

POTENTIAL MERCHANDISE TRADE OF THE WEST BANK AND GAZA STRIP

Mahmoud El-Jafari¹

This research attempts to analyse the potential merchandise trade flows between the Palestinian Territories (PTs), the West Bank and Gaza Strip, and other markets, particularly those of the neighbouring markets, Egypt, Israel and Jordan. To accomplish that, two quantitative methods are employed to assess the potential merchandise trade flows of the PTs and other countries. They are: (1) trade similarity coefficients and (2) gravity trade equations for export supply and import demand. Using the empirical results of the quantitative models, three scenarios are conducted to project the PTs merchandise trade. Simulation results indicate that bilateral trade flows between the PTs and other countries, including the neighbouring markets, are expected to be expanded under unregulated trade, particularly, when non-tariff trade barriers (NTBs) imposed by Israel are removed. Yet, bilateral trade agreements signed between Israel, Jordan and Palestine in the years 1994 and 1995, include several NTBs. However, applying those agreements, without removing NTBs, is unlikely to lead to a large merchandise trade between the PTs and those markets.

1. INTRODUCTION

Prior to its occupation by Israel in 1967, politically as well as economically, the West Bank was an integral part of Jordan. On the other hand, the Gaza Strip was administered by Egypt, and was therefore, economically and politically linked to it. During the era that followed the British mandate and until 1967, no political or economic ties were held between the West Bank and Gaza Strip due to the establishment of the State of Israel which had separated the two areas geographically (El-Jafari, 1991; El-Musa and El-Jafari, 1995a).

After 1967, both Palestinian Territories (PTs), the West Bank and the Gaza Strip, were linked in a one-sided Customs Union (CU) with Israel. This CU entailed virtual one-way merchandise exports, that is from Israel to the

¹ Associate Professor of Economics at the Islamic University of Gaza.

PTs, with the exception of labour flows in the opposite direction. Yet, while the economies of the West Bank and the Gaza Strip became extensively linked to Israel, they remained isolated from each other. On the other hand, the economic ties of the West Bank and Gaza Strip with Jordan were subject to Israeli regulations and interests through the “Open Bridges Policy”. This has also caused trade between the Gaza Strip and Egypt to diminish. Israel did not allow the free passage of goods from Jordan to the PTs. Likewise, the Arab boycott to Israel indirectly limited the flow of goods from the PTs to Jordan and then to Arab countries. In accordance with the Arab boycott, goods produced in the West Bank or in the Gaza Strip using Israeli inputs, or produced in plants established after 1967, are not permitted into Jordan and therefore, the rest of the Arab World. The rules of the Arab boycott were stretched to include other goods, especially after Jordan disengaged from the West Bank in 1988 (El-Musa and El-Jafari, 1995a).

The levels of merchandise exports and imports, and thus the trade balance, show a similarity between the performance of the West Bank economy and that of Jordan. The proportion of merchandise exports to merchandise imports averages 0.30 in Jordan, Egypt and the West Bank, but only 0.2 in the Gaza Strip, while during the 1980s and until the mid-1990s this proportion ranged between 0.7 and 0.79 in Israel². Merchandise trade balance indicates that the performance of the West Bank economy is relatively better than that of the Gaza Strip and Jordan. While the proportion of merchandise trade deficit to GDP averaged 28 per cent in the West Bank, it averaged up to 40 per cent in the Gaza Strip and Jordan. In Israel and Egypt, the proportion of merchandise trade deficit to GDP averaged between 8 and 16 per cent, respectively. On the other hand, service exports, mainly labour exports to Israel, account for 70 per cent of the total exports. They have been usually utilised in financing Palestinian imports originating from Israel.

Merchandise exports from the Gaza Strip tended to increase annually between 1970 and 1981. They rose from US\$ 147 million in 1970 to the peak of US\$ 198 million in 1981. Since then, they showed a decreasing trend with

² The material and the results of this paper were summarised from an update study, which reported in detail the Potential Merchandise Trade of the West Bank and Gaza Strip, published by Palestine Economic Policy Research Institute-Jerusalem (El-Jafari; 1995c).

some variations, and by 1993, they reached US\$ 62.6 million. On the other hand, merchandise imports showed persistent increases, from US\$ 50 million

in 1970 to a two decade high of US\$ 412 million in 1987. Then, due to the reduction in the Gaza Strip income, merchandise imports were decreasing, particularly after 1988. In 1993, merchandise imports amounted to US\$ 353 million, 14 per cent lower than its level in 1987 (Statistical Abstract of Israel, 1994).

In the West Bank, merchandise exports rose from US\$ 30.5 million in 1970 to the peak of US\$ 228 million in 1988 and then fell gradually to US\$ 207 million in 1993. On the other hand, merchandise imports increased annually from US\$ 42.4 million in 1970 to US\$ 948 million in 1993 (Statistical Abstract of Israel, 1994).

The merchandise trade deficit has been offset by revenues from labour exports. Between 1970 and 1993, the West Bank and the Gaza Strip merchandise trade deficit increased by 63% and 41%, respectively. In contrast, the trade balance varied from one year to another due to the decline in labour export revenues. The trade balance changed from a surplus in 1990 to a deficit in the following year. In 1992, despite the increases in merchandise imports, the total trade deficit did not increase by the same amount due to an increase in labour exports (El-Jarafi 1994a; 1994b).

During most of the period after 1967, the balance of merchandise trade of the West Bank was characterised by a persistent deficit, which increased from US\$ 34 million in 1970 to a two-decade high of US\$ 411 million in 1987. This gap narrowed in 1988 and 1989 only to widen again to reach US\$ 741.5 million in 1993. The deterioration in the 1990s can be attributed to the annual increases in merchandise imports on one hand, and to the continuous reduction in merchandise exports, on the other (Statistical Abstract of Israel, 1994).

As in the West Bank, the merchandise trade balance of the Gaza Strip also showed an increasing deficit over the past three decades. In 1968-1981, the trade deficit increased erratically, while during 1983-1987, it doubled to US\$ 255 million 1987. Starting in 1987, this trend was reversed between 1988-1990. However, since 1991, the merchandise trade deficit started to increase again and by 1993 it reached the peak of US\$ 290 million.

The trade balance in goods with Jordan has been positive since 1967. The continual surplus was due to the increases in exports to Jordan until the

mid-1980s, where they reached the peak of US\$ 40 million in 1982. On the other hand, Jordan imports from Gaza were in the higher level in 1977, amounting to US\$ 41 million. In the 1990s, Jordan imports from the PTs were declining, and by 1993, they fell to US\$ 38 million. Israel remained the major trading partner receiving more than 70 per cent of total merchandise exports from the West Bank and Gaza Strip. At the same time, Israel has been the major supplier to the West Bank and Gaza Strip, for more than 90 per cent of the total merchandise imports originating from Israel. Consequently, the trade balance with Israel has been consistently unfavourable to the West Bank and Gaza Strip (Statistical Abstract of Israel, 1994).

The main purpose of this study is to analyse the potential merchandise trade flows between the PTs and other markets, particularly those of neighbouring countries, Egypt, Israel and Jordan. The performance of the Palestinian merchandise trade is examined, subject to the current capacity of the Palestinian economy and when the Israeli-imposed non-tariff barriers (NTBs) are removed.

2. ANALYTICAL FRAMEWORK

To accomplish the objective of this study, two quantitative methods are employed to assess the potential merchandise trade flows between the PTs and other countries. They are outlined below:

- (i) Trade similarity coefficients (TSCs). This test is used to examine the similarity between the exports of one country with the imports of another country (Michaely, 1962; Linneman and Beers, 1988; Beers and Biessen, 1995).
- (ii) Gravity trade equations for the export supply and the import demand. They are utilised to provide accurate and durable results. The specified and estimated models link the gravity trade model and the export supply and the import demand. In brief, the two methods are discussed in this section.

2.1. Trade Similarity Coefficients

Mathematically, trade similarity coefficients (TSCs) can be presented as follows:

$$T_{abt} = 1 - \frac{S | X_{ibt} - M_{iat} |}{2}$$

Where:

T_{abt} = Trade similarity coefficient. It examines the existence of similarity between the exports of country B and the imports of country A. Its magnitude ranges between zero and one, where:

$$1 \geq T_{abt} \geq 0 .$$

X_{ibt} = Proportion of the exports of the i^{th} commodity in country B to its total merchandise exports in period t.

M_{iat} = Proportion of the imports of the i^{th} commodity in country A to its total merchandise imports in period t.

This method simply compares the composition of the exports of country B and the imports of country A. The underlying economic logic of this method is the assumption that the composition of a country's exports represents its export supply, while the composition of its imports reflects the import demand. Thus, the flow of goods from country B to country A depends mainly on demand patterns, comparative advantages, product differentiation, and economies of scale. Hence, trade between the West Bank and Gaza and Israel and Jordan will be subject to the demand and supply conditions. This implies that Palestinian exports to Israel and Jordan will not be re-exported abroad as Jordanian and Israeli products. On the other hand, the West Bank and Gaza Strip merchandise imports that originate from Israel are the only commodities produced in and exported from Israel. In other words, importing through Israel will be terminated (Arnon and Weinblatt, 1995).

2.2. Gravity Trade Model of the Exports Supply and Import Demand: The Palestinian Case

The model is derived directly from the profit function of the exporting country and from the utility function of the importing country (for more details, see Appelbaum and Kohli, 1979; Kohli, 1978; Khan and Knight, 1988; Bergstrand 1985; Bikker, 1987 and Koo, Karemera and Taylor, 1994).

A generalised gravity trade model of the export supply is derived when the profit function of the export country is maximised, subject to several constraints such as NTBs and the monetary policies of Israel and Jordan. On the other hand, for the sake of simplicity, it was assumed that the objective of the i th imported country is to maximise its utility from consumption of m goods which are imported from the j th country. However, utility maximisation is subject to several constraints such as expenditures, NTBs, the monetary policies of Jordan and Israel and the economic distance between the importing and the exporting countries. The model can be presented as follows:³

$$X_{ijt} = F(GDP_{it}; GDP_{jt}; PX_{11t} \dots PX_{ijt}; D_{ijt}; REXG_t; Z_{ijt}) \quad (1)$$

$$M_{ijt} = F(GDP_{it}; GDP_{jt}; PM_{11t} \dots PM_{ijt}; Z_{ijt}; REXG_t) \quad (2)$$

where:

X_{ijt} and M_{ijt} = Export and import values respectively from the i th country to j th country.

GDP_{it} and GDP_{jt} = The value of Gross Domestic Product (GDP) in US dollars in the i th country and the j th country, respectively.

PX_{ijt} = Export price level of the i th country in the j th country.

PM_{ijt} = Import price level of the i th country in the j th country.

$REXG_t$ = Relative real exchange rates of the indirect relationship between the Jordanian dinar and the Israeli new shekel (NIS) in period t . It was calculated as follows:

$$REXG_t = [R_{ist}/R_{jdt}]/(P_{jdt})/(P_{ist})$$

where:

R_{ist} = Nominal value of US dollar in the Israeli currency in period t .

R_{jdt} = Nominal value of US dollar in the Jordanian currency in period t .

P_{jdt} = Consumer price index of Jordan in period t .

P_{ist} = Consumer price index of Israel in period t .

³ Mathematical derivations of the gravity trade model of the export supply and import demand are not presented here. For more details see the appendix.

P_{ust} = Consumer price index of US period t .

Z_{ijt} = A variable introduced to identify the difference in the standard of living between the i^{th} and j^{th} countries where:

$$Z_{ijt} = (\ln PGDP_{it} - \ln PGDP_{jt})^2$$

$PGDP_{it}$ and $PGDP_{jt}$ = per capita GDP _{t} in the i^{th} and j^{th} countries.

D_{ijt} = Dummy variable has been taken as proxy for the NTBs imposed by the j^{th} importing country in the t^{th} period to restrict the flow of the Palestinian merchandise exports to its market in the year t . $r = 1$, for the period 1982-1987, otherwise zero $r = 2$, for the period 1988-1992, otherwise, zero. For more details see the appendix.

Equations (1) and (2) provide the theoretical framework for the flow of merchandises from/and into the West Bank and Gaza Strip during 1968-1993. The influences of the NTBs are the most important factors in this study to conduct projections for the Palestinian merchandise trade. Thus, the consequences of removing the NTBs imposed by Israel and Jordan will be evaluated. Also, the expected impacts of the Israeli and Jordanian monetary policies on the Palestinian merchandise trade will be assessed. To accomplish that, a relative real exchange rate variable is included in the model. It is measured by dividing the real value of the US dollar in the Israeli currency by the real value of the US dollar in the Jordanian currency. Deriving the real exchange rates is adopted from Bautista, 1987.

The model includes several advantages over the models specified and estimated by Geraci and Prewo, 1977; Anderson, 1979; Geraci, 1982; Abrams, 1980; and recently by Sanso, Cuairan and Sanz, 1993 and koo, Karemera and Taylor, 1994. Economic factors such as monetary policies, and export and import prices are included to provide the model with theoretical bases. For example, import and export prices have been inserted in the model to evaluate the substitution effects in the international markets. On the other hand, the model differs from that developed by Linneman and Beers, 1988 and recently by Beers and Biessen, 1995. In those studies, TSCs were included in the gravity trade model as explanatory variables. The model specified in this study is estimated, using time-series data and/or pooling data without inserting TSCs variables in it. In fact, in the recent study of Beers and Biessen, 1995, most of the coefficient estimates of the TSCs are statistically insignificant. Actually, TSCs and gravity trade models are two

separate and independent approaches utilised in projecting potential merchandise trade between any two countries.

2.3. Gravity Trade Models of the Export Supply and Import Demand: The Jordanian Case

In this section, the model is developed to examine the potential merchandise trade with countries other than Israel and Jordan. Equations (1) and (2) are limited to simulating the Palestinian merchandise trade under unrestricted conditions with Jordan and Israel. Therefore, a new gravity trade model will be specified and estimated. To accomplish that, I propose to specify and estimate the Jordanian gravity trade model of the export supply and import demand, following the same procedure utilised in deriving the Palestinian gravity trade model of the export supply and import demand. To project Palestinian merchandise trade flows with countries which have trade relationships with Jordan, pooling data (cross section data combined with time series data) are employed in estimating the model. This step has been taken due to the similarities between the performance of the Jordanian economy and that of the West Bank and Gaza. They are outlined below⁴:

- (i) Proportions of the GDP to the GNP range between 65% to 70% in the West Bank and Gaza Strip. In Jordan, they approximated 70%. The two economies depend on remittances from exporting labour to finance merchandise imports.
- (ii) Differences in per capita gross national disposable income (GNDI) in the three regions are very narrow compared with those in Egypt and Israel.
- (iii) Proportions of merchandise trade balance to the GDP are relatively similar.
- (iv) Since 1967, the Jordanian dinar is one of the major currencies circulated in the West Bank and Gaza. In addition, the Jordanian currency has been approved as a major one by the Palestinian National Authority.
- (v) The commodity distribution of exports are quite similar in the three regions.

⁴ For more details see El-Jafari, 1995c.

(vi) Both Palestine and Jordan suffer continuously from the annual increases in the merchandise trade deficits, particularly over the period 1985-1995.

Thus, gravity trade equations for the Jordanian export supply and import demand can be presented as follows:

$$X_{ikt} = F(\text{GDP}_t ; \text{GDP}_{ikt} ; Z_{ikt} ; \text{PX}_{11t} \dots \text{PX}_{ikt} ; \text{REXG}_{ikt}) \quad (3)$$

$$M_{ikt} = F(\text{GDP}_t ; \text{GDP}_{ikt} ; Z_{ikt} ; \text{PM}_{11t} \dots \text{PM}_{ikt} ; \text{REXG}_t) \quad (4)$$

Where:

X_{ikt} = Jordan merchandise exports to the i^{th} country in the K^{th} group in period t . $K = A, \dots, E$. Group A includes: Egypt, Syria, Iraq and Lebanon. Group B includes: Saudi Arabia, Kuwait, Bahrain, Qatar and United Arab Emirates. Group C includes: US, Japan and Korea. Group D includes: Belgium, France, Netherlands, Germany, UK, Italy, and Greece. Group E includes: Turkey, Indonesia, Malaysia, Romania, China, India and Pakistan.

M_{ikt} = Jordan merchandise imports from the i^{th} country in the K^{th} group in period t .

GDP_t = Gross national product of Jordan in period t .

GDP_{ikt} = Gross national product of the i^{th} country in the K^{th} group in period t .

Z_{ikt} = Economic distance between Jordan and the i^{th} country in the K^{th} group in period t .

REXG_{ikt} = Real exchange rates of the i^{th} country in the K^{th} group in period t .

The value of US Dollar in the currency of the i^{th} country. It could be calculated as: $\text{REXG}_{ikt} = (R_{ikt})(P_{ust}/P_{ikt})$.

R_{ikt} = Nominal exchange rates of the i^{th} country in the K^{th} group in period t .

P_{ikt} = Consumer price index of the i^{th} country in the K^{th} group in period t .

REXG_t = Relative real exchange rates of the value of US dollar in the Jordanian currency in period t . It could be calculated as; $\text{REXG}_t = (R_{jdt})(P_{ust}/P_{jdt})$.

P_{xikt} = Export price level in the i^{th} country in the K^{th} group in period t .

P_{mikt} = Import price level in the i^{th} country in the K^{th} group in period t .

3. ESTIMATION PROCEDURES AND DATA SOURCES

The system of equations (1)-(4) are estimated in log-form using Zellner's Seemingly Unrelated Regression (SUR) model. This model is efficient in situations where the equations of each system are closely interrelated with the possibility of the error terms of one equation being correlated with the error terms of another. These equations contain some predetermined variables which are common to each equation and the disturbance terms of the equation are correlated. The disturbance terms of each equation represent the effects of all variables not explicitly included in the equations such as lack of information, export promotion, and communication. Fulfilling quality regulations may lead to deviations in the merchandise flows. Thus, there are some missing variables common to all equations. This omission may lead to contemporaneously related error terms across the export and import equations, but independent over time (Greene, 1993).

Data for constructing the gravity trade model of the export supply and import demand was gathered from various published and unpublished primary sources. Data on the West Bank and Gaza Strip merchandise exports and imports, and gross domestic product were obtained from Statistical Abstract of Israel and Judea, Samaria and Gaza Area Statistics. Merchandise exports and imports of Jordan and Israel and other countries trading with Jordan, export and import price index, and consumer price index of Jordan, Israel, US, Egypt and other countries were gathered from International Trade Statistics. Exchange rates, the value of US dollar with respect to the Israeli, Jordanian and other countries' currencies were obtained from International Financial Statistics. Exported and imported commodities from and into the West Bank and Gaza Strip were collected by the author from the files of Central Bureau of Statistics in Jerusalem. US currency has been used as a measure of value.

4. EMPIRICAL RESULTS

In this section, the empirical results of TSCs are discussed first. Then, the estimated equations of the gravity trade model will be analysed.

4.1. Trade Similarity Coefficients

In Table (1), TSCs and the minimum amounts of the Palestinian merchandise exports and imports are reported. The empirical results are calculated by comparing the composition of the Palestinian exports with that of Egyptian, Israeli and Jordanian merchandise imports in the four-digit Standard

International Trade Classification (SITC) for items in which trade was at least US\$ 0.5 million in 1992. Similarly, under the four-digit SITC, the commodity distribution of Palestinian imports is compared with those of Egyptian, Israeli and Jordanian merchandise exports. Around 25 commodities exported from the PTs are compared with the Egyptian, Israeli and Jordanian merchandise imports reported in the International Trade Statistics, 1993. At the same time, 60 commodities imported into the West Bank and Gaza Strip are compared with commodities exported from Egypt, Israel and Jordan. For more details see El-Jafari, 1995c. The composition of the Palestinian exports is relatively similar and identical to those imports of Jordan and Israel. However, the West Bank and Gaza Strip merchandise exports differ from the Egyptian merchandise imports. Based on 1992 statistics, while the Palestinian exports to Jordan could average US\$ 116 million, they approach US\$ 108 million to Israel. Contrary to that, Palestinian exports to Egypt will only amount to US\$ 15 million.

Although the analysis is devoted only to comparing merchandise trade flows from/and into the West Bank and Gaza to/and from Egypt, Israel and Jordan, it could be generalised and expanded to other countries. The analysis has been limited due to the fact that Palestinian merchandise trade flows will be linked mainly with and through those three border countries during the transitional period 1995-2000. The analysis assumes that Palestinian exports to the neighbouring markets will be directed to the local utilisation. This implies that Palestinian exports to those markets will not be re-exported abroad and trade activities based on subcontracting between Israeli agents and Palestinian firms will cease. In other words, Palestinian merchandise exports to Egypt, Israel and Jordan will be directed toward final consumption and utilisation.

Although the value of Palestinian merchandise exports in 1992 and the projected merchandise exports are even, the commodity distributions of actual and projected exports are different. In fact, when the Palestinian merchandise exports are matched with the import demand of neighbouring markets, they will be integrated with the industrial sector and the whole economy. Further, important linkages will be developed between the industrial sector and other economic sectors. Citrus, fruits, vegetables, eggs and dairy products are the principal agricultural products that have potentials to be exported to Jordan and Israel. Also, clothes, footwear and carpets, the main manufactured products, have potentials to be exported to Egypt, Israel and Jordan.

Table 1
Trade Similarity Coefficients (TSCs) and Potential Amounts of
Exports and Imports
(US\$ million) Based on 1992 Statistics

| Country | Palestinian Merchandise Exports with Respect to Merchandise Imports of | | Palestinian Merchandise Imports with Respect to Merchandise Exports of | |
|---------|--|---------------------------------|--|---------------------------------|
| | TSCs | Potential Amounts of Exports | TSCs | Potential Amounts of Imports |
| Egypt | 0.06 | 15* | 0.33 | 200 |
| Israel | 0.46 | 108 | 0.58 | 325 |
| Jordan | 0.57 | 116 | 0.53 | 176 |
| Total | | 239 | | 711 |

Note: *Potential amounts of imports or exports are calculated by multiplying the TSCs by the minimum amounts of imports or exports expected to flow between exporting and importing countries. Minimum amounts of imports and exports are calculated by comparing the composition of exports of the *i*th country with the composition of imports of the *j*th country. Lower level of the imports and exports of each commodity in the *i*th and *j*th countries is considered the minimum amounts of exports or imports.

On the import side, the composition of Palestinian imports is more similar to that of Israeli exports than to those of Jordanian and Egyptian exports. Palestinian merchandise imports from the neighbouring markets are expected to reach US\$ 711, approximating 57 per cent of the total imports (US\$ 1230 million in 1992). Consequently, the rest of the merchandise imports, 43 per cent, amounting to US\$ 519 million are expected to originate from other sources. However, based on the 1992 statistics, only about 10 per cent of Palestinian merchandise imports came from countries other than Israel and Jordan. It is expected that under unrestricted trade, Palestinian merchandise imports will be redistributed between several suppliers. Israel will remain the major trading partner to the PTs, only 26 per cent of total Palestinian merchandise imports will originate from Israel, amounting to US\$ 325 million. In 1992, Palestinian merchandise imports from Israel approximated US\$ 1036 million. Jordan and Egypt will supply the West Bank and Gaza Strip 14 and 16 per cent of total merchandise imports, respectively. This analysis provides an optimistic picture of the potential merchandise trade of the West Bank and Gaza Strip. Importing from Israel will be replaced by imports originating from Jordan, Egypt and other countries. On the other hand, potential merchandise trade deficit of the West Bank and Gaza with Israel and Jordan is expected to average US\$ 472 million, 36 per cent lower than its actual level (US\$ 745 million in 1992). It

is obvious that direct importing to the West Bank and Gaza Strip will reduce import values and eventually will narrow the merchandise trade deficit.

4.2. The Estimated Equations of the Gravity Trade Model

Tables 2-5 present t-statistics in brackets and the estimated elasticities at the mean in the long-run from the gravity trade equations of the export supply and import demand. Most estimated parameters have the expected signs and are statistically significant. The empirical results of the Palestinian export supply and import demand equations are discussed first. Then, the estimated export supply and import demand equations of Jordan are analysed.

4.2.1. Gravity Trade Equations of the Palestinian Export Supply and Import Demand

The estimated equations in Table (2) indicate that Palestinian merchandise exports are highly sensitive to prices that prevailed in Jordan than export prices in Israel. For example, the decrease in the Israeli prices by one per cent is likely to reduce the flow of Palestinian merchandise exports to that market by 0.35 to 0.61 per cent. In contrast, merchandise exports to Jordan are expected to fall by 0.77 to 2.87 when prices in this country decrease by one per cent.

In the empirical model, most of the estimated coefficients of the GDP variables are significant and with right signs. The results signify that the expansion in the Palestinian GDP is accompanied by increases in the merchandise exports to Israel. In contrast, merchandise exports to Jordan are not affected by the GDP of this country. On the other hand, the coefficient estimates of the economic distance variables emerged statistically significant. Likewise, merchandise trade flows are highly determined by NTBs. Also, the relative real exchange rates do well; coefficient estimates have right signs and are usually statistically significant.

Table 2
Gravity Trade Equations of the Palestinian Export Supply

| Explanatory variables | Gaza Strip Exports to (US\$ million) | | West Bank Exports to (US\$ million) | |
|------------------------------|---|--------|--|--------|
| | Israel | Jordan | Israel | Jordan |
| Export price level in Jordan | -1.64* | 2.87 | 0.85 | 0.77 |

| | | | | |
|-----------------------------------|------------------|------------------|-----------------|------------------|
| | (2.7) | (3.4) | (3.86) | (2.4) |
| Export price level in Israel | -0.61 (1.15) | -0.77 (1.1) | 0.35 (2.03) | 0.25 (0.96) |
| GDP of the West Bank | --- | --- | 0.87 (7.2) | -0.06 (0.31) |
| GDP of Gaza Strip | 0.79 (0.86) | -0.06 (0.14) | --- | --- |
| GDP of Jordan | --- | -0.82 (1.5) | --- | 0.03 (0.116) |
| GDP of Israel | -0.8 (1.05) | --- | 0.02 (0.15) | --- |
| Economic distance Z_{ijt} | -0.13 (2.14) | -0.13 (1.91) | 0.008 (2.4) | -0.04 (1.95) |
| Relative real exchange rates | 0.33 (1.95) | 0.33 (1.95) | -0.03 (2.26) | 0.36 (1.74) |
| NTBs imposed between 1981-1987 | --- | --- | -10.04 (1.1) | -9.6 (1.44) |
| NTBs imposed between 1988-1992 | -35.37 (1.86) | -4.01 (-0.62) | -65.9 (4.8) | -22.3 (2.5) |
| Constant | -28.7 (-0.32) | -28.4 (3.42) | -8.7 (0.95) | -12.04 (-1.5) |
| R ² | 0.79 | 0.74 | 0.97 | 0.94 |

Note: * The estimated coefficients are the estimated elasticities at the mean. Numbers in parentheses are T-test Statistics. NTBs = Non-Tariff Trade Barriers.

The estimated equations of the gravity trade model of the import demand point out that the import substitution strategy (ISS) is not applied in the West Bank and Gaza (See Table 3). An increase in the GDP of the PTs shows insignificant reduction in merchandise imports. In contrast, the West Bank and Gaza Strip merchandise imports are highly influenced by the GDP of Israel and Jordan. These results confirm the importance of the Palestinian markets to Israel and Jordan. Also, the monetary policies of Israel and Jordan show significant impacts on the Palestinian merchandise imports originating from these markets. An increase in the relative real exchange rates by one per cent is likely to raise the West Bank and Gaza Strip merchandise imports by 0.48 and 0.62 per cent, respectively. On the other hand, the West Bank merchandise imports from Jordan will increase by 0.32 per cent when the relative real exchange rates decrease by one per cent.

4.2.2. Gravity Trade Equations of the Jordanian Export Supply and Import Demand

The parameter estimates presented in Tables 4 and 5 seem to correspond fairly reasonably and relatively similarly to what has been found in the above section. The coefficient estimates of the GDP point out that the increases in Jordan GDP are not likely to stimulate and expand merchandise exports. On

the other hand, Jordan merchandise exports are statistically significant by the GDP of the importing countries, particularly Gulf States, Arab Common Market countries and other Muslim countries. In addition, merchandise exports from Jordan are highly affected by the economic distance, import prices and the monetary policies of the Arab Common Market countries. Similar variables have influenced the Jordanian exports to Turkey, Indonesia, Malaysia, Pakistan, China, India and Romania.

On the import side, merchandise imports to Jordan are not affected by the GDP of this country. On the other hand, Jordanian imports from the Arab Common Market Countries are determined by the following variables: economic distance, export prices of these countries, import prices in Jordan. The monetary policy of Jordan through the relative real exchange rates have affected only merchandise imports from US, Japan, Korea, Turkey, Indonesia, Romania, and Pakistan.

Table 3
Gravity Trade Equations of the Palestinian Import Demand

| Explanatory Variables | Gaza Strip Imports from (US\$ million) | West Bank Imports from (US\$ million) | |
|--|--|---------------------------------------|-----------------|
| | Israel | Israel | Jordan |
| Export price level in Jordan | | 0.67* (3.3) | -0.35 (1.41) |
| Export price level in Israel | -0.51 (-1.32) | -0.48 (1.55) | 0.10 (0.31) |
| GDP of the West Bank | | 0.06 (0.45) | 0.10 (0.73) |
| GDP of Gaza Strip | 0.15 (0.25) | --- | --- |
| GDP of Jordan | --- | --- | 0.64 (4.3) |
| GDP of Israel | 0.25 (0.43) | 0.67 (3.8) | --- |
| Economic distance between West Bank and Gaza and Jordan and Israel | -0.53 (1.02) | 0.01 (0.42) | 0.05 (1.23) |
| Relative real exchange rates | 0.62 (2.8) | 0.48 (2.87) | -0.32 (1.7) |
| Constant | -4.24 (-0.03) | --- | 6.7 (6.04) |
| R ² | 0.83 | 0.95 | 0.86 |

Note: Numbers in parentheses are T-test Statistics. * The estimated coefficients are the estimated elasticities at the mean. NTBs = Non-Tariff Trade Barriers.

Empirically, the export price index variables have plausible and significant effects on the merchandise imports; coefficient estimates suggest that Jordanian merchandise imports are highly sensitive to changes in the import prices. Moreover, these results denote that the elasticity of substitution among the imported goods exceeds unity. Jordan as well as the West Bank and Gaza Strip are small open economies, where trade flows are subject to prices predominant in the international markets.

Table 4
Gravity Trade Equations of the Jordanian Export Supply

| Explanatory Variables | Jordanian Exports to (US\$ million): | | | | |
|--|--------------------------------------|------------------|--------------------|------------------|-----------------|
| | E | D | C | B | A |
| GDP of Jordan | 1.68* (1.06) | 0.72 (0.36) | 0.9 (1.65) | 0.43 (0.37) | 0.65 (0.57) |
| GDP of the importing country from Jordan | 1.41 (2.21) | 0.32 (1.7) | 0.33 (1.4) | 0.95 (4.87) | 0.46 (2.05) |
| Economic distance between Jordan and the importing country | 0.59 (2.83) | 0.006 (0.03) | 0.94 (1.4) | 0.04 (0.1) | 0.83 (10.2) |
| Import price level in the importing country | 1.22 (2.89) | 0.13 (0.07) | 0.21 (1.5) | 1.45 (1.32) | 0.91 (3.8) |
| Alternative import prices | 1.0 (1.89) | -0.72 (0.65) | -0.13 (1.18) | -1.2 (1.3) | -0.29 (0.35) |
| Relative real exchange rate of the importing country | -0.009 (3.06) | -0.089 (1.53) | -0.0044 (0.015) | -0.028 (0.03) | -0.27 (4.42) |
| Constant | 149.44 (1.6) | 3.6 (0.09) | -10.87 (1.23) | 7.36 (0.12) | 23.9 (0.19) |
| R ² | 0.97 | 0.87 | 0.87 | 0.97 | 0.95 |
| DW | 2.07 | 2.18 | 2.2 | 2.3 | 1.7 |

Note: Numbers in parentheses are T-ratio Statistics. The estimated coefficients are the estimated elasticities at the mean. A, B, C, D and E are defined above.

Table 5
Gravity Trade Equations of the Jordanian Import Demand

| Explanatory Variables | Jordanian Imports from (US\$ million) | | | | |
|--|---------------------------------------|------------------|-----------------|------------------|-------------------|
| | E | D | C | B | A |
| GDP of Jordan | 2.94 (0.27) | 2.45 (0.5) | 0.33 (0.5) | 1.62 (0.35) | 0.0023 (0.024) |
| GDP of the exporting country to Jordan | 1.34 (2.5) | 0.59 (2.12) | 0.97 (4.74) | 0.61 (2.2) | -0.02 (0.61) |
| Economic distance between Jordan and the exporting country | -0.4 (1.5) | -0.05 (0.117) | -0.35 (1.84) | -0.77 (1.1) | 0.55 (9.61) |
| Export price level prevailing in the exporting country to Jordan | 23.5 (4.5) | 5.7 (2.2) | 1.03 (1.15) | -3.87 (1.77) | -1.76 (2.61) |
| Alternative export prices | 1.75 (1.87) | 2.52 (1.36) | 1.6 (2.74) | 2.64 (1.72) | -1.91 (5.62) |
| Relative real exchange rates in Jordan | -45.3 (2.3) | -8.6 (0.85) | -2.47 (1.98) | -7.52 (0.61) | 0.21 (1.75) |
| Constant | 560.8 (0.66) | -183.5 (0.13) | 94.23 (0.52) | 156.12 (0.38) | 50.78 (0.25) |
| R ² | 0.97 | 0.99 | 0.95 | 0.84 | 0.95 |
| D.W. | 1.73 | 1.99 | 1.62 | 2.08 | 1.7 |

Note: Numbers in parentheses are t-ratio statistics. The estimated coefficients A, B, C, D and E are defined above.

5. SIMULATIONS OF THE PERFORMANCE OF THE PALESTINIAN MERCHANDISE TRADE SECTOR

In this section, the empirical results presented in Tables 1 to 6 in this study are employed to simulate the potential merchandise trade of the West Bank and Gaza Strip during the transitional period, 1995-2000. Three simulations are conducted. The assumptions for the simulations are outlined first and then the simulation results will be discussed and evaluated. The economic conditions of 1992 are used as the basis for all projections. The following are the three scenarios utilised in projecting merchandise trade flows from and into the West Bank and Gaza Strip.

- (i) Trade flows depend mainly on the market forces prevalent in the importing and exporting countries. In other words, the import demand of the importing country should coincide with the export supply of the exporting country and vice-versa.
- (ii) Merchandise trade flows between the PTs and Israel and Jordan are examined after removing Israeli-imposed NTBs. Under this scenario, the Palestinian economy will undergo further liberalisation in the next five years, similar to that in the period 1968-1983. During that period, trade with Israel and Jordan was regulated rather than restricted. In contrast, during the period 1983-1987, trade with Israel became relatively restricted compared to trade with Jordan, and from 1987 up until 1994, Israel maintained a restricted trade policy toward the PTs (El-Jafari, 1995c).
- (iii) Palestinian merchandise trade with countries other than Israel and Jordan will be subjected to unrestricted trade when all NTBs imposed by Israel are removed. Consequently, indirect trade through Israel will cease.

In general, there are a number of issues that have been dealt with in modelling the impact of free trade. NTBs have been incorporated into the model to measure the effect of restricted trade on the Palestinian economy. The impact of removing the NTBs is modelled in the above scenarios. In addition, an important assumption in the analyses of unrestricted trade is the response of monetary policies of Israel and Jordan. However, monetary authorities in the PTs will not function during the transitional period.

5.1. Potential merchandise trade flows of the PTs: Scenario I

Table 6 summarises the anticipated future performance of the Palestinian merchandise trade sector under the first scenario. Potential merchandise exports and imports of the PTs are calculated on the basis of TSCs. Although merchandise exports will be allocated mainly to border markets, they will decline by 16% compared to their level in 1992. Accordingly, merchandise trade flows are determined by the export supply conditions in the PTs and the import demand in each importing market. As a result, merchandise exports to Jordan will double four times. On the other hand, merchandise exports to Israel will fall by 58% compared to their level in 1992. These results suggest that trade relationships between PTs and Israel based on subcontracting and re-exporting Palestinian merchandise products to the Israeli export markets will be suspended completely. At the same time, merchandise exports to Egypt will not exceed US\$ 15 million, approximating 6% of total merchandise exports from the PTs.

Merchandise imports to the West Bank and Gaza Strip will be reallocated. From Jordan, they are expected to increase from US\$ 9.5 million to US\$ 186 million. Likewise, merchandise imports from Egypt will come close to US\$ 200 million. In contrast, merchandise imports originating from or through Israel will fall sharply from US\$ 1103 million to US\$ 325 million, a decrease of 70%. In contrast, merchandise imports from Israel will fall sharply from US\$ 1103 million to US\$ 325 million, a decrease of 70%.

The merchandise trade deficit with Israel will drop from US\$ 854 million (under restricted trade) to US\$ 217 million (under unrestricted trade). Contrary to that, the merchandise trade surplus with Jordan (US\$ 18 million) will be reversed down to a large deficit of US\$ 70 million under unrestricted trade. With Egypt, it is expected to average US\$ 185 million. Accordingly, the PTs merchandise trade deficit with the border markets will fall from US\$ 825 million under restricted trade to US\$ 472 million, a decrease of 42%, under unrestricted trade.

Table 6
Potential Merchandise Trade Flows Between the West Bank and Gaza and Egypt, Israel, and Jordan in 1992
(US\$) million

| | Actual Exports to | | | Actual Imports from | | | Potential Exorts from | | | | Potential Imports from | | | | Merchandise Trade Balance | |
|--------------------|-------------------|--------|--------|---------------------|--------|-------|-----------------------|--------|-------|-------|------------------------|--------|-------|-------|---------------------------|---------------------|
| | Jordan | Israel | Total | Jordan | Israel | Total | Jordan | Israel | Egypt | Total | Jordan | Israel | Egypt | Total | Restricted Trade | Unrestrictede Trade |
| West Bank | 25.60 | 185.20 | 210.80 | 9.50 | 774.50 | 784 | 79.2 | 80 | 9 | 168 | 123 | 228 | 130 | 481 | -573 | -313 |
| Gaza Strip | 11.90 | 63.80 | 75.70 | --- | 328.5 | 328.5 | 36.8 | 28 | 6 | 71 | 63 | 91 | 70 | 230 | -252 | -159 |
| West Bank and Gaza | 27.50 | 249.00 | 286.50 | 9.50 | 1103 | 1112 | 116 | 108 | 15 | 239 | 186 | 325 | 200 | 711 | -825 | -472 |

Note: Potential exports and imports were calculated based on Trade Similarity Test.

5.2. Potential Merchandise Trade Flows of the PTs: Scenario II

From the structural equations reported in Tables 2 and 3, Palestinian merchandise exports are anticipated to increase by 47% under unrestricted trade when NTBs imposed by Israel are removed. At any rate, Israel will remain the major outlet for Palestinian merchandise exports, absorbing more than 30 per cent of total exports. The trade patterns which prevailed between the PTs and the neighbouring markets at the early 1980s will continue functioning. The trade deficit is anticipated to decline from US\$ 938 million to US\$ 801 million, a decrease of 13%.

Despite the fact that total merchandise imports will not change they will be reallocated, when NTBs imposed by Israel on Palestinian imports are removed⁵. Mainly, trade will be created with Jordan and Egypt and diverted from Israel. Yet, due to the NTBs still imposed by Israel on importing from Jordan and Egypt, importing from or through Israel will continue to be preferable to Palestinian importers.

5.3. Potential Merchandise Trade of the PTs: Scenario III

It is anticipated, under this scenario, that the mobility of merchandise trade flows from and into the PTs will be unrestricted. Merchandise exports will be channelled to the export markets, other than Israel and Jordan. On the import side, merchandise imports will originate directly from several markets other than Israel. Based on the estimated equations presented in Tables 4 and 5, while merchandise exports from the PTs to countries other than Israel and Jordan will amount to US\$ 155 million, merchandise imports will reach US\$ 720 million, a trade deficit of US\$ 565 million⁶.

⁵ Merchandise imports in PTs were found to be highly determined by gross national disposable income, where the correlation coefficient approximated 0.9 (for more details see El-Jafari, 1993; 1994a).

⁶ The estimated equations presented in Tables 4 and 5 are utilised to project the Pts trade flows with countries other than Israel and Jordan by replacing the macroeconomic variables of Jordan with those of the West Bank and Gaza such as GDP, economic distance, etc, based on 1992 estimates.

Table 7
Potential Palestinian Trade with Countries other than Israel and Jordan
Based on 1992 Estimates

| Country | Exports | Imports | Merchandise Trade Balance |
|------------------------------|---------|---------|---------------------------|
| A- Arab Common Market | 84.50 | 316.8 | -232.4 |
| Egypt | 4.60 | 30.90 | -26.3 |
| Syria | 12.70 | 17.90 | -5.2 |
| Iraq | 57.00 | 243.00 | -186 |
| Lebanon | 10.10 | 24.90 | -14.8 |
| B- Gulf Co-operation Council | 22.80 | 10.5 | 12.3 |
| Saudi Arabia | 14.20 | 7.6 | 6.6 |
| Kuwait | 0.15 | 0.2 | -0.05 |
| Bahrain | 1.52 | 0.56 | 0.96 |
| Qatar | 1.62 | 0.46 | 0.69 |
| United Arab Emirates | 5.30 | 1.2 | 4.1 |
| C- Industrial Countries | 7.10 | 80.5 | -73.4 |
| US | 2.50 | 46.7 | -44.2 |
| Japan | 2.30 | 24.98 | -22.7 |
| Korea | 2.30 | 8.85 | -6.6 |
| D- European Union | 7.30 | 121.9 | -114.6 |
| Belgium | 0.158 | 9.4 | -9.1 |
| France | 1.58 | 24.2 | -22.62 |
| Netherlands | 1.51 | 9.96 | -8.5 |
| Germany | 1.96 | 35.38 | -33.42 |
| UK | 0.91 | 20.4 | -19.5 |
| Italy | 0.91 | 20.8 | -19.4 |
| Greece | 0.35 | 1.8 | -1.5 |
| E- Other Countries | 33.32 | 47.95 | -14.6 |
| Turkey | 3.13 | 18.5 | -15.4 |
| Indonesia | 5.61 | 2.9 | 2.71 |
| Malaysia | 1.75 | 3.8 | -2.10 |
| China | 2.7 | 9.9 | -7.2 |
| India | 18.3 | 5.9 | 12.4 |
| Pakistan | 1.13 | 0.92 | 0.21 |
| Romania | 0.7 | 6.02 | -5.33 |
| TOTAL | 155 | 720 | -565 |

Iraq, Saudi Arabia, Syria, Lebanon, United Arab Emirates and Indonesia are the major importers of the PTs absorbing more than 70 per cent of the total merchandise exports allocated to the exporting markets other than Israel and Jordan. On the other hand, Egypt, Lebanon, Syria, Iraq, the US, Japan, Korea, the European Union and Turkey are anticipated to be the major exporters to the PTs, supplying more than 74% of total imports from countries other than Israel and Jordan.

6. EXPECTED GAINS OF UNRESTRICTED TRADE TO THE WEST BANK AND GAZA STRIP

Table 8 summarises the expected gains that the West Bank and Gaza Strip would obtain from unrestricted trade with countries other than Israel and Jordan. Although two trade patterns are expected to characterise the PTs merchandise trade, Jordan and Israel will continue to be major trade partners. Israel and Jordan will demand between 60 to 70 per cent of total PTs merchandise exports. On the import side, more than 40 per cent of the merchandise imports will originate from Israel and Jordan. As a result, the trade deficit of the PTs will be narrowed by US\$ 277 million, the difference between the potential trade deficit of US\$ 663 million as shown in Table 8 and the actual trade deficit of the West Bank and Gaza Strip (US\$ 940 million in 1992). The potential reduction in the trade deficit approximates 10 per cent of the GDP.

Table 8
The Expected Gains of Unrestricted Trade to the West Bank and Gaza Strip

| Main Economic Indicators | Restricted Trade with Israel & Jordan 1: I | Unrest Trade with Egypt & Israel & Jordan 2: II | Unrest Trade with Israel & Jordan 3: III | Unrest Trade with Countries as other than Israel & Jordan 4: IV | Unrestricted Trade with the World 5: V |
|--|---|--|---|--|---|
| Merchandise Exports (\$ million) | 287 | 239 | 412 | 155 | 567 |
| Merchandise Imports (\$ million) | 1112 | 711 | 510 | 720 | 1230 |
| Merchandise Trade Balance (\$ million) | -825 | -472 | -98 | -565 | -663 |
| % Exports to Imports | 25 | 33 | 81 | 21 | 46 |
| % Exports to GDP | 11 | 9 | 15 | 7 | 21 |
| % Merchandise Trade Balance to GDP | 31 | 17 | 4 | 21 | 25 |

- Note: 1. Actual data obtained from *Statistical Abstract of Israel, 1994*.
 2. Calculations were based on Trade Similarity Coefficients presented in Table 1.
 3. Calculations were based on Structural estimated equations presented in Tables 2 and 3.
 4. Merchandise exports to and merchandise imports from countries other than Israel and Jordan were estimated from the structural equations presented in Tables 4 and 5.
 5. Results in column (v) are the sum of the results in columns III and IV.

The proportion of merchandise exports to merchandise imports is expected to be similar to that in Jordan 46%, but greatly lower than that in Israel (75%). Moreover, unrestricted trade will eventually improve the comparative advantage of the merchandise trade sector through doubling the potential proportion of merchandise exports to the GDP from 11 per cent in 1992 to 21 per cent. In Israel and Jordan, the percentage of merchandise exports to the GDP averages 23 per cent (Porter, 1990). However, the potential merchandise trade balance to the GDP shows a modest improvement, 25% compared to its level 35%, under unrestricted trade. Although the potential proportion of merchandise trade balance to GDP was still greater than that in Israel (9% in 1992), it becomes greatly lower than that in Jordan (50%) in that year.

7. SUMMARY AND CONCLUSIONS

The main purpose of this study is to analyse the potential merchandise trade flows between the Palestinian Territories (PTs), the West Bank and Gaza Strip, and other markets, particularly those of the neighbouring countries, Egypt, Israel and Jordan. The potential performance of the merchandise trade sector will be examined after removing Israeli-imposed non-tariff barriers (NTBs). It is anticipated that trade flows will be expanded.

Since 1967, one-sided and unfair trade and economic relationships have prevailed between Israel and the West Bank and Gaza Strip. Palestinian critics of the Israeli policy have argued that Israeli occupation authorities regularly used security claims to justify the imposition of NTBs that disregard and neglect the interests of the Palestinian people. Consequently, trade flows became restricted mainly to trading with Israel. Also, the range of exports continued to be limited, while they were unlimited for merchandise imports.

Over the past twenty-eight years, the Palestinian economy has experienced a unique and extraordinary situation in which Israel dominated the Palestinian economy. This was supported indirectly by some Palestinian agencies who sought profits through dumping Israeli goods on the local markets. There were efforts, though limited, devoted to separate the unfair linkages between Palestine and Israel, particularly during the first years of the Intifada. However, by 1991, the economic consequences of the Intifada

had vanished and the merchandise trade deficit widened to become greater than its level in 1987.

Two quantitative methods were employed in this study to assess the potential merchandise trade flows between the PTs and other countries. The two methods were: (1) Trade similarity coefficients (TSCs) and (2) gravity trade equations of the export supply and the import demand. The empirical results indicate that removing NTBs imposed by Israel will double merchandise exports, based on 1992 statistics. Consequently, the merchandise trade deficit will be narrowed by 30 per cent. Exporting to Egypt will improve the trade balance by only one per cent. This could be attributed to the fact that TSC is found to be very small, 0.06, between Palestinian exports and the Egyptian merchandise imports. In contrast, TSC of Palestinian imports and Egyptian exports is calculated to be 33 per cent. Palestinian imports from Jordan are expected to be three times greater than merchandise exports to this country. The economic agreement signed by the PLO and Israel on April 29, 1994, imposes several restrictions on Palestinian imports from countries other than Israel. This agreement became a reference point, whereby the establishment of any trade relationship between PTs and any other country depends mainly on the regulations and arrangements of this agreement. Therefore, economic agreement conditions should be improved by taking into account the process of restructuring the Palestinian economy. The decrease of dependency on Israel can only be accomplished through planned separation between the PTs and Israel.

Under unrestricted trade conditions, the merchandise trade deficit will be at a minimum of US\$ 663 million compared to US\$ 940.2 million in 1992. This finding implies that restricted trade causes a loss of US\$ 277 million to the West Bank and Gaza. Therefore, trade creation with other countries and trade diversion with Israel will reduce the trade deficit by 30 per cent, and will reduce the ratio of the trade deficit to GDP from 31 to 25 per cent. The following countries are expected to be the major outlets for Palestinian merchandise exports: Iraq, Saudi Arabia, Lebanon, United Arab Emirates, Jordan and Israel. More than 90 per cent of PTs merchandise exports could be directed to these markets. On the other hand, more than 75 per cent of the PTs merchandise imports are expected to originate from Egypt, Syria, Lebanon, USA, Japan, Korea, Indonesia and the European Union.

REFERENCES

Abrams, K., *International Trade Flows Under Flexible Exchange Rates*, Federal Reserve Bank of Kansas City (1980), pp.3-10.

Anderson, J., "A Theoretical Foundation for the Gravity Equation", *American Economic Review*, vol.69, no.1, 1979.

Appelbaum, E. and Kohli, U., "Canada-United States Trade Test for Small-Open Economy Hypothesis", *Canadian Journal of Economics*, vol.11, no.1 (1979), pp. 1-14.

Arnon, A. and Weinblatt, J., *The Potential for Trade Between Israel, the Palestinians and Jordan*, Research Department, Bank of Israel, 1995.

Bautista, K., *Production Incentives in Philippine Agricultural Effects of Trade Exchange Rate Policies*, Research Report, International Food Policy Research Institute, 1989.

Beers, C.V. and Biessen, G., *Trade Potential and Structure of Foreign Trade: The Case of Hungary and Poland*, Unpublished manuscript submitted to the XI of the World Congress at the International Association Meeting in Tunisia, 18-22 December 1995.

Bergstrand, J. H., "The Gravity Equation in International Trade: Some Microeconomic Foundations and Empirical Evidence," *The Review of Economics and Statistics* (1985), pp.474-481.

Bikker, J., "An International Trade Flow Model with Substitution: An Extension of the Gravity model," *Kyklos*, vol.40, no.3 (1987), pp.315-337.

El-Jafari, M. and El-Musa, S., "Power and Trade: The Israeli-Palestinian Economic Protocol", *Journal of Palestine Studies*, vol.XXIV/2, no.94 (1995 a), pp.14-32.

El-Jafari, M., "Macroeconomic Simulation of the Palestinian Economy During the Transitional period 1995-2000," *Law and Economic Review*, (World Competition), (1995 b), pp.81-94.

-----, "Potential Merchandise Trade of the West Bank and Gaza Strip," Published by Palestine Economic and Research Policy Institute Jerusalem (in Arabic), 1995 c.

-----, *Main Features of Domestic and External Merchandise Trade of the West Bank and Gaza Strip*, UNCTAD, 1994a.

-----, "An Econometric Model of the West Bank and Gaza Strip Agricultural Exports," *Journal of Empirical Economics*, vol.15 (1994b), pp.575-594.

-----, *Domestic and External Merchandise Trade of the West Bank and Gaza Strip*, unpublished, Champaign, University of Illinois, 1993.

-----, "Non-Tariff Trade Barriers: The Case of the West Bank and Gaza Strip Agricultural Exports," *Journal of World Trade*, 1991.

Geraci, J. and Prewo, W., "Bilateral Trade Flows and Transport Costs," *The Review of Economics and Statistics*, vol.59 (1977), pp.67-74.

Geraci, J., "An Empirical Demand and Supply Model of Multilateral Trade," *The Review of Economics and Statistics* (1982)5, pp.432-41.

Greene, W., *An Econometric Analysis*, 2nd edition, Macmillan Co., 1993.

International Monetary Fund, *International Financial Statistics*, various issues.

Israeli Central Bureau of Statistics, *Statistical Abstract of Israel, Judea, Samaria & Gaza Area Statistics*.

Khan, M. and Knight, M., "Import Compression and Export Performance in Developing Countries," *The Review of Economics and Statistics* (1988), pp.315-321.

Kohli, U. "A Gross National Product Function and Derived Demand for Imports and Supply of Exports," *Canadian Journal of Economics*, vol.10, no.2 (1978), pp.167-180.

Koo, W., Karemera, D., and Taylor, R. "A Gravity Model Analysis of Meat Trade Policies," *Agricultural Economics* (1994), pp.81-88.

Linnemann, H. and Beers, C.V., "Measures of Export-Import Similarity and the Linder Hypothesis Once Again," *Weltwirtschaftliches Archiv* (1988), pp.445-57.

Michaely, M., "Multilateral Balancing in International Trade," *American Economic Review* (1962), pp.685-702.

Porter, M.E., *The Competitive Advantage of Nations*, Harvard University Press, 1990.

Sanso, M., Cuairan, R., and Sanz, F. "Bilateral Trade Flows, The Gravity Equation and Functional Form," *The Review of Economics and Statistics* (1993), pp.266-75.

United Nations, *International Trade Statistics*, various issues.

APPENDIX

SPECIFICATION OF THE MODEL

The intention here is to illustrate the derivation of the gravity trade equations of the import demand and the export supply. First, the gravity equation of the import demand will be specified. Then, the gravity equation of the export supply will be derived.

Import Demand: It is contended that the objective of the i^{th} importing country is to maximise its utility from consumption of m goods which are imported from the j^{th} country and from n goods produced domestically. Mathematically, maximisation of the utility function subject to gross domestic product (GDP) can be expressed as follows:

$$U_{ijt} = f(q_{ijt}^m; q_{iit}^n) \quad (\text{A1.1})$$

subject to:

$$\text{GDP}_{it} = \sum \text{PM}_{ijt} \cdot q_{ijt}^m + \sum \text{PD}_{iit} \cdot q_{iit}^n \quad (\text{A1.2})$$

where:

U_{ijt} = Non-observable aggregated utility of the i^{th} importing country obtained from consumption of q_{ijt}^m commodities imported from the j^{th} country and from consumption of q_{iit}^n produced domestically in the i^{th} country in period t .

GDP_{it} = Gross domestic product (GDP) of the i^{th} country in period t .

PM_{ijt} = Import price level of the i^{th} country in the j^{th} country.

PD_{iit} = Domestic price level in the i^{th} country.

Maximising the utility function expressed in A1.1 subject to the constraint GDP_{it} , yields first order conditions which could be solved simultaneously to provide:

$$q_{ijt}^m = f(\text{PM}_{ijt}; \text{PD}_{iit}; \text{GDP}_{it}) \quad (\text{A2.1})$$

$$q_{iit}^n = f(PM_{ijt}; PD_{iit}; GDP_{it}) \quad (A2.2)$$

Equations A2.1 and A2.2 are the derived import and domestic demand for merchandise commodities, respectively.

Export Supply: The objective of production activity is assumed to be the maximisation of profits, and the profit function is defined as:

$$\pi_{it} = \sum PD_{iit} \cdot q_{iit}^n + \sum PX_{ijt} \cdot q_{ijt}^x - \sum W_{ist} R_{ist} \quad (A3)$$

where:

π_{it} = National profit in the i^{th} country in period t .

PD_{iit} = Domestic price level in the i^{th} country in period t .

PX_{ijt} = Export price level to the commodities exported from the i^{th} country to the j^{th} country in period t .

q_{iit}^n = N commodities produced and supplied in the i^{th} country in period t .

q_{ijt}^x = X commodities produced and exported from the i^{th} country to the j^{th} country in period t .

W_{ist} = Price for the S^{th} input used in producing N and X commodities in the i^{th} country.

R_{ist} = Quantities of S^{th} inputs used in producing N and X commodities in the i^{th} country in period t .

Maximising equation (A3) yields first order conditions that serve for bilateral aggregate export and domestic supply equations where:

$$q_{ijt}^x = f(PX_{ijt}; PD_{iit}; GDP_{it}) \quad (A4.1)$$

$$q_{iit}^n = f(PX_{ijt}; PD_{iit}; GDP_{it}) \quad (A4.2)$$

With several production factors, GDP_{it} in the i^{th} country is constrained by:

$$GDP_{it} = \sum W_{ist} \cdot R_{ist}$$

Equations A4.1 and A4.2 are the export and domestic supply in the i th country.

To this point, models A2.1 and A4.1 are similar to the classical export supply and import demand derived from the profit and utility functions, respectively. Yet, such models are not gravity equations. In this study, the derivation of gravity trade equation is based on the economic theory but with some modifications to take into consideration the Palestinian case, small, open and restricted economy. Consequently, trade flows from and into the West Bank and Gaza are exogenously determined by other macroeconomic variables, monetary and fiscal policies, and non-tariff trade barriers imposed by Israel and Jordan. Over the past 30 years, those two countries have been the major trade partners of the PTs. Palestinian trade has been caught between economic and trade policies of Israel and Jordan (El-Jafari, 1991). Therefore, any changes in the economic and trade factors in Israel and Jordan will eventually influence prices and traded commodities from and into the PTs. By combining equations A2.1 and A4.1, the reduced form equations of the export or import price equations and traded commodities (exports or imports) can be expressed as:

$$Pm_{ijt} = f(GDP_{it}, GDP_{jt}, PD_{iit}, PM_{iht}) \quad (A5.1)$$

$$PX_{ijt} = f(GDP_{it}, GDP_{jt}, PD_{iit}, PX_{iht}) \quad (A5.2)$$

$$q_{ijt} = f(GDP_{it}, GDP_{jt}, PD_{iit}, PM_{iht}, PX_{iht}) \quad (A5.3)$$

where PM_{iht} , PX_{iht} are alternative import and export prices to the i^{th} country, respectively. In the small open and restricted market, such as the West Bank and Gaza Strip, GDP_{it} and GDP_{jt} have influences on the merchandise trade flows, where they are determined exogenously.

Since trade flows are measured in monetary terms, combining equations A5.1 and A2.1 and A5.2 and A4.1 yields the gravity trade equations of the import demand and export supply, respectively. When equations A5.1 and A2.1 are, in log form, multiplied by each other, the result is the gravity trade equation of the import demand where:

$$M_{ijt}=f(\text{GDP}_{it};\text{GDP}_{jt};\text{PM}_{ijt};\text{PM}_{jit}) \quad (\text{A6.1})$$

Similarly, multiplying equations A5.2 and A4.1, in lo-form, yields the gravity trade equation of the export supply where:

$$X_{ijt}=f(\text{GDP}_{it};\text{GDP}_{jt};\text{PX}_{ijt};\text{PX}_{iht}) \quad (\text{A6.2})$$

Although, equations A6.1 and A6.2 would be more appropriate to estimate, the monetary policies, non-tariff trade barriers (NTBs) and economic distance between the exporting country and the importing country will be included in the model. The influences of the NTBs and monetary policies of Israel and Jordan are the most important factors considered in the model to conduct projections for the Palestinian merchandise trade. Thus, the consequences of removing the NTBs imposed by Israel and Jordan will be evaluated. This step has been taken to distinguish gravity trade equations of the import demand and export supply (A6.1) and (A6.2) from the classical gravity model.

The period of the influences of NTBs is apparent and can be approximated. During the 1970s and early 1980s, the flow of Palestinian merchandise trade flows into the export markets (Israel and Jordan) was relatively not restricted. During that period, merchandise exports to Israel and Jordan showed an increasing trend, (Judea, Samaria, and Gaza Area Statistics). In the following period, 1983-1987, Israel and Jordan imposed several restrictions, the value of dummy variable D_{ijt} equals 1, for the period 1983-1987; 1983 = 1, ..., 1987 = 1, otherwise, zero. In the latest period, 1988-1993, more restrictions have been imposed due to the outbreak of the Intifada, the Gulf war II in 1991, and the security closures which have been practised by Israel since March 1993. Consequently, another dummy variable has been included in the model (A6.2) to measure the influence of the NTBs imposed after 1988, where the value of the dummy variable equals 1, for the period 1988-1994; 1988 = 1, ..., 1993 = 1, otherwise zero.

The indirect relative real exchange rate variables represent the effect of the monetary policies in the export markets. The proportion of the real value of the US dollar in the Israeli currency to the real value of the US dollar in the Jordanian currency is included in the model A6.1 and A6.2. This variable has been constructed to examine the influences of the monetary policies of

Israel and Jordan on the Palestinian merchandise trade flows. Since 1967, Israeli shekel (NIS) and Jordanian dinar have been the two major currencies circulated in the West Bank and Gaza Strip.

The economic distance variable will be included in the model to measure the impact of economic welfare differences between the exporting region and the importing country. Following Arnon and Weinblatt, the economic distance variable could be defined as:

$$Z_{ijt} = (\log PGD_{it} - \log PGDP_{jt})^2$$

where:

$PGDP_{it}$; $PGDP_{jt}$ = Per capita gross domestic product in the i^{th} country and the j^{th} country, respectively.

Taking the above information into account, the gravity trade model of the export supply and import demand can be written as:

$$X_{ijt} = f(GDP_{it}; GDP_{jt}; PX_{11t}; \dots; PX_{ijt}; D_{ijt}; REXG_t; Z_{ijt}) \quad (A7.1)$$

$$M_{ijt} = f(GDP_{it}; GDP_{jt}; PM_{11t}; \dots; PM_{ijt}; Z_{ijt}; REXG_t) \quad (A7.2)$$

where:

$REXG_t$ = The value of US dollar in Jordanian currency to the value of US dollar in the Israeli currency.

This model is different from other models specified and estimated by Bergstrand (1985), and Bikker (1987). Equations A7.1 and A7.2 in this study could be estimated using time-series or pooling data. Thus, the variable representing the physical distance between the centres of economic activities in the i^{th} and j^{th} countries is not included in the model, where it is treated as constant variable over time. In addition, the domestic price level in small, open economies will not be included in the model, where they are exogenously determined by external market forces in the neighbouring countries. In the West Bank and Gaza Strip, merchandise imports averaged 60 per cent of the GDP over the past three decades.

SIMULATIONS OF THE PERFORMANCE OF THE PALESTINIAN MERCHANDISE TRADE SECTOR

In this section, the empirical results presented in Tables 1 to 5 in this study are employed to simulate the potential merchandise trade of the West Bank and Gaza Strip during the transitional period, 1995-2000. Three simulations are conducted. The assumptions for the simulations are outlined first and then the simulation results will be discussed and evaluated. The economic conditions of 1992 are used as the basis for all projections. The following are the three scenarios utilised in projecting merchandise trade from and into the West Bank and Gaza Strip.

- (i) Trade flows depend mainly on the market forces prevalent in the importing and exporting countries. In other words, the import demand of the importing country should coincide with the export supply of the exporting country and vice-versa.
- (ii) Merchandise trade flows between the PTs and Israel and Jordan are examined after removing Israeli-imposed NTBs. Under this scenario, Palestinian economy will undergo further liberalisation in the next five years, similar to that in the period 1968-1983. During that period, trade with Israel and Jordan was regulated rather than restricted. In contrast, during the period 1983-1987, trade with Israel became relatively restricted compared to trade with Jordan, and from 1987 up until 1994, Israel maintained a restricted trade policy toward the PTs (El-Jafari, 1995c).

