.

There are three alternative methods to correct for simultaneity:

The Indirect Least Squares (ILS), Instrumental Variable (IV) and Two Stage Least Squares (TSLS).

The Indirect Least Squares (ILS) method is used for estimating exactly identified equations. The procedure involves rearranging the structural form equation into a reduced equation and substituting the estimates of the reduced form to receive estimates for the structural forms.

The Instrumental Variable (IV) technique allows consistent estimation when there is a correlation between the explanatory variable and the error term of the regression. The instrumental variable substitutes for the endogenous variable and must be an exogenous variable that is correlated with the endogenous explanatory variable but not correlated with its error term.

The Two Least Squares (TSLS) technique is used to render the independent endogenous variables exogenous. This is the technique used here to solve the simultaneity problem and estimate I_M and E_X . The TSLS technique is quite similar to the previous method of IV. In this technique, I also use an instrumental variable replacing the problematic variable; however, the TSLS technique is applied using the following two stages:

¹⁴⁴ In general, exports and imports are endogenous supply and demand variables and components of GDP. Equilibrium indicates that both prices and quantities are determined simultaneously by supply and demand. Thus, their error terms can be correlated with GDP. To avoid dependence between their error term and the level of the GDP, I estimated the levels of exports and imports from exogenous regression models.

Stage 1: Replacing the endogenous independent variable (in our case E_X and I_M) with an exogenous estimated independent variable that are obtained as dependent variable of other exogenous variables. Consequently, I receive an estimation of E_X and an estimation of I_M that are correlated with the actual E_X and I_M but not correlated with the disturbance terms of the actual E_X and I_M because they are functions of exogenous variables.

Stage 2: Estimating the model using the new exogenous variable observed in stage 1 generates consistent estimates.

Estimating E_X and I_M from the regressions, replaces the actual exports and actual imports in the main regression to determine GDP of the West Bank and Gaza. The estimated expected values of exports are determined by regressing the exports of the West Bank and Gaza (E_X) on the GNP of Israel (Y_{IL}), and the expected imports are determined by regressing imports of the West Bank and Gaza (I_M) on investment (I), private (C_P) and public (C_G) consumptions. The results of the regressions are¹⁴⁵ as follows:

For the period 1968-1993:

$$\hat{E}_X = 161*** + 0.0031***Y_{IL} \text{ and } R^2=0.56.$$

$$\hat{I}_M = 561.8*** + 0.615***C_P - 5.281***C_G + 0.934***I \text{ and } R^2=0.93 \text{ (F=93.9)}$$

For the period 1994-2007:

$$\hat{E}_X = 451* + 0.0008Y_{IL} \text{ and } R^2=0.02. \text{ (F=0.276)}$$

$$\hat{I}_M = 182.0 + -0.0001C_P + 1.730***C_G + 0.678***I \text{ and } R^2=0.94 \text{ (F=56.7)}.$$

The above regression reflects the large difference between the two periods. In the first period, exports are indeed a positive function of GNP of Israel; however, in the second period, most likely because of the second intifada and the implied security restrictions on exports, this dependence is insignificant. Thus, I do not expect that in the second period, employing the regression model in Eq. (6-1) below, \hat{E}_X instead of actual exports E_X , will be beneficial. Imports during the period before Oslo are positively related to private consumption and investment. However, during this period, imports

¹⁴⁵ Note again that *** indicates a significance level of less than 1%. ** indicates a significance level of less than 5%. * indicates a significance level of less than 10%. If there are no *, then the significance level is greater than 10%.

are significantly and negatively correlated with government consumption. This negative coefficient is quite strange and not reasonable in any normal economy. However, government expenditures were administered during this period by the Israeli Military Governmental Authority; thus, any unreasonable correlation may be because of such governance. In fact, after 1994, the administration of the government budget was transferred to the Palestinian Authority, and indeed, from 1994-2007, the coefficient of C_G is quite high and reaches 1.73. This strong positive coefficient between imports and governmental expenditures during the second period is a typical Dutch Disease symptom. Conversely, however, it should be remembered that following the Oslo Accord, the Palestinians made substantial efforts to build their new-born, self-controlled, independent government system. Note also that during the second period, private consumption did not significantly affect imports. This result is most likely because of the effect of the second intifada and the periodical blocks on imported products because of the periodical sieges by Israel during periods of clashes and terror attacks. Thus, from a statistical point of view, the use of the coefficients of the regression above to project imports and exports in other periods can be quite misleading and lead to strange and unreliable results.

6.4.2 Causality

The second issue that must be discussed in the context of my hypothesis of Dutch Disease is the notion of causality. It is not clear whether financial aid (FTR and NCT) affects the GDP and incentives to manufacture local products or whether poverty and misery in a given year attract more aid in the years following. Both directions are reasonable.

I use Granger ideas of comparing lag regression (see Tables 6.4 and 6.4 below) to test whether changes in the GDP influence FTR+NCT or whether FTR+NCT influence GDP. If financial aid affects the distribution of future values of GDP then we would expect to observe an increase in the explanatory coefficient R^2 when $(FTR+NCT)_{t-1}$ is regressed against GDP_t relative to R^2 when $(FTR+NCT)_t$ or $(FTR+NCT)_{t+1}$ is regressed against GDP_t . Conversely, if GDP is assumed to affect future values of FTR+NCT, we would expect to observe an improvement in the regression's results when $(FTR+NCT)_t$ is regressed on GDP_{t-1} . If the lagged regressions do not yield better R^2 , then we are not able to determine causality, and both directions are most likely correct.

Note that even when I identify a correlation and direction of causality, this is the overall "net" combined effect of FTR+NCT. Even if I identify either a negative or positive causality affect, it is a net effect of two possibly conflicting effects. For example, when there is a positive correlation between (FTR+NCT), it is possible that on the one hand, FTR+NCT increase consumption, investment and the GDP; conversely, FTR+NCT lower the motivation to produce locally. In that case, FTR+NCT just lowers the positive growth rate but does not reverse it.

6.4.3 Serial Correlation

An additional problem relates to difficulties in time series regression analysis because of serial correlation. When a model involves time series data, problems may arise causing violation of assumptions behind the procedure. Serial independence is when error terms of different time periods are independently distributed. When analysing time series data, this assumption may be violated. This violation is called serial correlation (or autocorrelation), meaning that error terms of different observations may be correlated. Serial correlation often occurs during close periods of time; for example, if one is predicting the change in stock prices over the year, an overestimate in one year will likely to lead to an overestimate in the succeeding year. Serial correlation does not bias the predictions and does not lead to inconsistency of the OLS estimators, however, it reduces the efficiency of the estimations.

Before using these tests, I will simply identify the correlations between our variables and the years. In the first period of 1969 to 1993, there is a significant linear relation between GDP and years. I identify in the first period that

$$\text{GDP} = -5869*** + 30.17***\text{Year}, R^2 = 0.83 \text{ and } F = 118.2***$$

In the second period of 1994-2007, the linear relation between GDP and years is not significant. There is no significant linear relation in either period between per capita GDP or the year. The most popular way to eliminate serial correlations is to consider the logs of the variables or, in other words, to regress rates of change of dependent variables over the independent variables. The cost of this solution is the loss of the information and insights that can be developed from viewing the absolute figures (see, for example, Figures 6.1- 6.9, which are based on absolute data). This approach was adopted to reduce the serial correlations in all periods, both for GDP and per capita GDP. The dependent variable in the regression is GDP growth (GDPG) rather than

GDP in the ensuing multiple regressions models that are based on Equations (6-1) and (6-2) and their variants. Then the possible serial correlation in the multiple regression model in Equation 6-1 and its variants is examined by applying the Durbin-Watson (D-W) and Breusch-Godfrey (B-G) tests for serial correlation (see Tables 6.3- 6.5 below). For the D-W, we use the value of the statistic, and for the B-G tests, we use the p-value of the test. A D-W value that is close to 2 indicates no autocorrelation. The value of (D-W) is always between 0 and 4. A D-W statistic that is substantially less than 2 is evidence of a positive serial correlation. Generally, if the D-W value is less than 1.0, there may be cause for concern. Small values of D-W indicate successive error terms that are, on average, close in value to one another, or positively correlated. If $D-W > 2$, successive error terms are, on average, much different in value from one another, i.e., negatively correlated. In regressions, this can imply an underestimation of the level of statistical significance.

The value of the results of the D-W statistic on all of the regressions in Tables 6.3 and 6.4 is close to 2, indicating that there is no indication of a positive or negative serial correlation. To be more confident, I compare the p-value B-G test to 0.05 levels; if the p-value is above 0.05, I reject the null hypothesis that there is a serial correlation. The p-values in all of the regressions in Tables 6.3 the 6.4 are above the 0.05 level. This indicates that there is no serial correlation in the data that are used in the regressions.

6.4.4 Multicollinearity

Perhaps the most difficult problem in regression analysis is multicollinearity among the explanatory variables. When using several variables in a model, some of the explanatory variables may be highly correlated. This property is known as multicollinearity and can severely change the coefficients' estimates. Multicollinearity does not reduce the predictive power or reliability of the entire model; however, it affects calculations regarding individual predictors.

Multi-collinearity analysis for the two time periods was conducted to obtain initial estimates on the level of multicollinearity. Table 6.2 below presents correlations between annual changes in the factors stipulated in Equations (4-6) and (4-7) both in absolute and per capita terms. According to Table 6.2, there are no significant correlations between the explanatory variables in the period before the Oslo Accord. In the second period, there are negative correlations between changes of (FTR+NCT) and

change in W . This negative correlation reflects our previous finding that the decrease in income from work in Israel is compensated for by an increase in foreign aid (see also Figure 6.7 on page 191).

Table 6.2 Correlations between Major Explanatory Variables in Equations 4-7, both in Absolute and Per Capita Terms 1968-1993 (top numbers) and 1994-2007 (bottom numbers)

		$\frac{(FTR+NCT)_t}{(FTR+NCT)_{t-1}}$	$\frac{Ex_t}{Ex_{t-1}}$	$\frac{W_t}{W_{t-1}}$	β
$\frac{(FTR+NCT)_t}{(FTR+NCT)_{t-1}}$		1			
	$\frac{(FTR+NCT)_{t-1}}{(FTR+NCT)_t}$	1			
$\frac{Ex_t}{Ex_{t-1}}$	Absolute	-0.071 0.433	1		
	Per capita	-0.036 0.208	1		
$\frac{W_t}{W_{t-1}}$	Absolute	0.118 -0.468*	-0.014 0.406	1	
	Per capita	0.126 -0.529*	0.005 0.515*	1	
β	Absolute	0.235 0.285	0.172 -0.206	-0.113 -0.632**	1
	Per capita	0.241 0.327	0.207 -0.251	-0.108 -0.621**	1

Source of Data for the calculations: Tables 5.1 and 5.2, p.144.

Thus, if both factors tend to increase GDP, then the negative correlation may tend to reduce their effect on GDP. During the second period, there is also a significant negative correlation between β and the changes in per capita income from work in Israel (W). The empirical results that will be presented later in Tables 6.3-6.5 clearly show that β is negatively associated with the growth of per capita GDP. Thus, this negative correlation tends to increase the positive statistical relation between W and per capita GDP during the second period.

6.5 Multiple Regression Diagnosis of Dutch Disease in the West Bank and Gaza

This section of the chapter includes two basic tests. First I introduced multiple regression analysis while endeavouring to solve well-known statistical problems that are related to regression analysis (multicollinearity, serial correlation, simultaneity and causality).

The main regression model whose results are expressed in Table 6.3 below is

$$(6-1) \frac{GDP_t}{GDP_{t-1}} = \alpha_0 + \alpha_1 NC_t + \alpha_2 NPC_t + \alpha_3 \hat{E}x_t + \alpha_4 (NCT + FTR) + \alpha_5 W_t + \alpha_6 \hat{\beta}_t + \alpha_7 UR_t + \varepsilon_t$$

in which the definitions of the variables and their potential effect are presented below:

α_i is the regression coefficient of the i^{th} independent variable,

NC_t is net capital in year t .

NPC_t is net productive capital in year t .

$\hat{E}x_t$ is the estimated exports in year t , based on the external model as explained in the previous section.

$(NCT + FTR)_t$ is net capital transfers and foreign transfers in year t .

W_t is the compensation for work abroad.

$\hat{\beta}_t$ is the ratio of imports to use in year t in which imports are estimated by an external model as explained in the previous section.

UR_t is the unemployment rate in year t .

ε_t is the error term of the regression equation in year t .

Also note that (6-1) has two versions. In the first version, all relevant macro figures are in absolute terms; in the second version, all relevant terms (GDP, NC, NPC, Ex, FTR+NCR, and W) are in per capita terms.

In additional variations of (6-1), I will also consider lag ratios $(FTR + NCT)_{t-1}$ and $(FTR + NCT)_{t+1}$ rather than $(FTR + NCT)_t$ as in Equation (6-1). I will also use the actual Ex_t and actual β_t rather than the estimated values, $\hat{E}x_t$ and $\hat{\beta}_t$ in (6-1).

The expected sign of the coefficients of the variables in equation (6-1) depends on whether Dutch Disease exists. If Dutch disease does not exist, then according to Equation (4-6) and (4-7), all the coefficients should be positive. I expect that Dutch Disease will reduce or even reverse the signs before all the parameters in addition to

that of $\hat{\beta}_t$, because in Dutch Disease infection, foreign aid discourages production and exports and discourages employment at least in the tradable sectors. In addition, because importing is more feasible and cheaper because of the flood of foreign currency, the coefficient of imports should be higher. If the lag version of equation (6-1) is considered and Dutch disease exists, I expect that because of the causality direction, the coefficient of $(FTR+NCT)_{t-1}$ will be much lower (and even negative) relative to the coefficient of $(FTR+NCT)_{t+1}$.

Table 6.3 below presents the results of multivariate regression analysis in which serial correlation is reduced by considering yearly GDP growth rather than GDP, and the simultaneity problem is reduced by replacing the annual data of E_X and β with estimated data, \hat{E}_X and $\hat{\beta}_t$.¹⁴⁶

Table 6.4 below presents the regression analysis of the annual macro-economic variables taken from the data in Chapter 5 while applying actual β s and actual exports rather than the estimated imports and exports that are used to obtain the results that are presented in Table 6.3.

The causality relation is examined in both cases (Table 6.3 and Table 6.4) using pre- and post-empirical regression analysis, measuring the effect of FTR+NCT of the previous year (t-1) or the next year (t) GDP¹⁴⁷.

¹⁴⁶ In general, exports and imports are endogenous supply and demand variables and components of GDP. In equilibrium, both prices and quantities are determined simultaneously by supply and demand. Thus, their error terms can be correlated with GDP (to avoid the dependence between their error term and the level of GDP). The levels of exports and imports were estimated from exogenous regression models.

¹⁴⁷ If, for example, a change in FTR+NCT in a given current year negatively affects GDP in the following year but is not correlated with a change in GDP for the previous year, then it can be claimed that change in FTR+NCT causes change in GDP. If the opposite is true, then it can be claimed that change in GDP causes the change in FTR+NCT.

Table 6.3 The Results of Multivariate Regression Analysis Considering Yearly GDP Growth and Estimated Data, \hat{E}_x and $\hat{\beta}_t$

Timing of Foreign Aid		1969-1993			1994-2006		
		Timing of FTR+NCT			Timing of FTR+NCT		
		<i>t-1</i>	<i>T</i>	<i>t+1</i>	<i>t-1</i>	<i>T</i>	<i>t+1</i>
Intercept	Per capita	0.0960	0.0076	-0.0571	2.476	1.962*	4.3291
	Total	0.6230	-0.5355	0.2166	8.1275*	2.894	14.0709**
NC	Per capita	0.0000	-0.0000	0.0000	-0.0017	-0.0009*	-0.0019
	Total	0.0000	-0.002*	-0.0001	-0.0002	-0.0002**	0.0001
NPC	Per capita	-0.0002	-0.0008	-0.0006	0.0054*	0.0027**	0.0049*
	Total	-0.0004	-0.0013	-0.0012	0.0011	0.0007**	0.0003
\hat{E}_x	Per capita	0.0030	0.0046	0.0045	0.0129	0.0068**	0.0058
	Total	0.00015	0.0074*	0.0051	-0.0092	-0.0002	-0.0248**
FTR+NCT	Per capita	0.0005	0.0000	0.0001	-0.0003	0.0009***	0.0003
	Total	0.0005	-0.0003	0.0000	-0.0001	0.0003***	-0.0025*
W	Per capita	0.0001	0.0002	0.0002	0.0008	0.0008***	0.0003
	Total	0.0003	0.0000	0.0002	0.0012**	0.0009***	0.0016*
β^{\wedge}	Per capita	-2.1704**	-2.6093**	-2.2192**	-4.5140	-5.7288***	-3.0137
	Total	-2.177**	-1.9858*	-2.7548**	-5.8891**	-5.6638***	-4.1593**
Unemployment	Per capita	1.3432	1.5061	1.6113	1.2359	1.1721***	0.60196
	Total	-2.1171**	1.9820*	1.80994	1.2084**	1.0311***	1.2038**
R Square	Per capita	0.460	0.380	0.404	0.773	0.963	0.768
	Total	0.460	0.469	0.423	0.864*	0.988	0.911
F	Per capita	2.0639*	1.4878	1.643	2.4288	18.828***	2.368
	Total	2.0659*	2.14*	1.782	4.552*	29.098***	7.271**
Durbin-Watson	Per capita	2.469	2.052	2.443	1.713	2.158	1.741
	Total	2.357	1.945	2.394	1.839	1.843	1.546
Breusch-Godfrey	Per capita	0.277	0.838	0.264	0.612	0.734	0.719
	Total	0.409	0.966	0.327	0.774	0.932	0.493
Observations	25	25	25	25	13	13	13

The seven main conclusions from Tables 6.3 and 6.4 are as follows:

1. According to both tables in the period of 1994 to 2007, (FTR+NCT)_t had a positive effect on GDP_t. This result is obtained both in the regression with per capita terms and in absolute terms. The identical result is obtained for the period from 1968 to 2007. However, when I correlated FTR+NCT for the year before (or after) with GDP, then in nearly all sub periods there was no significant effect of FTR+NCT in the previous year on GDP of the following year and no correlation between GDP of one year later on FTR+NCT in the following year. The insignificant effect of both a change of (FTR+NCT)_{t-1} on changes in the GDP_t and the insignificant correlation between changes of the GDP_{t-1} on (FTR+NCT)_t together with the

significant correlations between $(FTR+NCT)_t$ and the GDP_t implies that one cannot determine which affects which, and possibly both causality directions are correct. Namely, $(FTR+NCT)$ increase the current GDP but possibly reduce the incentive to produce at home.

Table 6.4 The Results of Multivariate Regression Analysis Considering Yearly GDP Growth and actual, E_x and β_t

Timing of Foreign Aid		1969-1993			1994-2006		
		Timing of $FTR+NCT$			Timing of $FTR+NCT$		
		$t-1$	T	$t+1$	$t-1$	T	$t+1$
Intercept	Per capita	0.0960	0.0076	-0.0571	2.476	1.962*	4.3291
	Total	0.6230	-0.5355	0.2166	8.1275*	2.894	14.0709**
NC	Per capita	0.0000	-0.0000	0.0000	-0.0017	-0.0009*	-0.0019
	Total	0.0000	-0.0002*	-0.0001	-0.0002	-0.0002**	0.0001
NPC	Per capita	-0.0002	-0.0008	-0.0006	0.0054*	0.0027**	0.0049*
	Total	-0.0004	-0.0013	-0.0012	0.0011	0.0007**	0.0003
E_x	Per capita	0.0030	0.0046	0.0045	0.0129	0.0068**	0.0058
	Total	0.00015	0.0074*	0.0051	-0.0092	-0.0002	-0.0248**
$FTR+NCT$	Per capita	0.0005	0.0000	0.0001	-0.0003	0.0009***	0.0003
	Total	0.0005	-0.0003	0.0000	-0.0001	0.0003***	-0.0025*
W	Per capita	0.0001	0.0002	0.0002	0.0008	0.0008***	0.0003
	Total	0.0003	0.0000	0.0002	0.0012**	0.0009***	0.0016*
B	Per capita	-2.1704**	-2.6093**	-2.2192**	-4.5140	-5.7288***	-3.0137
	Total	-2.177**	-1.9858*	-2.7548**	-5.8891**	-5.6638***	-4.1593**
Unemployment	Per capita	1.3432	1.5061	1.6113	1.2359	1.1721***	0.60196
	Total	-2.1171**	1.9820*	1.80994	1.2084**	1.0311***	1.2038**
R Square	Per capita	0.460	0.380	0.404	0.773	0.963	0.768
	Total	0.460	0.469	0.423	0.864*	0.988	0.911
F	Per capita	2.0639*	1.4878	1.643	2.4288	18.828***	2.368
	Total	2.0659*	2.14*	1.782	4.552*	29.098***	7.271**
Durbin-Watson	Per capita	2.469	2.052	2.443	1.713	2.158	1.741
	Total	2.357	1.945	2.394	1.839	1.843	1.546
"Breusch-Godfrey	Per capita	0.277	0.838	0.264	0.612	0.734	0.719
	Total	0.409	0.966	0.327	0.774	0.932	0.493
Observations	25	25	25	25	13	13	13

The positive effect of an annual change in FTR+NCT and an annual change in GDP is reasonable according to a simple interpretation of equations (4-6) and (4-7). However, the data of Figure 6.4 clearly demonstrate that during the two periods, there is a negative correlation between the ratio (FTR+NCT)/Uses and per capita GDP. Are these two results contradicting one another? My answer is no. It is possible that (FTR+NCT) increase GDP only slightly because the incentive to produce at home is also reduced. In such circumstances, perhaps a higher ratio of (FTR+NCT)/uses is negatively correlated with GDP.

2. In the two models in Tables 6.3 and 6.4 and in all time periods, with or without lags, β is negatively correlated with the growth of GDP. These results support the claim that imported products replace local ones. Importing is supported basically by FTR+NCT; in the period from 1994 to 2007 FTR+NCT were much higher than from 1968 to 1993 and were significantly negatively correlated. This result supports my claim of Dutch Disease infection.
3. In nearly all cases, there is a positive correlation between unemployment and GDP growth. This result is quite strange. Most likely high unemployment leads to higher FTR+NCT in which then increases GDP.
4. In general, a significant coefficient was not identified for Net Capital (NC). Only in the first time period and only according to Table 6.3, did NC tend to negatively affect GDP growth. However, and as expected, net productive capital had either a positive significant or a positive insignificant effect on GDP growth.
5. I identified a positive relation between the growth of exports (Ex) and GDP growth only in the first time period and only in Table 6.3, which considers the actual and not the estimated exports (\hat{E}_x). The reason for the insignificant correlation between exports and growth of the GDP during the second time period was the low level of exports during the second period, in which exporting was much more volatile because of the second intifada.

6. According to both tables, growth of work abroad (W) had either an insignificant or a positive effect on the growth of the GDP. This result neither supports nor refutes the claim that work in Israel hinders the development of the economy of the West Bank and Gaza.
7. The R^2 in Tables 6.3 and 6.4 are quite high. In Table 6.3, in which exports and imports are estimated and there are no lags, the value is 0.998; however, in all other cases, the R^2 are quite high (between 0.589 and 0.787 in Table 6.4 and between 0.998 and 0.460 in Table 6.3).

Thus, the two main results of Tables 6.3 and 6.4 are as follows: First, growth of FTR+NCT positively affects GDP growth; however, this result neither confirms nor denies the potentially negative effect of (FTR+NCT) on the incentive to produce at home. In addition, this result is not necessarily in conflict with the previous finding that a high proportion of (FTR+NCT)/Uses has a negative correlation with GDP.

The second important finding is that we were not able to explain the causality direction between growth of FTR+NCT and GDP growth because only in the case without lags were there significant coefficients between changes of FTR+NCT and GDP growth. Thus, it can be concluded that both causality directions may be valid and an increase in (FTR+NCT) only partially increases GDP because it also reduces the incentive for domestic production.

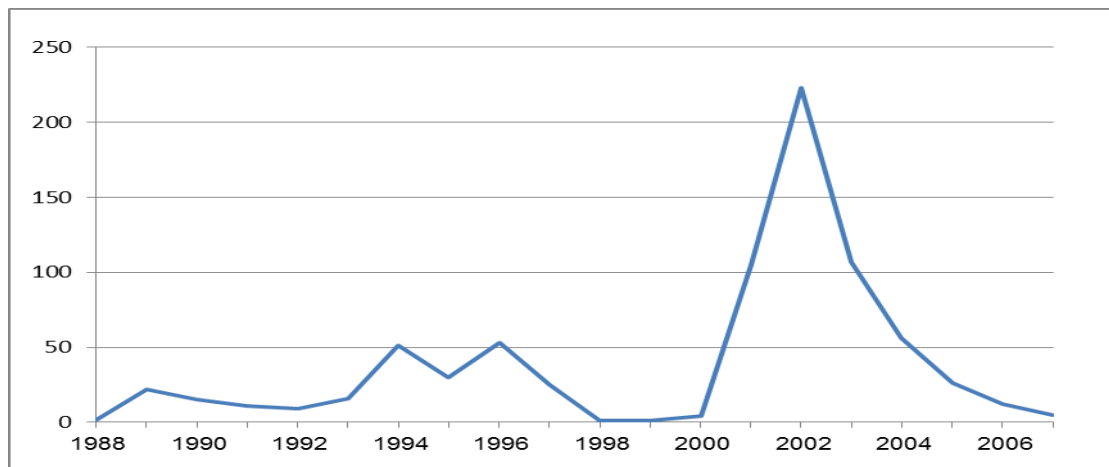
6.6 The effect of the political environment on GDP

Throughout this thesis, I have presented arguments and data that strongly support the claim that the political environment has a strong effect on the symptoms of Dutch Disease in the West Bank and Gaza. The main periods of political crisis were during the first Intifada (December 1987 to October 1991) and the second Intifada (September 2000 and to end of 2005). Figure 6.4 shows that the only periods in which per capita GDP decreased significantly were the periods that followed the breakouts of the two intifadas. According to Table 5.2, in 1986 per capita GDP was USD 1375, and it declined to USD 1225 (-11%) in 1989. The effect of the second intifada was much more devastating for the West Bank and Gaza. In 1999, per capita GDP was USD 1375,

and between 1999 and 2002, the GDP decreased to USD 1132 (-17.7%)¹⁴⁸. This per capita GDP is nearly at the identical level as GDP in 1979.

It was possible to quantify the relation between political tension and GDP growth by running an additional regression using the number of Israeli civilian and military casualties in a given year as a proxy for political tension (PPT). The data for this proxy are exhibited in Figure 6.9

Figure 6.9 Number of Israeli Civilians and Soldiers Killed by Palestinians in 1988- 2007



Source: "Btselem" Statistics

<http://www.btselem.org/statistics/fatalities/before-cast-lead/by-date-of-event>

Figure 6.9 demonstrates that the riot of the second Intifada at the end of 2002 was much more brutal than the first intifada and the toll for Israel in terms of fatalities was much higher. The second intifada began at the end of 2000, peaked in 2002 and then subsided by 2005.

The regression model in Equation (6-2) extends the model in Equation (6-1) to include this proxy of political tension.

(6-2)

$$\frac{GDP_t}{GDP_{t-1}} = \alpha_0 + \alpha_1 NC_t + \alpha_2 NPC_t + \alpha_3 \hat{E}x_t + \alpha_4 (NCT + FTR) + \alpha_5 W_t + \alpha_6 \hat{\beta}_t + \alpha_7 UR_t + \alpha_8 PPT + \varepsilon_t$$

¹⁴⁸ In addition, per capita GDP in Israel decreased during the second intifada. According to the data of the World Bank in 2000, per capita GDP of Israel in current USD was 19,859, and it decreased to USD 17,740 (-10%) in 2003. Only a small portion of this decline may be attributed to the world economic crisis of those years.

The results of this regression for the period 1994 to 2007 are presented in Table 6.5 below.

Table 6.5 Regression Analysis of Annual Macro-Economic Variables with the Additional Proxy for Political Tension (PPT)

	1994-2007	1994-2007
Intercept	0.074024**	1.86158*
<i>NC</i>	--	-0.00009
<i>NPC</i>	--	0.00010
<i>Ex</i>	--	-0.00017**
<i>FTR+NCT</i>	--	0.00049
<i>W</i>	--	0.00031
<i>B</i>	--	-4.99530***
Unemployment	--	0.81068
PPT	-0.000678*	-0.00036
R Square	0.202463	0.643
F	3.300194*	4.352**
Durbin-Watson	1.393814	1.956
"Breusch-Godfrey	0.252665	0.967
Observations	15	13

The results in Table 6.5 do not show the direct effect of PPT on GDP growth. Only when GDP growth is regressed on PPT while ignoring the other explanatory variables is a significant negative correlation identified. However, this result is only because of the other missing but most likely connected independent variables. Nevertheless, because of previous results such as those that are expressed in Figure 6.4, it is quite clear that political tension negatively affects GDP.

6.7 Conclusion

In this chapter, I have presented an empirical analysis that examines the main claims and hypothesis of my thesis. First, I examined whether the hypothesis that the right-hand side of Equations (4-6) and (4-7) are exogenous and that the foreign currency constraint is the effective constraint on investments and growth. The empirical results that are identified in Figures 6.1 through 6.4 and the implied correlations and additional analysis of the data provide support for the above claim. Second, I provided diagnostic tests for Dutch Disease symptoms in the West Bank and Gaza. According to Figure 6.4 and my calculations of correlations, there is a negative correlation between GDP and foreign aid in terms of the ratio of $(FTR+NCT)/uses$. In addition, $(FTR+NCT)/uses$ is positively correlated with the ratio of consumption/uses and negatively correlated with investment/uses. Figure 6.4 also exposes a positive correlation between the ratios of imports over uses (β) and $(FTR+NCT)/uses$. Figure 6.5 and my calculations present positive correlations between the unemployment rate and $(FTR+NCT)/uses$ and negative correlations between $(FTR+NCT)/uses$ and the weight of the tradable sector. Figures 6.6 and 6.7 show that the reduction of exports and work abroad are mainly compensated for by $(FTR+NCT)$. Further correlation calculations in Table 6.1 regarding the ratios of the main macro variables to GNP demonstrate that $(FTR+NCT)/GNP$ is positively correlated to the proportions of GNP of private consumption, public consumption and imports. Conversely, $(FTR+NCT)/GNP$ is negatively correlated with the ratios of investment and export to GNP. All these results reflect symptoms of Dutch Disease. However, one should not claim that $(FTR+NCT)$ does not contribute to potential development. According to Figure 6.8, for example, there is a strong positive correlation between the ratio of net productive capital to GNP and $(FTR+NCT)/Uses$. The main difficulty in interpreting the results that apparently diagnose Dutch Disease is the direction of causality because it is quite possible that the economic disaster in the West Bank and Gaza led to additional foreign aid, and we cannot claim that the foreign aid generated deterioration of development. Although the first and second intifadas clearly negatively affected GDP, it is nevertheless difficult to quantify the separated effect of the harsh political situation on the apparent phenomena of Dutch Disease. Multiple regressions analysis was used to more accurately evaluate the direction of causality and the effect of a harsh political environment and causality many statistical difficulties were considered. The results were provided in Tables 6.3 to 6.5. This did not identify any evidence to support one causality direction over the

other because there is a significant correlation between GDP growth in a given year and FTR+NCT during the same year. However, when (FTR+NCT) is compared with GDP growth in the succeeding year or the previous year, the correlations vanish. Thus, either direction is possible; additional foreign aid only partially increases the GDP because it also decreases the incentive to produce at home. The effect of political tension on GDP is analysed in Figure 6.5. No significant correlation was identified between a proxy for the political tension (number of Israeli soldiers and civilians killed by Palestinians) and GDP growth (see Table 6.5). Separating the data and its analysis of the more violent Gaza from the data of the West Bank may enable comparison and analysis that provide better answers to the causality direction and the effect of terror. No previous studies on the economy of the West Bank and Gaza have analysed the Dutch Disease phenomena during the two long periods of 1968 to 1993 and 1994 to 2007. The effect of the accumulated Dutch disease symptoms is overwhelming, and I do not know if there is any worldwide precedent for it.

Chapter 7- The Effect of Palestinian-Israeli Conflict on their Financial Markets

7.1 Introduction

This chapter looks at the impact of continued conflict in the region on the impact of terrorism on the Israeli and Palestinian stock exchanges. It uses a unique data set for Palestinian and Israeli financial markets to examine the effects of terror¹⁴⁹ attacks on both sides of the conflict. The main contribution of this study to the literature is to provide both sides of the barricade, the Palestinian and Israeli stocks markets, with a perspective of the impact of terrorism on their markets and its relationship to the economy. This, to the best of my knowledge, has never been investigated before¹⁵⁰. During the Intifada period, share prices declined significantly reflecting economic slowdown in both markets. There are bi-directional causality effects of returns in the two markets, and both markets are affected by the US market. The severity of the terror attack negatively affected share prices in both financial markets. The main finding is that the more fatal the terror attack, the larger the negative effect in the two markets. In the more severe terror attack events (i.e. more people were killed and injured or if it was suicide attack), share prices on the TASE declined significantly by 0.63% compared to a decline of 0.16% in less severe attacks. The same pattern is revealed on the Palestinian side. In the more severe terror attacks, share prices on the Palestinian Securities Exchange declined significantly by 0.21% compared with -0.07% in less severe attacks.

Eldor and Melnick (2004), Eldor *et al.* (2009), and Melnick and Eldor (2010) have documented that terror attacks adversely affect expectations of firm profitability, causing share prices to decline, and predicting a slowdown in economic activity. Terror

¹⁴⁹ The wording of "Terror" in the relevant literature is related to the incidents in which either Israeli soldiers or citizens were attacked by Palestinians. The connotation of the word "terror" is clear. However, this word is also used in this work only because this word is used in the relevant literature while the reader should determine his own opinion whether these terror actions are in fact legitimate uprising actions.

¹⁵⁰ Eldor *et al.* (2009) also investigated the effect of targeted killings of some Palestinians and found that their effect on the Israeli stock market is marginal.

attacks have an impact on investors' time preferences and their willingness to invest. Chen and Siems (2004) [see also Cheseny, Reshetsy and Karaman (2010)] argue that prices of individual stocks reflect investors' hopes and fears about the future, and, taken in aggregate, stock price movements can generate a tidal wave of activity. Terrorist attacks, military invasions and other unforeseen disastrous occurrences can have serious implications for stocks and bonds because of their liquidity. Decisions to buy and sell can be reversed quickly, easily, and inexpensively. When information becomes available about a cataclysmic event—like a terrorist or military attack—investors often flee the market in search of safer financial instruments and panic selling ensues. This initial panic has the potential to turn into chaos and a long-term bear market or it can be reversed if investors' hopes return. Eldor and Melnick (2004) have estimated this impact from terrorism to cause a 30 percent decline in the value of the Israeli stock market.¹⁵¹

The impact of terrorism on general economic activity has been estimated as well. Abadie and Gardeazabal (2003) found that terrorism reduced per capita GDP in the Basque Country of Spain by some 10 percent, while Eckstein and Tsiddon (2004) estimated a 5 percent decline in GDP for Israel. Abadie and Gardeazabal (2008) attribute the possible large economic cost to the diversion of net foreign direct investment in an open economy model¹⁵². Frey, Luechinger and Stutzer (2007) provide a survey of the different ways that terrorism may affect economic activity.

The analysis in this chapter is also related to Chen and Siems (2004) study that analysed fourteen cases of terror- or war-related events that had taken place in the US since 1915. They found that financial markets became more stable over time and that recovery became increasingly more rapid. However their study was based on data from markets where terror attacks are rare. The analysis in this chapter of the effect of terrorism on financial markets in Palestine and Israel, contrasts with Chen and Siems because in Palestine and Israel terror attacks are committed “routinely” and are not expected to stop¹⁵³.

¹⁵¹ For an estimate of the cost of terrorism in terms of utility, see the survey by Frey, Luechinger and Stutzer, 2007.

¹⁵² See special issue of the *European Journal of Political Economy* (2004).

¹⁵³ See also Berrebi C., Klor, F. E. (2005), Drakos, K. (2004), Fleischer, A. and Buccola, S. (2002), Garfinkel, M. R. (2004), Jain, S. and Mukand, S. W. (2004), Johnston, B.R. and Nedelescu, O.M. (2005), and Sandler, T. and Enders, W. (2004).

Unlike previous research, this study uses a unique data set of stock markets in the West-Bank and in Israel that allows examination of the effect of terrorism on the financial markets of both sides of the barricade of the Israeli-Palestinian conflict. A sample of four hundred and sixty terror attacks that took place in Israel during the Intifada period (September 2000 to June 2003) was used to estimate the effects of terror attacks in both economies. Also Eldor *et al.*'s (2009) pessimism index (*Terror Index - TI*) was used to investigate the effect these terror attacks had on share prices.

The hypothesis presented regarding share prices response to terrorism relates also to the Bruck and Wickstrom (2004) argument that the extent of losses depends on the attack's characteristics – the number of killed and wounded people and the level of property damage. These arguments are also explored in this chapter.

The chapter is organized as follows: in section 7.2, Israeli and the Palestinian financial markets are described along with a comparison of the economies and the stock exchanges of both markets. In section 7.3, the data and the methodology are described. Section 7.4 reports the results. Section 7.5 summarizes and concludes the chapter.

7.2 The Two Stock Markets

The Tel Aviv Stock Exchange (TASE) was established on 1953. The market value of the stocks listed on the TASE is in general more than one half of Israel's GDP. The TASE, which is an important market for financial intermediation and an important source of financing for the business sector, is quite sophisticated and includes derivatives such as stock index options (the trading volume of which relative to the underlying assets is the world's highest). The unusually highly developed derivatives sector adds critical liquidity to the market (more on the TASE see Eldor and Melnick (2004).

The Palestinian Securities Exchange started operation in 1997 following the Oslo Accord. The Palestinian Securities Exchange was founded following the creation of the Palestinian Authority. One of its key objectives from its inception was to facilitate foreign investment by providing a platform for securities trading, which conformed to international standards and rules for conducting business. The Palestinian Securities Exchange opened its doors in 1997, launching equity trading on eighteen listed

companies. The number of listed companies has since grown and as of the end of 2012 came to forty-eight firms engaged in manufacturing, services, banking, investment and other financial services. Table 7.1 provides further details about these firms. It was established as a privately-owned exchange rather than an entity mutually owned by its members. This form of organization enables the exchange to be publicly floated and facilitates strategic partnering or merger with other exchanges. The Palestine Development and Investment Company (PADICO), the largest Palestinian holding company, was the founder and the developer of the Palestinian Securities Exchange and continues to be its main controlling shareholder. The Palestinian Securities Exchange became a public shareholding company in February 2010. As of the end of 2008, the Palestinian Securities Exchange reported a total market capitalization of approximately US \$2.1 billion, a more than four-fold increase since its inception in 1997¹⁵⁴. Acquiring software from the Canadian software company, EFA Software Services, trading on the exchange is solely electronic. Transactions are executed by accredited exchange members, which as of the end of 2012 were nine in number. In 2007 the exchange launched e-trading over the Internet as well, primarily to facilitate infrastructure to foreign investors. Average daily volume, which initially was less than \$400,000 in 1997, has risen to about \$1.1 million by the end of 2012. Order flow has grown from approximately 2,000 transactions to 41,442 transactions. Transactions are cleared and settled in-house through the Clearing, Depository and Settlement Centre, which acts as a central depository and clearing house. Registration of shares is paperless and the clearing house operates with a T+3 settlement, which conforms with that employed by many major foreign exchanges. The Palestinian Securities Exchange has contracted with the Arab Bank to serve as settlement bank conducting transfer and payment between counterparties. In 1999 the HSBC Bank Middle East was the designated custodian bank, which, rather than the member brokerage firms, holds the securities on behalf of investors.

¹⁵⁴ Palestinian Securities Exchange, *Monthly Statistics December 2008*, <http://www.p-s-e.com/PSEWEBSITE/publications/12-%202008.xls>

Table 7.1 Forty-Eight Companies Listed on the Palestinian Securities Exchange at the End of 2012

	Company	Market Capitalization (\$)	Symbol	Sector
1	Al Shark Electrode	2,062,764	ELECTRO DE	Industry
2	The Arab Hotels	21,509,164	AHC	Service
3	Arab Islamic Bank	43,858,685	AIB	Bank Finance Services
4	Al-Aqariya Trading Investment	5,037,717	AQARIYA	Investment
5	Ahliea Insurance Group.	8,000,000	AIG	Insurance
6	Al-Takaful Palestinian Insurance	8,755,000	TIC	Insurance
7	Arab Company for Paints Products	5,331,452	APC	Industry
8	Arab Investors	13,198,594	ARAB	Investment
9	The Arab Real Estate Establishment	575,490	ARE	Service
10	Palestine Poultry	46,632,432	AZIZA	Industry
11	Bank of Palestine	400,660,000	BOP	Bank Finance Services
12	Birzeit Pharmaceutical	58,900,461	BPC	Industry
13	Palestine Commercial Bank	22,819,803	PCB	Bank Finance Services
14	Golden Wheat Mills	14,598,023	GMC	Industry
15	Grand Park Hotel and Resorts	6,000,000	HOTEL	Service
16	Al-Wataniah Towers	11,220,000	ABRAJ	Service
17	Jerusalem Cigarette	14,668,545	JCC	Industry
18	Jerusalem Real Estate Investment	7,600,000	JREI	Investment
19	Palestine Plastic Industrial	3,949,224	LADAEN	Industry
20	AL Mashriq Insurance	2,496,000	MIC	Insurance
21	The National Carton Industry	2,750,000	NCI	Industry
22	National Insurance	46,440,000	NIC	Insurance
23	Nablus Surgical Center	5,064,779	NSC	Service
24	Palestine Development and Investment	225,000,000	PADICO	Investment
25	Palestine Telecommunication	956,091,166	PALTEL	Service
26	Palestine Electric	82,800,000	PEC	Service
27	Palestine Investment Bank	48,230,000	PIBC	Bank Finance Services
28	Palestine Investment and Development	6,827,106	PID	Investment
29	Palestine Industrial Investment	31,470,376	PIIC	Investment
30	Arab Palestinian Shopping Centers	5,430,182	PLAZA	Service
31	Palestine Real Estate Investment	62,953,079	PRICO	Investment
32	AL-QUDS Bank	45,000,000	QUDS	Bank Finance Services

Table 7.1 Forty-Eight Companies Listed on the Palestinian Securities Exchange at the End of 2012 continued

	Company	Market Capitalization (\$)	Symbol	Sector
33	Trust International Insurance	26,000,000	TRUST	Insurance
34	Union Construction and Investment	19,520,000	UCI	Investment
35	The Vegetable Oil Industries	28,772,915	VOIC	Industry
36	Palestinian Distribution and Logistics Services	7,792,664	WASSEL	Service
37	Wataniya Palestine Mobile Telecomm	327,660,000	WATANIYA	Service
38	Palestine Securities Exchange	51,000,000	PSE	Bank Finance Services
39	Palestine Islamic Bank	48,115,651	ISBK	Bank Finance Services
40	Palestine Mortgage and Housing Corporation	17,000,000	PMHC	Bank Finance Services
41	The National Bank	45,000,000	TNB	Bank Finance Services
42	The Ramallah Summer Resorts	12,693,933	RSR	Service
43	Palestine Insurance	7,000,000	PICO	Insurance
44	Palaqar For Real Estate Development and Management	2,907,750	PALAQAR	Service
45	National Aluminum and Profile Napco	7,590,972	NAPCO	Industry
46	Global United Insurance	6,600,000	GUI	Insurance
47	Globalcom Telecommunication	1,790,587	GCOM	Service
48	Jerusalem Pharmaceuticals	33,765,862	JPH	Industry
	Total	2,859,140,376		

Source: Palestinian Stock Exchange.

The representative share price index is entitled the AL-QUDS Index ('Jerusalem' in Arabic). Launched in July 1997, this index, which originally comprised of ten shares, currently tracks fifteen companies drawn from all sectors listed on the exchange Table 7.2 provides further details about these companies. The AL-QUDS Index is calculated using a market-value weighted method, based on the changes in stocks prices of companies included in its calculation. A sample comprising ten listed and active companies from all existing economic sectors was taken at its' inception. The closing prices of the 07/07/1997 trading session were used as a base date, represented at 100 points. The sample companies used to calculate AL-QUDS Index are changed at the beginning of every year in order to include the most active companies, using several criteria for evaluation. Such criteria include the value of traded stocks throughout the previous year, the amount of traded stocks, total number of transactions, number of

trading days, the stock turnover, and the companies' market value at the end of the previous year of changing the sample.

In the eleven years since the Palestinian Securities Exchange opened, the price volatility has been significant with annual fluctuations more often than not being well into the double digits. By the end of 2008, the AL-QUDS index closed at 441.66, representing a more than fourfold increase since its inauguration. However, this upward trajectory has been far from smooth or monotonic. In 2005 the index soared more than 300% (from a level of 278 to 1129). After peaking in 2005, it lost close to 50% the following year¹⁵⁵. The index gained in 2007 and 2008, 13% and 16% respectively. The extreme price volatility is attributed in large part to the thin trading¹⁵⁶ as well as to the dramatic political and economic events taking place in the Palestinian Authority over the past decade.

Table 7.2 Fifteen Companies Included in the AL-QUDS Index at the End of 2012

Company	Market Capitalization (\$)	Symbol	Sector
Palestine Development and Investment	225,000,000	PADICO	Investment
Palestine Industrial Investment	31,470,376	PIIC	Investment
Palestine Real Estate Investment	62,953,079	PRICO	Investment
Union Construction and Investment	19,520,000	UCI	Investment
Arab Islamic Bank	43,858,685	AIB	Bank Finance Services
Bank of Palestine	400,660,000	BOP	Bank Finance Services
Palestine Islamic Bank	48,115,651	ISBK	Bank Finance Services
The National Bank	45,000,000	TNB	Bank Finance Services
Ahliea Insurance Group.	8,000,000	AIG	Insurance
Palestine Telecommunication	956,091,166	PALTEL	Service
Palestine Electric	82,800,000	PEC	Service
Wataniya Palestine Mobile Telecomm	327,660,000	WATANIYA	Service
Birzeit Pharmaceutical	58,900,461	BPC	Industry
Jerusalem Cigarette	14,668,545	JCC	Industry
Golden Wheat Mills	14,598,023	GMC	Industry

Source: Palestinian Stock Exchange

¹⁵⁵ Which also coincides with the rise of Hamas in Gaza.

¹⁵⁶ It is difficult to assess the effect of "thin trading". In spite of this seemingly difficulty, since I use indices and not individual stocks, the impact of thin trading is marginal in the long run.

Another dimension of the Palestinian Stock Exchange is the ownership of shares in the companies. Tables 7.3 and 7.4 indicate the share ownership and shareholders by Nationality and Type in the Palestinian Securities Exchange.

Table 7.3 Shares Ownership on the Palestinian Stock Exchange by Nationality and Type at the End of 2012

Nationality and Type	Shares
All	100.00%
local individuals	23.90%
local Companies	39.64%
Foreign individuals	1.15%
Foreign Companies	22.49%
N/A	0.82%

Source: Palestinian Stock Exchange.

Table 7.4 Share Holders on the Palestinian Stock Exchange by Nationality and Type at the end of 2012

Nationality and Type	Shares
All	100.00%
local individuals	95.27%
local Companies	0.71%
Foreign individuals	3.31%
Foreign Companies	0.29%
N/A	0.60%

Source: Palestinian Stock Exchange.

Recall that one of the main goals of the Palestinian Stock Exchange was to attract foreign capital in order to develop the economy. However according to Table 7.3, in 2012 which was fifteen years after the inauguration, only 23.64% (USD 676 Million) of the volume of shares were owned by foreign individuals and companies. This amount is negligible relative to the foreign capital needs of the Palestinian economy over these years. In addition, Tables 7.3 and 7.4 show that though local individuals were 95.27% of the equity holders, local individuals held only 23.9% (USD 683 Million) of the shares. This indicates that the Palestinian Stock Exchange has not become a market place for long-term equity saving for the Palestinians.

Finally, we can consider the main features of both countries economies and stock exchanges, identifying major differences. Table 7.5 presents the main features of the two economies and the two stock markets. As of 1997, the GDP of Israel was 29.7 times the GDP of the West Bank and Gaza Strip and the per capita GDP of Israel was 12.5 times that in West Bank and Gaza Strip. In the Intifada period (2000-2002) the GDP of Israel increased by 7.8% and the per capita GDP increased by 0.5%, while the GDP of West Bank and Gaza Strip decreased by 27.7% and the per capita GDP decreased by 34.0%. During these years, both stock exchanges experienced decreases in all three aspects of activity: market cap decreased by 35.1% at TASE compared to 32.1% at the Palestinian Securities Exchange; Annual trading volume decreased by 38.3% on the TASE compared to 70% on the Palestinian Securities Exchange; TA-25 index decreased by 30.5% and the AL-QUDS Index decreased by 36.2%.

Table 7.5 Main Figures of the Two Exchanges and Economies 1997-2008

	Israel				Palestinian Authority			
	Tel -Aviv Stock Market				Palestinian Stock Exchange			
Year	Market Cap Billions USD	Annual Trading Volume in Billions USD	Annual Change of TA-25 Index	GDP 2008 Prices (Billions USD)	Market Cap Billions USD	Annual Trading Volume in Billions USD	Annual Change of AL-QUDS Index	GDP 2008 prices (Billions USD)
1997	46.4	14.0	26.4%	129.3	0.53	0.03	39.1%	4.36
1998	40.9	14.3	-5.2%	134.8	0.59	0.07	11.4%	4.88
1999	65.4	20.9	62.2%	139.1	0.85	0.15	52.8%	5.31
2000	66.7	28.4	0.3%	151.6	0.77	0.19	-12.3%	4.85
2001	57.1	15.0	-7.9%	151.0	0.72	0.07	-6.1%	4.43
2002	42.3	12.9	-24.8%	150.0	0.58	0.05	-22.5%	3.84
2003	69.7	20.4	58.4%	152.7	0.65	0.06	19.0%	4.41
2004	87.1	37.1	16.2%	160.4	1.10	0.20	54.4%	4.94
2005	112.8	54.0	29.7%	168.6	4.46	2.10	306.6%	5.27
2006	140.8	84.6	5.9%	177.3	2.73	1.07	-46.4%	5.09
2007	198.1	134.2	18.9%	188.2	2.47	0.81	-12.9%	5.34
2008	106.7	128.5	-46.2%	195.7	2.12	1.19	-16.2%	6.02

Source: Palestinian Stock Exchange, Palestinian Central Bureau of Statistics (PCBS), Tel Aviv Stock Exchange (TASE), Israeli Central Bureau of Statistics (ICBS) 2009 and annual reports.

As noted above, the economies are affected by the political and security situation over time, and particularly during the Intifada. In the next section we provide an in depth causality analysis of the impact of terror attacks on the two markets and exchanges.

7.3 Data and Methodology

7.3.1 Data

The data includes characteristics of four hundred and sixty terror attacks which occurred during the period of the Intifada (September 2000 - June 2003). Since an event study analysis is used, I am forced to compile the data in the following way. Whenever more than one terror attack occurred on the same day, the attacks were considered as a single event. This reduces the number of terror events to two hundred and eighty. Excluding terror events that occurred on dates when the Palestinian Stock Exchange halted its trade for security reasons, further reduces terror events to one hundred and sixty-eight. Daily share prices TA-25 index and AL-QUDS index are used on days surrounding each date of the one hundred and sixty-eight terror events. The data on the characteristics of the terror attacks were obtained from the databank of the Interdisciplinary Centre in Herzliya.

Also used are share prices of the TA25, AL-QUDS and SP500 indices to examine the causal relation among them and their volatilities. The GARCH (1,1) model is used to generate daily standard deviation of rates of returns using the following model:

$$\sigma_t^2 = \beta_0 + \beta_1 \varepsilon_{t-1}^2 + \gamma_1 \sigma_{t-1}^2 \quad (7-1)$$

Where: $r_t = \alpha_0 + \alpha_1 r_{t-1} + \varepsilon_t$, r_t is the index rate of return. The results displayed in Table 7.6 provide the model estimates¹⁵⁷.

¹⁵⁷ Also used are EGARCH models and additional lags in these models. The results for the estimated variance were similar.

Table 7.6 Daily Standard Deviation Using GARCH

	β_0	β_1	γ_1
TA25	0.00051	0.1038	0.8120
P-Value	(0.000)	(0.000)	(0.000)
AL-QUDS	0.00109	0.1368	0.8497
P-Value	(0.000)	(0.000)	(0.000)
SP500	0.00006	0.1057	0.8953
P-Value	(0.000)	(0.000)	(0.000)

Note: The daily variance is estimated by the following model: $\sigma_t^2 = \beta_0 + \beta_1 \varepsilon_{t-1}^2 + \gamma_1 \sigma_{t-1}^2$ where $r_t = \alpha_0 + \alpha_1 r_{t-1} + \varepsilon_t$. AIC is an Akaike Info Criterion. P-values in parenthesis signify the significance of the coefficients¹⁵⁸.

The results provide evidence that the GARCH (1,1) can be used to estimate the volatility. Indeed, although not tabulated in this chapter, when a different model of GARCH was used, the results were very much the same, indicating that the volatility estimated by GARCH (1,1) is valid. The volatility estimated with these models are highly correlated with VIX (on the TASE and on the CBOE).

Based on the GARCH model estimates and share prices data, Table 7.7 provides summary statistics of the variables used in this study to test the causal relationships

¹⁵⁸ The lag length p and q of a GARCH(p, q) process is established in three steps: (1) Estimate the best fitting AR(q) model

$$y_t = a_0 + a_1 y_{t-1} + \dots + a_q y_{t-q} + \varepsilon_t = a_0 + \sum_{i=1}^q a_i y_{t-i} + \varepsilon_t$$

(2) Compute the autocorrelations of ε_t^2 by

$$\rho = \frac{\sum_{t=i+1}^T (\hat{\varepsilon}_t^2 - \hat{\sigma}_t^2)(\hat{\varepsilon}_{t-1}^2 - \hat{\sigma}_{t-1}^2)}{\sum_{t=1}^T (\hat{\varepsilon}_t^2 - \hat{\sigma}_t^2)^2}$$

And (3) the asymptotic, that is for large samples, standard deviation of $\rho(i)$ is $1/\sqrt{T}$. Individual values that are larger than this indicate GARCH errors. To estimate the total number of lags, use the Ljung-Box test until the value of these are less than, say, 10% significant. The Ljung-Box follows χ^2 distribution with n degrees of freedom if the squared residuals ε_t^2 are uncorrelated. The null hypothesis states that there are no ARCH or GARCH errors. Rejecting the null thus means that such errors exist in the conditional variance.

between the Israeli and Palestinian capital markets. The US market is used as a control variable that is assumed to have possible effects on the two markets. Table 7.7 provides a description on the data characteristics (in-%). TA-25 and AL-QUDS during the sample period, for the same days all exchanges are open.

Table 7.7 Descriptive Statistics

	RTA25	RAL-QUDS	RSP500	SIGTA25	SIGAL-QUDS	SIGSP500
Mean	0.000446	0.000960	-0.000125	0.017697	0.021092	0.014947
Median	0.000471	-0.000099	0.000564	0.015542	0.018291	0.012603
Maximum	0.084159	0.124893	0.102457	0.057356	0.074790	0.061587
Minimum	-0.155385	-0.172717	-0.134612	0.008484	0.008931	0.006108
Std. Dev.	0.018473	0.022565	0.016785	0.007338	0.009863	0.008170

Note: RTA25, RAL-QUDS and RSP500 are the rates of returns of the TA25, AL-QUDS and SP500 stock indices. SIGTA25, SIGAL-QUDS and SIGSP500 are daily standard deviations of the three indices estimated by the GARCH (1,1) model.

7.3.2 Methodology

We start with an event-study analysis based on daily data (closing prices) of the TA-25 and Al Quds indices to examine share prices behaviour in response to terror attacks. Based on the daily data, rates of return were estimated of both indices on the day of the event (-1,0), and the days following the event (0,+1) and (+1, +2).

Using the Terror Index (*TI*) developed by Eldor *et al.* is used to investigate the effect of investors' pessimism on the stock market. The *Terror Index (TI)* is constructed as follows:

$$(7-1) \quad TI = D_1 + D_2 + D_3 + D_4 + D_5$$

where:

$D_1 = 0$ if the attack was beyond the green line and 1 if it was within the green line;

$D_2 = 0$ if the attack was not a suicide attack and 1 if it was;

$D_3 = 0$ if there were no deaths and 1 if there were;

$D_4 = 0$ if there were no injured and 1 if there were;

$D_5 = 0$ if the event was not reported on a newspaper's front page and 1 if it was.

The TI index average is 2.97 and its median is 3.00. The number of observations in each dummy variable is as follows: $D_1 = 35$; $D_2 = 74$; $D_3 = 79$; $D_4 = 49$; and $D_5 = 43$.

The sole purpose of the TI is to investigate the effect of severity of a terror attack on share prices. It was not meant to redo Eldor and Melnick's (2004) work, rather to use their findings as a benchmark.

Next, the causal relationships among the variables are investigated using the common testing procedure for causal relationship between variables - the VAR (vector autoregression)¹⁵⁹ or VEC (vector error-correction) model. The latter requires that the time series in the tests be non-stationary or integrated of order greater than zero. Violation of either one of, or both of, these two conditions would suggest implementation of the VEC model. For this reason, the properties of stationarity of each time series used in this study and probable order of integration is first examined.

The testing starts with the unit root tests using two models of the Augmented Dickey-Fuller methods (ADF).

$$\text{Model 1: } y_t = \alpha_1 + \delta_1 y_{t-1} + \varepsilon_t \quad (7-2)$$

$$\text{Model 2: } y_t = \alpha_2 + \gamma_2 t + \delta_2 y_{t-1} + \varepsilon_t \quad (7-3)$$

The ADF test involves decisions on selecting the optimal lag length. The statistical inferences about the stationary properties of each time series are presented in Table 7.7 using two models and for different lag lengths. The results indicate that the null hypothesis of a unit root is not rejected for the levels of the TA25, AL-QUDS and SP500 and is rejected for the levels of the time series of volatility of each of the three indices. The null hypothesis is also rejected for stock indices time series when they are

¹⁵⁹ The VAR model was developed as an alternative empirical model to simultaneous models with hundreds of variables in some cases in light on the latter. The departure from simultaneous equation approach is not that radical. The advantages of the VAR model are: (1) it is a reduced form where contemporaneous variables are not included on the right-hand side; (2) all the included variables are treated as endogenous. Each variable depends on all the others; (3) it is widely used in the literature because it allows a more efficient estimation of causality effects. See Engle and Granger (1987) for discussion.

differenced once. Since the six time series, three stock indices (rates of return), and their volatilities, are stationary, we use the VAR model and not the VEC model.

Table 7.8 reports the ADF tests for Model 1: $y_t = \alpha_1 + \delta_1 y_{t-1} + \varepsilon_t$; Mackinnon p-values appear in parenthesis. We use log of the stock indices. Rates of returns are obtained by differencing them once. The models are tested for 3, 5 and 7 days lag length.

Table 7.8 ADF Tests for Unit Root Tests

Variable	Model 1		
	3	5	7
<u>Level</u>			
Ln(ta25)	-1.622	-1.662	-1.739
	(0.477)	(0.450)	(0.411)
Ln(AL-QUDS)	-1.208	-1.249	-1.289
	(0.908)	(0.899)	(0.865)
Ln(sp500)	-1.239	-1.340	-1.289
	(0.654)	(0.613)	(0.637)
σ_{TA25}	-4.567	-4.441	-4.433
	(0.000)	(0.000)	(0.000)
σ_{Alquds}	5.203	-4.595	-5.627
	(0.000)	(0.000)	(0.000)
σ_{SP500}	-18.289	-15.927	-13.498
	(0.000)	(0.000)	(0.000)
<u>1st Difference</u>			
Ln(ta25)	-19.964	-15.819	-13.082
	(0.000)	(0.000)	(0.000)
Ln(AL-QUDS)	-18.602	-14.536	-11.840
	(0.000)	(0.000)	(0.000)
Ln(sp500)	-18.289	-15.927	-13.498
	(0.000)	(0.000)	(0.000)

Model 2 is not tabulated since its results are similar. Based on the results reported in Table 7.8, the VAR model is used to test the causal relationships between the Palestinian and Israeli stock markets. The analysis includes share prices behaviour of the two markets and their volatilities in addition to the SP500 index and its volatility as control variables, The data used for the VAR included only observations on days all three exchanges were open. The following model is estimated:

$$Y_t = a_0 + \sum_{j=1}^T b_j TA25_{t-j} + \sum_{j=1}^T c_j AlQuds_{t-j} + \sum_{j=1}^T d_j SP500_{t-j} + \sum_{j=1}^k e_j SIGTA25_{t-j} + \sum_{j=1}^T f_j SIGALQUDS_{t-j} + \sum_{j=1}^T g_j SIGSP500_{t-j} + \eta_t \quad (7-4)$$

Where Y is the dependent variable: TA25 or AL-QUDS, SP500 is US SP500 index, SIGTA25. SIGAL-QUDS and SIGSP500 are daily standard deviations of the three indices estimated by the GARCH(1,1) model.

The VAR model enables investigation of the causality effects of different markets on share prices. If Y=TA25 and c_j, d_j, e_j, f_j, g_j are significantly different from zero for some j , it would indicate that the independent variable has significant effect on the TA25 variable. If Y=AL-QUDS and b_j, d_j, e_j, f_j, g_j are significantly different from zero for some j , it would indicate that the independent variable has significant effect on the AL-QUDS variable. The coefficients are examined to identify causality. Causality is said to exist if one of these coefficients is significant. Bi-directional causality effects exist if the coefficient is significant in both equations. One-way causality effects exist if it is found that one of these coefficients is significant in only one equation.

The findings displayed in Table 7.9 indicate that when Y=TA25, some c_j, d_j, e_j are significant the share prices on the TASE are significantly affected by AlQuds, SP500 and the volatility of the TA25. When Y=AlQuds, some b_j, d_j, e_j are significant, then the AlQuds is significantly affected by changes of share prices on the TASE, SP500 and the volatility of the TA25.

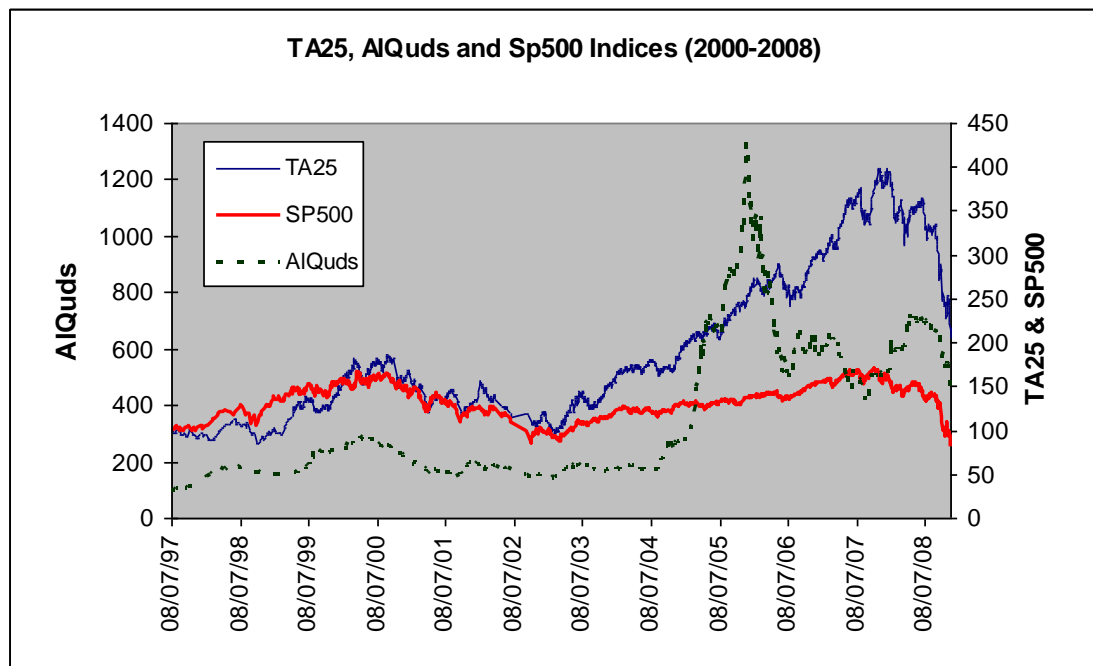
Using the VAR methodology also confirmed that the volatility on the Palestinian Securities Exchange was significantly affected by the volatility of share prices in New York and in Tel Aviv.

7.4 Results

7.4.1 Share Prices Behaviour on the TASE and Palestinian Stock Exchange

Figure 7.1 and Table 7.9 describe share prices behaviour in the Palestinian and Israeli markets during 1997-2007, a period that includes the Intifada period 2000-2003. The first observation that comes out of Figure 7.1 is that share prices soared in both markets but more so in the Palestinian markets. Two years following the Intifada, the markets were characterized by economic boom when share prices multiplied themselves, on average, by seven. While during this period share prices increased in Israel too, consistent with most financial markets around the globe, in the midst of 2005, West Bank share prices (Palestinian Stock Exchange) fell dramatically from 1300 level to 400 level. In that period share prices in Israel continued to increase like many financial markets around the globe. The main explanation for this decline in share prices on the Palestinian Securities Exchange is that at that time the Hamas movement took power in Gaza.

Figure 7.1 Share Prices in the Palestinian and Israeli Stock Markets



Note: The sample period covers the slow-down period in 2000-2003 and in 2008 - credit crisis period.

There was a significant slowdown in the global economy that has been well reflected in share prices. The Intifada in the Middle-East also affected other markets around the globe as evidenced in the SP500. Table 7.9 provides general information on share prices in the West Bank, Israel and the US during the Intifada period and the period before and after the Intifada. This table presents figures on annual rates of return (CR) on stocks represented by the TA25, SP500 and AL-QUDS indices for different periods, where: $CR = (P_t/P_{t-n})^{\frac{n}{365}}$ and n indicates the number of trading days in the period in which CR is calculated

Table 7.9 Share Prices in the West Bank, Israel and US during the Intifada Compared with Other Periods

Period	AL-QUDS	TA25	SP500
The whole period: 7/1997-12/2008	0.171	0.139	0.046
Prior to the Intifada: 7/1997-9/2000	0.345	0.202	0.149
Intifada: 10/2000-6/2003	-0.093	-0.086	0.017
Following the Intifada: 7/2003-12/2007	0.244	0.253	0.096

Prior to examining the effect of terrorism on both markets, we examined the causality relationship between share prices on the TASE and those on the Palestinian Securities Exchange. We also include in our tests the effect of US market as control variable, represented by the SP500, on both markets.

The following Vector Auto Regression model (VAR)¹⁶⁰: was used to test the relationship between share prices in the West-Bank, Israel and US, using

$$Y_t = a_0 + \sum_{j=1}^T b_j TA25_{t-j} + \sum_{j=1}^T c_j AlQuds_{t-j} + \sum_{j=1}^T d_j SP500_{t-j} + \sum_{j=1}^k e_j SIGTA25_{t-j} + \sum_{j=1}^T f_j SIGALQUDS_{t-j} + \sum_{j=1}^T g_j SIGSP500_{t-j} + \eta_t$$

¹⁶⁰ The VAR model is argued to assume that all endogenous variables are observed and that one way to tackle this issue is to use bootstrapped standard errors. This chapter, however, concludes that the bootstrapped standard errors will not change the conclusions of the VAR model, given the robustness of the results reported for the different VAR models examined.

Where Y is the dependent variable: TA25 or AL-QUDS, SP500 is US SP500 index, SIGTA25. SIGAL-QUDS and SP500 are daily standard deviations of the three indices estimated by the GARCH(1,1) model. Table 7.10 displays the results of these tests.

Table 7.10 Share Prices Causality between TA25 and AL-QUDS

Coefficient		Dependent Variable			
		TA25	SIGTA25	AL-QUDS	SIGAL-QUDS
	A ₀	0.000897	0.000609*	0.000321*	0.000794*
TA25	B ₁	-0.036872*	-0.009223*	-0.007964	-0.009959*
TA25	B ₂	-0.018975	0.000775	0.032178	-0.003186
TA25	B ₃	-0.025435	-0.003952	-0.066157***	-0.003456
TA25	B ₄	-0.031831	-0.001315	-0.00672	0.004135
TA25	B ₅	0.009006	-0.004716**	0.016611	0.002368
AL-QUDS	C ₁	0.062176*	-0.002174	0.163826*	0.001218*
AL-QUDS	C ₂	-0.030394***	0.001447	-0.01568	0.004708
AL-QUDS	C ₃	0.042865**	-0.000513	0.020022	0.003278
AL-QUDS	C ₄	-0.009289	0.004433***	0.010321	0.004265
AL-QUDS	C ₅	-0.043301**	0.000609	0.026273	-0.001411
SP500	D ₁	0.465451*	-0.029472*	0.083388**	-0.014577
SP500	D ₂	0.130577*	-0.001714	0.047450	-0.002115
SP500	D ₃	0.067412**	-0.006944**	0.069726**	0.004452
SP500	D ₄	0.100819*	-0.002943	0.042056	0.004796
SP500	D ₅	0.041705	-0.004053	-0.017646	-0.00144
SIGTA25	E ₁	0.436250*	0.915004*	0.246334	-0.010548*
SIGTA25	E ₂	-0.24867	0.003933	-0.251071	0.030750
SIGTA25	E ₃	-0.174319	0.052792	-0.324227	-0.011641
SIGTA25	E ₄	-0.03354	-0.035054	-0.2253	0.048881
SIGTA25	E ₅	0.187348	0.020671	0.578643***	-0.034091
SIGAL-QUDS	F ₁	-0.179644	-0.010059	0.033254	0.961265*
SIGAL-QUDS	F ₂	0.120898	-0.007706	0.048681	-0.044579
SIGAL-QUDS	F ₃	0.125202	0.003988	-0.039594	-0.01541
SIGAL-QUDS	F ₄	0.037212	0.018408	0.022262	0.042382
SIGAL-QUDS	F ₅	-0.139200	-0.006239	-0.02472	0.017894
SIGSP500	G ₁	0.119648	-0.039617	0.362930	0.001058

Table 7.10 Share Prices Causality between TA25 and AL-QUDS continued

Coefficient		Dependent Variable			
		TA25	SIGTA25	AL-QUDS	SIGAL-QUDS
SIGSP500	G ₂	-0.414259	0.041804	0.020297	0.011398
SIGSP500	G ₃	0.012226	-0.014957	0.368758	0.037254**
SIGSP500	G ₄	-0.291416	0.046978	-0.299627	-0.119723
SIGSP500	G ₅	0.405237	-0.02157	-0.502428	0.042406
R-squared		0.216759	0.938452	0.048081	0.925006
Adj. R-squared		0.201735	0.937271	0.029822	0.923567
F-statistic		14.42767	794.9005	2.633221	643.0305
Log likelihood		4304.063	7798.031	3851.666	7176.476
Akaike AIC		-5.358072	-9.739224	-4.790804	-8.959844
Schwarz SC		-5.253613	-9.634764	-4.686344	-8.855385

Note: *, **and *** signify that the coefficient is significant at the 1%, 5% and 10% level, respectively.

There are two main findings regarding returns. Firstly, both markets were significantly affected by the US market. However, it appears that the Palestinian Securities Exchange was affected to a lesser extent than that of the TASE. One possible explanation is that Palestinians investors are generally less sensitive to the information from the US markets than the Israeli investors. Secondly, in both markets there was a significant causality effect. Surprisingly, share prices behaviour on the TASE seemed to be significantly affected by those on the Palestinian Securities Exchange. This finding may be due to the fact that positive (negative) returns on the Palestinian Securities Exchange were a reflection of positive (negative) economic atmosphere on the West Bank side which was significantly correlated with positive (negative) expectations of the Israeli investors.

There are two main findings regarding volatility. Firstly, only the Israeli market volatility was significantly affected by the US market volatility. It appears that the Palestinian Securities Exchange was not affected by the US market volatility. Secondly, in both markets there was a significant causality effect in volatility.

7.4.2 Share Prices Behaviour on the TASE and Palestinian Stock Exchange Around Terror Attacks

This section focuses on the Intifada period (2000-2003). The results are displayed in Table 7.11. The results in Table 7.11 indicate that share prices in both markets declined, and more so on the TASE. There was an average significant decrease of 0.43% in share prices on the TASE (-p-value=0.006) and an insignificant decrease of 0.23% on the Palestinian Securities Exchange (p-value=0.595). It appears that in both markets, investors responded almost immediately when the terror attack occurred. The decline of share prices on the Palestinian Securities Exchange may be explained by the fear of retaliation of the Israeli Defence Forces to the terror attack. The insignificance of that decline may indicate that in many cases such retaliation was not expected. One possible explanation for these findings is that investors' expectations on the Palestinian side are affected to a lesser extent since they perceive terror attacks in Israel as positive information. The fact that it still decreased may be explained by their fear of retaliation by the Israeli Defence Forces. These results are reinforced by the finding that the effect did not disappear over time

Table 7.11 Effect of Terror Attacks on Stock Prices on the TASE and Palestinian Stock Exchange

Returns	TA-25	AL-QUDS
CR(-1,0) (p-value)	-0.203 (0.039)	-0.203 (0.188)
CR(0,1) (p-value)	-0.147 (0.074)	-0.077 (0.575)
CR(1,2) (p-value)	-0.082 (0.376)	-0.013 (0.952)
CR(-1,2) (p-value)	-0.431 (0.006)	-0.230 (0.595)

Note: $CR(-1,2)$ signifies cumulative rates of return on the 3 days – day of the attack $CR(-1,0)+CR(0,+1)+CR(+1,+2)$. $CR(-1,0)$ is the day of the attack, $CR(0,+1)$ and $CR(+1,+2)$ are the two days following the attack. Numbers in parenthesis are p-values.

Finally, the effect of the severity of the terror attack on share prices in both markets was examined. The findings are displayed in Table 7.12. The main finding is that the more fatal the terror attack, the greater the negative effect in the two markets. In the

more severe terror attack event (i.e. more people were killed and injured, if it was a suicide attack or if it was within the green-line border), share prices on the TASE declined significantly by 0.63% compared to a decline of 0.16% in less severe attacks. The same pattern is revealed on the Palestinian side. In the more severe terror attack, share prices on the Palestinian Securities Exchange declined significantly by 0.21% compared with -0.07% in less severe attacks. Most likely, this is due to the fact that Palestinians expected retaliation by the Israeli Defence Forces on days the results of terror events were more fatal. Indeed, the effect was insignificant in the “low” category and much smaller in the “high” category. It is consistent, again, with the notion that investors' expectations on the Palestinian side are affected to a lesser extent since they perceive terror attacks in Israel as positive information. Again, the fact that it still declined may be explained by the Palestinians fear of retaliation by the Israeli Defence Forces. Such retaliations appeared to occur when the outcome of the terror attack was more severe in the eyes of the Israeli public. The more severe the outcome of the terror attack, the greater the probability of retaliation.

Table 7.12 Effect of Attack’s Severity on Stock Prices on the TASE and Palestinian Stock Exchange

		TA25		AL-QUDS	
		N	Average (%)	N	Average (%)
Terror Index (TI)	High	163	-0.627	92	-0.208
	Low	117	-0.159	76	0.068
	p-value		(0.065)		(0.375)

Note: $CR(-1,1)$ signifies cumulative rates of return on the 2 days – day of the attack $CR(-1,0)+CR(0,+1)$. P-values signify the significance level using ANOVA. In this Table, TI receives a value 1 if its score is higher than 3 and 0 otherwise.

It appears also that over time people do get "more used" to it. Yet, there is a still a significant effect that does not disappear over time, The findings are displayed below in Table 7.13.

Table 7.13 Effect of terror attacks on Stock Prices over time on the TASE and Palestinian Stock Exchange

		CR(-1,2)- TASE		CR(-1,2)-PSE	
		N	Average (%)	N	Average (%)
Period	9/2000-4/2002	151	-0.594	70	-0.380
	5/2002-12/2003	129	-0.267	98	-0.165
	p-value		(0.124)		(0.199)

Note: $CR(-1,2)$ signifies cumulative rates of return on the 3 days – day of the attack $CR(-1,0)+CR(0,+1)+CR(+1,+2)$. $CR(-1,0)$ is the day of the attack, $CR(0,+1)$ and $CR(+1,+2)$ are the two days following the attack. P-value signifies the significance level using ANOVA.

7.5 Conclusion

This chapter looked at the continued conflict in the region and the impact of terrorism on the Israeli and Palestinian stock exchanges. It used a unique data set of Palestinian and Israeli financial markets to examine the effects of terror attacks on both sides of the conflict. During the Intifada period, share prices declined significantly reflecting economic slowdown in both markets. There are bi-directional causality effects of returns in the two markets, and both markets were affected by the US market. The severity of terror attacks negatively affected share prices in both financial markets.

The main finding is that the more severe the terror attack, the more the Israeli as well as the Palestinian markets suffered economically. Specifically, in both markets, the real economy suffered during the Intifada period and share prices declined. A statistically significant decline of 0.43% on average followed each terror event in the TASE, compared with an insignificant decline of 0.23% in Palestinian Securities Exchange. These findings indicate that the effects of terrorism are negative on all markets involved.

An analysis of the links between the Israeli and the Palestinian markets was conducted. The main finding regarding returns was that in both markets there were significant causality effects. Surprisingly, share price behaviour on the TASE seems to be

significantly affected by those on the Palestinian Securities Exchange. This finding may be due to the fact that positive (negative) returns on the Palestinian Securities Exchange were a reflection of positive (negative) economic atmosphere on the West Bank side which was significantly correlated with positive (negative) expectations of the Israeli investors.

The results of this research appear to indicate that both sides of the barricade suffer economically and otherwise. Unlike the presumption that only one side suffers from terror attacks, the findings in this chapter support the notion that nobody really wins at the market place. However, the Palestinian side seem to suffer to a lesser extent perhaps due to the fact that in the first place the Palestinians were in an inferior economic position.

Chapter 8- Conclusions

8.1 Introduction

This thesis analysed a complicated, worldwide unique economic case of the West Bank and Gaza, a small and economically under-developed state that has been under military control by Israel since 1967. Under such situations, various types of constraints are levied on the country, primarily by Israel, while, at least in the last decade, there has been unprecedented international aid awarded to the West Bank and Gaza. This thesis analyses these complex situations from an economic perspective. The conclusion of this thesis begins with a presentation of the general scope of the thesis, the main questions and the main hypotheses. In section 8.3 of the conclusion, the methodology and empirical statistical difficulties are presented. The main findings are discussed in section 8.4, and in section 8.5, the contribution of the study is highlighted as well as the limitations of the research, finishing with suggestions for future research.

8.2 General Scope, Goal, Main Research Questions and Hypotheses

The thesis examines the sources of the economic ordeal of the West Bank and Gaza following the Six Day War of 1967 and Israeli up to 2007 when Hamas took control of Gaza. During this turbulent period, the Palestinians in the West Bank and Gaza lived in deep poverty. According to an October 31, 2013 update of the CIA World Fact Book, the 2008 GDP per capita in purchasing power parity terms of the West Bank and Gaza is only USD 2900, and the area is ranked 173rd among 228 countries. According to Wikipedia, in 2010, the per capita GDP (2004 USD prices) is US \$1924 in the West Bank and only US \$876 in Gaza.

Since 1967 and up to the first intifada, which began in autumn 1987, the Israeli economic policy toward the West Bank and Gaza was to employ increasingly more low cost Palestinians in Israel to develop the economy of Israel rather than to develop the economy of the West Bank and Gaza. There is a strong indication that this employment policy of Israel together with limitations on both physical mobility and merchandise was intended to prevent fair competition of Palestinians' producers with Israeli producers. Following the Oslo Accord of September 1993, which was the first major step toward an independent Palestinian state, the West Bank and Gaza received the

highest per capita foreign aid recorded for any country. Despite, or perhaps because of, this heavy foreign aid of various types and remittances, the economy of the West Bank and Gaza remained poor in comparison to almost all the rest of the world and to the majority of all neighbouring countries. The policy of Israel to deter Palestinian products from competing with Israeli products and to employ Palestinians in Israel, the periods of military clashes and terror, and the unprecedented heavy foreign aid since the Oslo Accord, prompted the main questions of the thesis. First, is the level of GDP exogenously determined in the main because of the extreme political situation of being a state under occupation? Second, and more importantly, is the economy of the West Bank and Gaza infected by Dutch disease symptoms? Dutch disease denotes the seemingly anomalous phenomenon by which large amounts of foreign currency that are injected into an economy lead to an appreciation of the real exchange rate of the local currency. Thus, rather than stimulating growth, foreign currency (aid) leads to the contraction of the tradable sectors of the economy.

Dutch disease is one of the explanations for the ineffectiveness of foreign aid to generate economic growth in developing countries even though the inflow of foreign currency can close the deficit gaps on balance of payments and the gap between the ex-ante savings and investments that are necessary to obtain a minimal required sustainable growth rate.

Eight main hypotheses with respect to the previous questions were presented in the thesis:

First, under the specific constraints on the economy that restricts the ability to replace imports, the exogenous supply of foreign currency out of exports, compensation from work abroad, and the financing of the foreign currency gap, determine GDP of the West Bank and Gaza.

Second, under the aforementioned constraints, GDP of the West Bank and Gaza is determined by the corner solution of the two-gap model rather than by conditions of equilibrium.

Third, though there is no official local currency in the West Bank and Gaza, in both periods - before the Oslo Accord (1968 to 1993) and after it (1994 to 2007) - the West Bank and Gaza are affected by symptoms of Dutch disease.

Fourth, on the one hand, high levels of foreign aid resolved the severe foreign currency constraints and solved economic humanitarian hardships, but on the other hand, given the economic and political constraints of the West Bank and Gaza, minimised its' ability to generate growth.

Fifth, the policy of Israel up to Oslo Accord, or more precisely up to the first intifada that also included the employment of Palestinians in Israel rather than to develop the economy of West Bank and Gaza, lead to the deterioration of economic development of the West Bank and Gaza and generated Dutch disease symptoms. Various clauses of the Oslo Accord attest to this policy stance.

Sixth, the physical and administrative constraints on internal and external trade and free movement, not only by Israel but also by Jordan and Egypt, considerably reduced the effectiveness of foreign aid to stimulate economic growth.

Seventh, the lack of a well-established financial sector inhibited long-term savings and investments in the West Bank and Gaza.

Eight, terror activity negatively affected the economy of the West Bank and Gaza, primarily during the period of the second intifada.

This thesis did not investigate other potential factors for Dutch disease, such as the lack of governmental experience, the level of democratic governance, corruption, level of human capital, lack of industrial infrastructure and experience, and scarcity of water and arable land.

8.3 Methodology and Statistical Difficulties

The theoretical literature analysed the impact of Dutch disease on the economy through analysing the impact of the inflow of foreign currency on the expected equilibrium real exchange rate (RER), expected growth rate, and expected equilibrium sector structure of the economy (see, for example, Cordan and Neary 1982). Empirical investigation was then conducted through a descriptive statistical analysis to determine whether such expected changes accrued following the foreign currency inflow shock.

The two-gap model of Harm and Lutz (2004), which extends the Harrod-Domar model, was identified as the closest relevant theoretical framework in this thesis because, based on the case of West Bank and Gaza, all sources of foreign currency are exogenous and the constraints on the economy disable the option for the long-term competitive replacement of imports by local production.

This thesis developed an expression of GDP and GNP in total terms and in per capita terms as a function of the available foreign currency.

The general form of this function was:

$$Y_d \equiv GDP = \frac{(1-\beta)}{\beta} * [E_x + FTR + NCT + W]$$

where β is the ratio of import to total uses. E_x is exports, $FTR+NCT$ are foreign transfer and net capital transfer in the balance of payment, and W is the compensation for work outside the West Bank and Gaza (mainly in Israel). In most economies, all terms in this equation, except $FTR+NCT$, are endogenous and are determined in equilibrium according to demand and supply. This thesis claimed and proved empirically that in the case of the West Bank and Gaza, β which is the ratio of import to total uses is almost constant and all the terms in the bracket of the above equation are almost entirely exogenous and thus they determine almost entirely the level of GDP.

The two-gap general model was then extended by me to analyse the optimal proportion between tradable and non-tradable activities of the economy. It is determined and shown that under the exogenous foreign currency constraint, increasing the proportion of the non-tradable sector, such as the public sector, relative to the tradable sector may increase GDP because the non-tradable sector has a lower β relative to the tradable

sector. However, this increase may not increase the total welfare of the economy. Thus, the general model together with the profitability index (PI) and NPV rule of investment was used to analyse the optimal investment path in tradable and non-tradable sectors of the economy. This indicated that straying from this path lowered GDP. These results are consistent with those of Harms and Lutz (2004).

The entire period of 1968 to 2007 was divided into two distinct sub-periods, 1968 to 1993 the pre-Oslo Accord period and 1994 to 2007 period the post-Oslo Accord and pre-Hamas in the Gaza period, to test the eight main hypotheses. These two periods differ considerably from each other in that since 1994, there has been independent Palestinian internal governmental control and foreign aid has significantly increased, while the military clashes and terrorism peaked during the second intifada, which erupted six years after the Oslo Accord.

A few studies have claimed that foreign aid led to Dutch Disease in the West Bank and Gaza such as Petri (1997) and Astrup and Dessus (2002). While Cali's (2011) working paper provided a partial methodological analysis of the symptoms of Dutch Disease in the Palestinian economy since 1994, the methodological approach used in this thesis was more comprehensive as it included many more factors and employed more advanced statistical tools for the extended period 1968 to 2007. In the advanced analysis of this extended period however, statistical theoretical and practical difficulties had to be confronted. The theoretical issues related to serial correlation and autocorrelations problems of simultaneity within the regression models, and problems relating to identifying the direction of causality. The practical difficulties related to the lack of data for the period of the first intifada including the methodological and political differences between the Israeli Central Bureau of Statistics (ICBS) and the Palestinian Central Bureau of Statistic (PCBS), which replaced the Israeli Central Bureau of Statistics (ICBS) in 1994, and the unregistered cross Israel-West Bank border transactions.

8.4 The Empirical Findings

The five main findings of the thesis are summarised here and then a more detailed presentation of these main findings is provided.

First, as GDP of the Palestinian economy was determined almost entirely by the exogenous constraint of foreign currency, the foreign currency gap determined growth as projected by the two-gap model, in other words a corner solution.

Second, and most likely the most important finding, in both time periods (before the Oslo Accord of 1994 and after the Accord) there were multiple indications that the economy of the West Bank and Gaza was infected by Dutch disease-like symptoms.

Third, a multiple regression analysis that considered lags indicated that only the exogenous annual finance of the balance of payment gap for given years was correlated with the changes in GDP in current years. However, there was no significant correlation between changes in GDP for given years and the finance of the balance of payment gap in previous years or in subsequent years. This result indicated that the direction of causality between foreign aid and GDP growth cannot be determined and that both directions most likely hold.

Fourth, it was found for both periods, 1968 to 1993 and 1994 to 1997, that foreign aid complemented the income derived mainly from Israel's exports and from compensation from work abroad. The proportion of income from Israel through exports and work abroad plus foreign aid remained almost constant over the years studied in this thesis.

Fifth, terror attacks and military clashes, primarily during the second intifada but also during the first, served as significant negative instruments for the Palestinian economy. However, the Dutch disease-like phenomena prevailed also in periods other than the intifada periods, and the multiple regressions did not identify a significant negative impact of the terror attacks in terms of Israeli casualties and GDP growth.

The more detailed discussion of these five main findings and their accompanying details are presented in the following discussion.

First, GDP of the West Bank and Gaza was almost entirely determined by exogenous factors. The empirical data indicated that the ratio of imports to total uses was approximately unchanged. Foreign aid, exports through Israel, and work in Israel are all exogenous. Thus, GDP of the West Bank and Gaza was determined almost solely by exogenous factors. Over the two time periods, very high positive correlations between the ratios of investments to GNP and of foreign aid to GNP were found, while the ratio of savings to GNP was negatively correlated with the previous ratios, and following 1994, savings was also negative, as expected from the two-gap model (see Figure 6.1). Thus, it can be concluded with confidence that the saving gap did not determine GDP and the balance of payment was the relevant determinant. Thus, it was not surprising to find an almost perfect correlation between the ratio of foreign aid to imports and the ratio of investments to imports (see Figure 6.2). The inability of the West Bank and Gaza to obtain FDI and loans is due to the political risk, as reflected in the very low reserve of foreign currency (see Figure 6.3). The inability to compete with imports due to the constrained local production supports this premise and was reflected in the almost stable ratio of import to total uses (see Figure 6.4). Thus, two conclusions were made: GDP of the West Bank and Gaza was determined almost solely by exogenous factors that finance the balance of payment deficit and the level of GDP was almost entirely determined by an effective balance of payment constraint rather than by a demand and supply macro-economic equilibrium model.

Second, the diagnosis of symptoms reflecting Dutch disease, before and after the Oslo Accord, was demonstrated by multiple phenomena. The major symptoms included:

- A negative correlation between the ratios of foreign aid to GNP and saving to GNP over both time periods, the dramatic decrease and negative savings and the large increase of foreign aid (observed in Figure 6.1) supported the hypothesis of Dutch disease.
- Figure 6.4 exposed significant negative correlations between the ratio of foreign aid/uses and per capita GDP both before and after the Oslo period. These negative correlations existed also during periods of relatively low military tensions and during the periods of the intifadas. Thus, it could not be concluded that foreign aid compensated for the decrease in GDP only due to the intifadas.

- Figure 6.5 exposed the positive correlation between foreign aid/uses, the unemployment rate, and the weight of the tradable sector over the entire period.
- Support for the hypothesis that Israeli policy constrained the economic development of the West Bank and Gaza was found in the result that foreign aid mainly compensated for the decrease in work available in Israel (see Figures 6.6 and 6.7). In general, the major cause of Dutch Disease is the appreciation of local RER. Thus, if the signs of Dutch disease is a negative correlation between foreign aid and exports due to an appreciation of the local RER of tradable local products. In the case of the West Bank and Gaza the local currency is mainly the Israeli shekel and exports are overwhelmingly to Israel and thus constraints on trade (physical and goods) with Israel rather than an appreciation of RER caused the symptoms of Dutch disease. However, again the direction of causality could not be definitely determined.
- Tests of correlation (Table 6.1) indicated that in both periods the ratio of foreign aid to gross national product was positively correlated with the ratios of private and public consumption and imports to gross national product while it was negatively correlated with the ratio of investments, exports plus compensation from work abroad (mainly in Israel) to gross national product. These correlations reaffirmed previous correlations that diagnosed symptoms of Dutch disease.
- The intensity of productive capital in terms of the ratio of net productive capital to GNP was extremely low and decreased during the period 1968 to 1993 (see Figure 6.8). This result is consistent with the claim that during this period, Israel caused the Palestinian economy to deteriorate by using Palestinian workers in Israel rather than generating work options in the tradable sectors within the occupied territories. The intensity of the productive capital rose only after the Oslo Accord. The two-gap model predicts that this will be the case, that is only exogenous finance of the balance of payment deficit can increase the level of capital required for sustainable growth.

- The ratio of non-productive capital (mainly in the construction sector) to GNP increased in almost all years (see Figure 6.8) In addition, after the Oslo Accord, the ratio of non-productive capital to GNP was positively correlated with the unemployment rate And unemployment rate was positively correlated with foreign aid. This correlation indicates that either economic difficulties or unemployment was the basis for attracting foreign aid, or vice versa.
- The significant high positive correlation between the unemployment rate and the ratio of foreign aid to gross national product that is exhibited in Figure 6.8 is one of the major indications of Dutch disease. Given the positive correlation between the ratio of unemployment and the ratio of non-productive capital to GNP, it is reasonable to conclude that this high correlation is due to the reduction in exports and work abroad (see Figure 6.7). The direction of causality between the unemployment rate and $(FTR+NCT)/uses$ could not be definitely determined.
- Statistical difficulties and the direction of causality were investigated using multiple factors regression analysis with and without lags. The dependent variable in this analysis was the annual growth of GDP in absolute and per capita terms, and independent variables were the level of the main macro annual figures in absolute and per capita terms. The regressions well explained the growth of GDP and serial correlation was not found. (see Table 6.3 and 6.4). The direction of causality could not be definitely determined.

GDP growth was found to be negatively correlated with the ratio of imports to uses (consistent with infection by Dutch disease). GDP growth was found to be positively correlated to the unemployment rate. It is reasonable to conclude that foreign aid only provided financial support for consumption and investments in the West Bank and Gaza. After 1993, no positive correlation between GDP growth and exports was found. This was explained as arising because of the low level of exports and the periods of constraint on the mobility of merchandise and people within and outside the borders of the occupied territories. A positive correlation between GDP growth and capital intensity was not found most likely because excess capacity of capital

arose with the political constraints imposed on the West Bank and Gaza. No significant correlation between GDP growth and the political environment was found. The impact of the political environment on annual GDP growth was considered by using the annual Israeli casualties as a proxy for political tension (Table 6.5). However, the basic data clearly indicated that the only periods of decline in GDP and per capita GDP were during the break between the intifadas (see Tables 5.1 and 5.2 and Figure 6.4).

It therefore has as to be acknowledged that while multiple results point to symptoms of Dutch disease, the direction of causality between foreign aid and the economic symptoms could not be determined definitively. It is likely that both directions hold, and foreign aid had simultaneously both negative and positive impacts. However, it is clear and well reflected in the findings that the harsh political situation in the region strengthened the negative impact of foreign aid to the West Bank and Gaza.

Finally, the impact of terror attacks on the Israeli and Palestinian security markets was examined by adoption of the Eldor *et al.* index of terrorism. This analysis indicated that the negative reaction to terror in the Israeli security market was much stronger than that in the Palestinian security market. This may indicate that the nascent and very small Palestinian security market did not well reflect the economic and political events.

8.5 The Contributions and Limitations of the Study and Suggestions for Future Studies

The original contribution of this thesis to research is three-fold. First, for the first time in almost forty years, empirical macro-economic data of the West Bank and Gaza were collected and analysed. The collection of the data under academically acceptable standards was not an easy task because of the Intifada periods as well as the widely different statistical methods and standards employed by the Palestinian and Israeli bureaus of statistics. Second, expressing and analysing GDP in terms of foreign currency constraints provides unique insight into the Palestinian economy as almost all foreign trade and exports of labour are conducted through Israel, and thus, almost all sources of foreign currency are exogenous to the Palestinian economy. Third, for the first time, the symptoms of Dutch disease of the Palestinian economy and its factors were theoretically and empirically analysed for the period 1968 to 2007. According to

my best knowledge, this thesis is the first to provide a comprehensive presentation related to the impact on economic outcomes of the external finance of the balance of payment that are typically identified with infection by Dutch disease. Such an approach can contribute to the analysis of Dutch disease in other developing countries, such as the Sub-Sahara countries.

The primary limitations of this study are the low reliability of the data due to the Intifada periods and the different statistical methods of the Israeli Central Bureau of Statistics (ICBS) and Palestinian's Central Bureau of Statistics (PCBS). In addition, due to the separation between Gaza, which is controlled by Hamas, and the West Bank, which is controlled by Fattah, my data collection ended in 2007. No doubt a longer period is needed to examine the effectiveness of foreign aid under the 1994 post-Oslo Palestinian authority regime.

Future studies may consider the following suggestions to overcome the difficulties encountered in this dissertation. First, collect separate data for the Gaza and West Bank. This separation may improve interpretation of the results as the level of economic activity of Gaza is much lower than that of the West Bank. In addition, the political relationship with Israel and the economic infrastructure of the West Bank is very different from that of Gaza. Second, it is suggested to extend the analysis by comparing the impact of foreign aid to the West Bank and Gaza to the impact of foreign aid on the economies of other developing countries. Adding cross-country analyses may compensate for the limitations of the time-serial analysis conducted in this study, as this suggested extension was beyond the scope of this thesis.

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