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PROSPECTS FOR SUSTAINED DEVELOPMENT OF THE PALESTINIAN ECONOMY IN THE WEST BANK AND GAZA STRIP, 1990-2010:

A QUANTITATIVE FRAMEWORK

TECHNICAL SUPPLEMENT

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Prepared by the UNCTAD secretariat

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INTRODUCTION

This technical supplement presents a detailed account of the methodology followed in constructing the quantitative framework used in investigating prospects for sustained development of the Palestinian economy in the West Bank and Gaza Strip, 1991-2010 (UNCTAD/ECDC/SEU/6). Hence, it should be consulted in reference to the framework itself, as it elaborates the processes briefly summarized in the main text.

The supplement is structured in such a manner as to correspond to the sequence of the chapters of the quantitative framework study. Thus, part one reviews and analyses the steps required in compiling and processing the empirical data used in establishing the quantitative framework for the baseline scenario. Part two is concerned with the conceptualization and the functioning of the framework. It details the techniques and the selection processes followed in deciding which equations and working assumptions were opted for in the final run of the framework.

PART ONE

DATA SOURCES AND ESTIMATION METHODS

CHAPTER I

DEMOGRAPHIC DATA

Where available, the data relied upon in this exercise are extracted from the data base established at UNCTAD using statistics released by the Israel Central Bureau of Statistics (CBS) in three major publications, namely the Statistical Abstract of Israel (SAI) and the Administered Territories Statistical Quarterly (ATSQ), the latter being subsequently published as the Judea, Samaria, and Gaza Area Statistics (JSGAS). Compiling complete, accurate and consistent time series for twenty years presented various technical problems. These problems have received explicit treatment in the relevant sections below and should be borne in mind when analysing the result.

A. Population by age structure

Data on male and female population by age cohorts have been derived directly from CBS publications. However, when the given age groups were added up, the resulting total population figures were inconsistent with the latest available and published CBS estimates for total population. Thus, the data adopted were adjusted so as to eliminate this discrepancy, i.e. the age groups for the correct total population were calculated on a pro rata basis. Once the data for five-year age cohorts were obtained, these were translated into single age groups, to which mortality and fertility parameters were applied.

B. Mortality patterns

1. Life expectancy

The main problem encountered in obtaining data on life expectancy was that no official estimates were available in a consistent form. Neither the Israeli occupation authorities, nor Palestinian sources nor international agencies have published series relating to the subject. The only relevant official figures available are estimates for the Jordanian population, which presumably exhibits some demographic characteristics similar to the Palestinian population.

Thus, it was necessary to resort to indirect estimation methods whereby life expectancy series for the female and male population of each of the West Bank and Gaza Strip were constructed on the basis of population figures provided by the Population Division of the United Nations Department of International Economic and Social Affairs (UNDIESA), for the neighbouring Arab countries depicting similar demographic features, namely Jordan, the Syrian Arab Republic and Egypt, and for Western Asia as a whole. The figures for these countries are presented in tables TS1/1 and TS1/2. Data concerning the Israeli population were found to be out of line with the regional pattern and much closer to European and North American levels, and hence they were not used.

The resultant series for life expectancies of male and female population of the occupied territory for the period 1965-2010 are presented in table TS1/3. These should be considered as the closest possible approximations of the real variables given the prevailing health conditions. It is also useful to note that estimates thus established correspond closely to those published in a 1985 study by the United States Bureau of Census (for full reference, see section D below).

2. Infant and child mortality

This crucial demographic indicator has not been monitored or published by official Israeli sources in any rigorous or regular manner. The limited data that have been released cannot be relied upon for three main reasons. Firstly, estimates of CBS and of the Ministry of Health of Israel are inconsistent with each other. Secondly, data in both these sources cover only "reported" cases. More importantly, the levels at which infant mortality are set have been contested by Palestinian social and health authorities, as well as by non-governmental and international organizations closely involved with the subject.

Unfortunately, these alternative sources of information have not regularly monitored infant mortality over time. Rather, the available data result from ad hoc surveys and field studies of specific population groups such as refugees or

rural dwellers. Yet, being based on actual field investigations, the figures thus generated give a fairly accurate idea of the real level of infant mortality in the territories. They are also more in line with estimates by the Population Division of UNDIESA for the population of neighbouring countries, which are presented in table TS1/4. Accordingly, these figures were deemed preferable over those in official Israeli sources.

In order to highlight the wide disparity in estimates, some selected figures are presented in table TS1/5. These figures clearly show that current infant mortality levels in the occupied territory as a whole are in the range of 70-160 deaths/1,000 live births. Cities, refugee camps, and areas where access to maternal medical care is easier should have rates that are around the lower end of the range, while remote villages, particularly in the West Bank, should indicate more dramatic levels approaching 160 deaths/1,000 live births.

C. Fertility patterns

1. Birth rates

As regards birth rates for the historical period, data used were those published on an annual basis by the CBS for the number of births by sex for each of the two regions. For the projection period, birth rates were derived through the demographic accounting framework on the basis of the historical data.

2. Age-specific fertility rates

To obtain age-specific fertility rates (i.e. the average annual number of births per woman in a given age group per 1,000 women in that age group), the historical data published by the CBS for the years 1968-1984, under the title, "Birth rates by mother's age", were used for the framework. The rates are available for five-year age cohorts of women aged 15 to 45, and can be translated into single age rates by interpolation. As for the missing years 1985-1987, data were generated in proportion to total fertility rates estimated for the same period, knowing that total fertility is computed by summing up the age-specific rates and multiplying the result by five.

3. Total fertility rates

The total fertility rates in the West Bank and Gaza Strip (i.e. the average number of children a woman may bear during her lifetime) were estimated and published by the CBS for the years 1968 to 1984 only. To cover the missing years of 1985-1987 and the projection period, estimates had to be generated. To arrive at these estimates, a trend analysis and data available for neighbouring Arab countries, in particular the projections of the UNDIESA Population Division for the post-1985 period, were relied upon (see table TS1/6).

Examination of the past data revealed that fertility levels have been erratic and have remained fairly high. Only when the data were grouped in five-year periods could a declining average be discerned. Thus, for the Gaza Strip the average fertility rate declined from 7.5 in the early 1970s to 7.2 in the early 1980s, while in the West Bank, the drop was from 7.8 to 6.9 (see table TS1/7). What is revealing in both cases is that the rate of decline almost doubled between the first and second halves of the 1970s, most noticeably so in the West Bank.

As for the 1985-1990 period (for which no published data were available), it was assumed that the trend apparent in the first half of the 1980s would continue, and hence rates were diminished by similar amounts. These estimates had also to be consistent with projections for later years. Projections for the 1991-2010 period were guided by other regional patterns, and assumed an increasing rate of decline. However, given the continued weakness of family planning programmes and an overall assumption of unchanged circumstances held for the baseline scenario, and seeing that the local levels have been generally above regional averages, there seemed to be no strong justification to adopt faster rates of decline.

Thus, for scenario analysis, it is assumed that the fertility rate will reach around 6 children/woman before the year 2000, and 4-4.5 around the year 2010, compared with 4.3 and 3.3, respectively, expected for Western Asia as a whole. The historical and projected data for the period 1968-2010 are presented

in table TS1/8.

D. Reference sources

Listed below are the references used in compiling demographic data and in deriving various parameters.

* M. Benvenisti, The West Bank Data Project, (Washington and London, 1984) American Enterprise Institute for Public Policy Research, pp.1-8.
* S. Gabriel & D. Levy, "Expectations, information, and migration: the case of the West Bank and Gaza", Applied Economics, No. 20, 1988, pp.1-13.
* S. Gabriel & E. Sabatello, "Palestinian migration from the West Bank and Gaza Strip: economic and demographic analyses", Economic Development & Cultural Change, No. 2, vol. 34, December 1986, pp. 245-262.
* G. Kossaifi, "Forced migration of the Palestinians from the West Bank and Gaza Strip, 1967-83", Population Bulletin of ESCWA, No. 27, December 1985, pp. 73-108.
* J. Richtering, Modelling fertility and mortality rates in the framework of a demographic-economic model, Discussion Paper No. 15, UNCTAD, Geneva, 1986.
* UNESCWA Social Development and Population Division, Infant and childhood mortality in Western Asia, (Baghdad, UNESCWA, December 1989).
* UNESCWA Social Development and Population Division, "Levels and trends of infant and childhood mortality in selected Arab countries", in Infant and Child Mortality in Western Asia, (Baghdad, UNESCWA, December 1989) pp. 3-90.
* United Nations, Manual X: Indirect Techniques for Demographic Estimation, Population Studies No. 81, (New York, Department of International Economic and Social Affairs, 1983), Introduction, Chapters I, II.
* United Nations, World Population Prospects, Population Studies No. 120, (New York, Department of International Economic and Social Affairs, 1991), tables 41 to 45, pp.176-226
* WHO, Health Conditions of the Arab Population in the Occupied Arab Territories Including Palestine, (39th World Health Assembly, Geneva, May 1986):
- Palestine Red Crescent Society, "Report on the health conditions in the territories occupied by Israel since 1967" (document A39/INF.DOC/3)
* WHO, Health Conditions of the Arab Population in the Occupied Arab Territories Including Palestine, (40th World Health Assembly, Geneva, May 1987):
- Israel, Ministry of Health, "Health & health services in Judea, Samaria & Gaza", 1986-87, (document A40/INF.DOC/3).
- UNRWA, "Annual report of the director of health", (document A40/INF.DOC/5).
- Palestine Red Crescent Society, "Report on the health conditions in the territories occupied by Israel since 1967", (document A40/INF.DOC/10).
* WHO, Health Conditions of the Arab Population in the Occupied Arab Territories Including Palestine, (43rd World Health Assembly, Geneva, May 1990):
- Israel, Ministry of Health, "Health in Judea, Samaria & Gaza, 1989-1990" (document A43/INF.DOC/5).
- UNRWA, "Annual report of the director of health" (document A43/INF.DOC/4).
- Palestine Red Crescent Society, "Report on the health conditions in the territories occupied by Israel since 1967" (document A40/INF.DOC/5).

Table TS 1/1. MALE LIFE EXPECTANCY IN SELECTED COUNTRIES OF WESTERN ASIA, 1965-2010

YEAR	EGYPT	JORDAN	ISRAEL	SYRIA	WESTERN ASIA
1965	48.5	50.2	69.2	52.5	53.5
1970	50.8	54.9	70.1	55.4	56.4
1975	52.9	59.4	71.4	58.3	59.1
1980	55.3	61.9	72.8	60.8	61.1
1985	57.8	64.2	73.6	63.2	63.1
1990	60.4	66.2	74.4	65.2	65.0
1995	62.6	67.7	75.2	66.7	66.6
2000	65.4	68.9	75.7	68.0	68.0
2005	66.8	70.1	76.2	69.0	69.2
2010	68.3	71.1	76.7	70.0	70.3

Source: United Nations, World Population Prospects, Department of International Economic and Social Affairs, New York, 1991, table 44, pp.196-209.

Table TS 1/2. FEMALE LIFE EXPECTANCY IN SELECTED COUNTRIES OF WESTERN ASIA, 1965-2010

YEAR	EGYPT	JORDAN	ISRAEL	SYRIAN AR REP	WESTERN ASIA
1965	51.0	53.2	72.4	55.5	56.1
1970	53.4	58.3	73.3	58.7	59.3
1975	55.3	63.0	74.9	61.9	62.2
1980	57.8	65.5	76.2	64.4	63.9
1985	60.3	67.8	77.2	66.9	65.9
1990	62.8	69.8	78.2	69.2	68.0
1995	65.3	71.8	79.0	71.1	69.9
2000	67.6	73.3	79.8	72.7	71.5
2005	69.6	74.5	70.6	74.0	72.9
2010	71.6	75.7	81.1	75.2	74.1

Source: United Nations, World Population Prospects, Department of International Economic and Social Affairs, New York, 1991, table 44, pp.196-209.

Table TS 1/3. ESTIMATED LIFE EXPECTANCY IN THE OCCUPIED PALESTINIAN TERRITORY, BY SEX, 1965-2010

YEAR	MALE LIFE EXPECTANCY	FEMALE LIFE EXPECTANCY
1965	53.5	56.0
1970	55.0	58.0
1975	59.0	62.0
1980	61.0	64.0
1985	63.0	66.0
1990	64.2	67.8
1995	66.0	69.0
2000	68.0	71.0
2005	69.2	72.9
2010	70.0	74.1

Source: UNCTAD secretariat estimates.

Table TS 1/4. INFANT MORTALITY RATES IN SELECTED COUNTRIES OF WESTERN ASIA, 1965-2010
(infant deaths per 1,000 births)
(medium variant)

YEAR	EGYPT	JORDAN	ISRAEL	SYRIAN AR REP	WESTERN ASIA
1965	170	102	25	107	135
1970	150	82	23	88	118
1975	131	65	18	70	101
1980	115	54	14	59	88
1985	90	44	12	48	71
1990	65	36	10	39	60
1995	57	30	8	33	49
2000	47	25	7	28	42
2005	39	21	6	24	36
2010	33	21	6	20	29

Source: United Nations, World Population Prospects, Department of International Economic and Social Affairs, New York, 1991, table 45, pp.216-221.

Table TS 1/5. SELECTED PUBLISHED ESTIMATES OF INFANT MORTALITY IN THE GAZA STRIP AND THE WEST BANK, VARIOUS YEARS, 1968/69-1989

A. Israeli estimates

(1) Report presented to the World Health Assembly, 1987 (pp. 7 & 15)

	1968/9	1975	1980	1985
Gaza Strip	86	69.3	43	33.4
West Bank	34	31	28	25

Source: Ministry of Health (Israel).

(2) Report presented to the World Health Assembly, 1990 (p. 13)

	1970	1975	1980	1985	1989
Gaza Strip	86	69.3	43	33.4	20.4
West Bank	-	38.1	28.3	25.1	22.6

Source: Ministry of Health (Israel).

B. Palestinian estimates

(1) Report presented to the World Health Assembly, 1987
- Average for the West Bank: 161/1,000 (p.21-22); range: 62.5 - 230 (pp. 111-114)
Source: Medical Relief Committees' field surveys, Special Committee of experts (WHA36/34)
- Range for the occupied territory: 37-84 (p. 16)
Source: UNRWA.

(2) Report presented to the World Health Assembly, 1990
- Range for the occupied territory: 80-140 (p.11)
Source: Palestine Red Crescent Society.

Table TS 1/6. TOTAL FERTILITY RATES IN SELECTED COUNTRIES OF WESTERN ASIA, 1965-2010
(per woman - medium variant)

YEAR	EGYPT	JORDAN	ISRAEL	SYRIAN AR REP	WESTERN ASIA
1965	6.56	7.99	3.79	7.79	6.32
1970	5.53	7.79	3.77	7.69	5.97
1975	5.27	7.38	3.41	7.44	5.64
1980	5.06	6.76	3.13	7.17	5.35
1985	4.53	6.15	3.01	6.76	5.07
			Projections		
1990	4.00	5.53	2.76	6.25	4.74
1995	3.42	4.92	2.55	5.64	4.33
2000	2.99	4.30	2.37	5.02	3.96
2005	2.58	3.79	2.20	4.30	3.61
2010	2.30	3.28	2.08	3.59	3.33

Source: United Nations, World Population Prospects, Department of International Economic and Social Affairs, New York, 1991. pp.176-181.

Table TS 1/7. AVERAGE FERTILITY RATES IN THE WEST BANK AND THE GAZA STRIP: HISTORICAL AND PROJECTED, 1970-2010
(per woman)

YEAR	GAZA STRIP	WEST BANK
Average level 1970-1975	7.54	7.80
Average level 1975-1980	7.44 (-1.33%)	7.56 (-3.08%)
Average level 1980-1985	7.20 (-3.22%)	6.94 (-8.20%)
Average level 1985-1990 *	7.12	6.88
Estimated level 1990-1994	6.7	6.4
Estimated level 1995-1999	6.2	5.7
Estimated level 2000-2005	5.7	5.1
Estimated level 2005-2010	4.9	4.5

* Based on UNCTAD estimates, assuming insignificant change in the latter part of the 1980s.
NOTE: Averages for 1970-1985 were calculated on the basis of historical data published by the CBS.

Table TS 1/8. TOTAL FERTILITY RATES, HISTORICAL, ESTIMATED, & PROJECTED, 1968-2010

YEAR	GAZA STRIP	WEST BANK
1968	6.9	7.6
1969	7.6	7.5
1970	7.2	7.7
1971	7.4	7.9
1972	7.5	7.9
1973	7.6	7.8
1974	8.0	7.7
1975	7.7	7.7
1976	7.7	7.9
1977	7.4	7.7
1978	7.4	7.2
1979	7.0	7.3
1980	7.3	7.0
1981	7.1	6.9
1982	7.4	7.1
1983	6.8	6.7
1984	7.4	7.0
	Estimates	
1985	7.3	7.0
1986	7.2	7.0
1987	7.1	6.9
1988	7.0	6.8
1989	7.0	6.7
1990	6.9	6.6
	Projected	
1991	6.8	6.5
1992	6.7	6.4
1993	6.6	6.3
1994	6.5	6.1
1995	6.4	6.0
1996	6.3	5.9
1997	6.2	5.7
1998	6.1	5.6
1999	6.0	5.5
2000	5.9	5.3
2001	5.8	5.2
2002	5.7	5.1
2003	5.6	5.0
2004	5.5	4.9
2005	5.2	4.8
2006	5.1	4.7
2007	5.0	4.5
2008	4.8	4.3
2009	4.6	4.2
2010	4.5	4.0

Sources: 1968-1984: Israel, CBS, Judea, Samaria and Gaza Area Statistics, 1987, Vol XVII, No. 1; 1985-2010: UNCTAD secretariat estimates.

CHAPTER II

LABOUR FORCE DATA

The following tables are extracted from the Economic Time Series compiled at UNCTAD, calculated from the corresponding series published by the CBS:

- Population aged 14 and above by labour force characteristics (tables TS1/9-TS1/10);
- Labour force participation by sex and age group (tables TS1/11-TS1/12);
- Distribution of employed persons working in the Gaza Strip and West Bank (tables TS1/13-TS1/14);
- Distribution of employed persons working in Israel (tables TS1/15-TS1/16).

Data in these tables were the main inputs required for the labour force component of the quantitative framework. For further demographic and labour force data, reference is made to UNCTAD, "Selected statistical series on the balance of payments, foreign trade, population, labour force and employment of the occupied Palestinian territory (West Bank and Gaza Strip), 1968-1987" (UNCTAD/DSD/SEU/1).

Table TS 1/9. GAZA STRIP: POPULATION AGED 14 & ABOVE BY LABOUR FORCE CHARACTERISTICS, 1968-1988 (a)

(thousands)

YEAR	POPULATION AGED 14 & ABOVE			LABOUR FORCE								
				TOTAL LABOUR		FEMALE LABOUR		MALE LABOUR				
	TOTAL	FEMALES	MALES	THOUSANDS	CRUDE ACTIVITY RATE (%)	THOUSANDS	CRUDE ACTIVITY RATE (%)	THOUSANDS	CRUDE ACTIVITY RATE (%)	TOTAL EMPLOYED PERSONS	UN-EMPLOYED PERSONS (b)	RATE OF UNEMPLOYMENT (%)
	(1)	(2)	(3)	(4)	(5)=(4):(1)	(6)	(7)=(6):(2)	(8)	(9)=(8):(3)	(10)	(11)	(12)=(11):(4)
1968	182.6	102.7	79.9	53.6	29.4	6.6	6.4	47.0	58.8	44.5	9.1	17.0
1969	189.0	103.2	85.8	58.2	30.8	5.1	4.9	53.1	61.9	52.9	5.3	9.1
1970	196.8	106.4	90.4	62.4	31.7	5.4	5.1	57.0	63.1	58.7	3.7	5.9
1971	200.7	108.3	92.4	61.8	30.8	4.8	4.4	57.0	61.7	59.7	2.1	2.9
1972	205.1	110.9	94.2	64.6	31.5	4.3	3.9	60.3	64.0	63.6	1.0	1.5
1973	210.4	112.9	97.5	68.6	32.6	4.5	4.0	64.1	65.7	68.1	0.5	0.7
1974	218.6	116.3	102.3	73.5	33.6	5.3	4.6	68.2	66.7	73.0	0.5	0.7
1975	225.0	120.2	104.8	72.7	32.3	5.0	4.2	67.7	64.6	72.4	0.3	0.4
1976	231.5	123.1	108.4	76.3	33.0	5.2	4.2	71.1	65.6	76.1	0.2	0.3
1977	239.5	126.7	112.8	77.3	32.3	5.1	4.0	72.2	64.0	77.2	0.1	0.1
1978	249.8	131.4	118.4	80.8	32.3	4.9	3.7	75.9	64.1	80.4	0.4	0.5
1979	243.0	127.4	115.6	79.8	32.8	4.5	3.5	75.3	65.1	79.6	0.2	0.3
1980	242.7	126.9	115.8	81.3	33.5	5.5	4.3	75.8	65.5	80.9	0.4	0.5
1981	247.1	129.0	118.1	82.8	33.5	4.9	3.8	77.9	66.0	82.5	0.3	0.4
1982	246.4	128.0	118.4	82.4	33.4	4.2	3.3	78.2	66.0	82.0	0.4	0.5
1983	261.6	135.9	125.7	85.8	32.8	5.1	3.8	80.7	64.2	85.3	0.5	0.6
1984	264.9	137.6	127.3	88.0	33.2	4.6	3.3	83.4	65.5	87.2	0.8	0.9
1985	278.8	144.5	134.3	92.0	33.0	4.2	2.9	87.8	65.4	90.9	1.1	1.2
1986	276.5	142.3	134.2	95.1	34.4	4.4	3.1	90.7	67.6	93.7	1.5	1.6
1987	282.6	145.6	137.0	101.7	36.0	4.3	3.0	97.4	71.1	100.2	1.6	1.6
1988(b)	291.9	150.4	141.5	101.2	34.7	3.6	2.4	97.6	69.0	98.9	2.4	2.4

(a) As of 1986, data refer to persons aged 15 and above and are based on a new survey. Comparisons with data for earlier years should be made with caution. Data cover only persons officially registered with the labour exchange of the Israeli Employment Service.
(b) Data for 1988 should be treated with caution owing to "enumuration difficulties" cited by the Israeli Central Bureau of Statistics.

Source: Israel, CBS, Statistical Abstract of Israel, 1974, 1975, 1977, 1983, 1989, Nos. 25, 26, 28, 34, 40, respectively; Israel, CBS, Judea, Samaria & Gaza Area Statistics, 1980, Vol. X, No. 4.

Table TS 1/10. WEST BANK: POPULATION AGED 14 & ABOVE BY LABOUR FORCE CHARACTERISTICS, 1968-1988 (a)

(thousands)

YEAR	POPULATION AGED 14 & OVER			LABOUR FORCE: TOTAL LABOUR		FEMALE LABOUR		MALE LABOUR				
	TOTAL	FEMALES	MALES	THOUSANDS	CRUDE ACTIVITY RATE (%)	THOUSANDS	CRUDE ACTIVITY RATE% (%)	THOUSANDS	CRUDE ACTIVITY RATE (%)	TOTAL EMPLOYED PERSONS	UNEMPLOYED PERSONS (b)	RATE OF UNEMPLOYMENT (%)
	(1)	(2)	(3)	(4)	(5)=(4):(1)	(6)	(7)=(6):(2)	(8)	(9)=(8):(3)	(10)	(11)	(12)=(11):(4)
1968	308.6	167.1	141.5	93.0	30.1	13.8	8.3	79.2	56.0	82.9	10.1	10.9
1969	313.7	165.1	148.6	114.6	36.5	22.2	13.4	92.4	62.2	109.9	4.7	4.1
1970	322.9	169.2	153.7	118.4	36.7	24.0	14.2	94.4	61.4	114.6	3.8	3.2
1971	330.0	172.3	157.7	119.7	36.3	21.9	12.7	97.8	62.0	116.8	2.9	2.4
1972	336.6	175.2	161.4	126.6	37.6	19.3	11.0	107.3	66.5	125.2	1.4	1.1
1973	341.6	178.8	162.8	127.7	37.4	19.3	10.8	108.4	66.6	126.4	1.3	1.0
1974	355.2	185.0	170.2	139.0	39.1	26.5	14.3	112.5	66.1	137.6	1.5	1.1
1975	366.9	189.7	177.2	133.9	36.5	24.3	12.8	109.6	61.9	132.3	1.6	1.2
1976	371.0	192.1	178.9	131.3	35.4	24.5	12.8	106.8	59.7	129.7	1.6	1.2
1977	379.4	196.1	183.3	128.8	33.9	23.6	12.0	105.2	57.4	127.3	1.5	1.2
1978	389.7	201.2	188.5	132.8	34.1	25.7	12.8	107.1	56.8	131.5	1.3	1.0
1979	398.6	205.5	193.1	134.1	33.6	24.2	11.8	109.9	56.9	132.8	1.3	1.0
1980	401.0	207.7	193.3	137.2	34.2	25.7	12.4	111.5	57.7	134.8	2.4	1.7
1981	402.9	209.4	193.5	135.3	33.6	23.5	11.2	111.8	57.8	133.4	1.9	1.4
1982	405.9	211.7	194.2	142.8	35.2	26.2	12.4	116.6	60.0	140.9	1.9	1.3
1983	420.7	217.2	203.5	150.2	35.7	23.8	11.0	126.4	62.1	147.2	2.6	1.7
1984	436.3	224.3	212.0	160.0	36.7	25.0	11.1	135.0	63.7	154.1	5.9	3.7
1985	443.8	228.7	215.1	159.2	35.9	21.7	9.5	137.5	63.9	151.2	8.0	5.0
1986	441.8	228.3	213.5	172.2	39.0	24.6	10.8	147.6	69.1	165.7	6.5	3.8
1987	455.8	234.5	221.3	182.2	40.0	22.3	9.5	159.9	72.3	177.6	4.6	2.5
1988 (b)	459.1	235.9	223.2	188.1	41.0	24.5	10.4	163.6	73.3	183.0	5.1	2.7

(a) As of 1986, data refer to persons aged 15 and above and are based on a new survey. Comparisons with data for earlier years should be made with caution. Data cover only persons officially registered with the labour exchange of the Israeli Employment Service.
(b) Data for 1988 should be treated with caution owing to "enumuration difficulties" cited by the Israeli Central Bureau of Statistics.

Source: Israel, CBS, Statistical Abstract of Israel, 1974, 1975, 1977, 1983, 1989, Nos. 25, 26, 28, 34, 40, respectively;
Israel, CBS, Judea, Samaria & Gaza Area Statistics, 1980, Vol. X, No. 4.

Table TS1/11: GAZA STRIP: LABOUR FORCE PARTICIPATION BY AGE GROUP, 1977-1987
(percentages)

	TOTAL	15-17 (a)	18-24	25-34	35-44	45-54	55-64	65+
				TOTAL POPULATION				
1977	32.3	14.4	33.0	39.0	39.4	43.8	38.4	19.2
1978	32.3	15.3	34.2	40.5	38.8	41.1	37.5	17.4
1979	32.8	15.6	36.9	40.1	37.5	41.3	37.5	15.3
1980	33.5	14.8	36.2	42.5	36.7	42.3	39.6	16.8
1981	33.5	16.2	36.0	41.2	35.8	41.3	39.2	14.9
1982	33.4	16.0	35.0	42.1	36.3	40.9	36.8	13.9
1983	32.8	14.8	33.5	43.6	36.8	39.8	34.5	15.1
1984	33.2	14.2	34.0	44.0	36.1	39.0	33.8	16.5
1985	33.0	14.1	34.8	44.2	35.5	37.3	31.3	15.3
1986	34.4	16.1	35.1	44.6	37.6	36.5	31.0	15.0
1987	36.0	15.6	37.6	47.6	38.9	35.9	29.6	14.8
				MALE POPULATION				
1977	64.0	26.8	60.5	83.2	93.7	91.8	76.5	36.9
1978	64.1	28.0	62.0	82.3	94.2	91.1	77.8	34.8
1979	65.1	29.1	66.9	81.8	94.7	91.7	74.3	29.8
1980	65.5	27.3	65.4	82.5	93.7	93.4	77.8	32.1
1981	66.0	30.2	64.8	81.1	92.8	91.2	76.3	28.0
1982	66.0	30.1	64.4	79.8	93.5	91.7	72.8	28.3
1983	64.3	27.8	61.3	79.1	93.7	92.2	74.2	32.2
1984	65.5	26.8	62.6	80.8	91.5	91.8	70.6	34.8
1985	65.4	26.2	64.8	82.3	90.4	89.5	68.3	31.1
1986	67.6	29.4	65.3	81.8	90.2	88.1	68.8	29.4
1987	71.1	30.1	70.6	86.9	90.7	85.4	66.4	28.9
				FEMALE POPULATION				
1977	4.0	0.9	3.5	7.6	4.6	4.7	1.4	1.5
1978	3.7	1.3	3.4	7.4	3.7	4.2	1.3	.
1979	3.4	0.8	3.4	7.3	2.7	2.5	1.4	1.8
1980	3.9	0.4	4.1	7.9	4.1	3.1	1.4	2.0
1981	3.7	0.5	4.2	6.7	4.9	3.1	.	.
1982	3.4	0.5	2.8	6.3	5.1	3.1	2.4	.
1983	3.5	0.7	3.1	5.9	5.9	3.2	2.2	1.3
1984	3.3	0.5	3.2	5.0	6.1	2.4	1.7	0.4
1985	2.9	0.6	2.1	4.6	5.9	2.2	2.0	0.7
1986	3.1	0.7	2.5	4.3	6.5	2.1	1.7	0.9
1987	3.0	0.2	2.0	4.9	5.4	2.5	1.4	1.3

(a) For years up to 1985, this age group also included persons of 14 years of age

Source: Israel, CBS, Judea, Samaria & Gaza Area Statistics, 1985, 1988, 1989, 1990.

Table TS1/12: WEST BANK: LABOUR FORCE PARTICIPATION BY AGE GROUP, 1977-1987
(percentages)

	TOTAL	15-17 (a)	18-24	25-34	35-44	45-54	55-64	65+
				TOTAL POPULATION				
1977	33.9	15.6	31.8	44.0	46.2	46.7	40.4	21.3
1978	34.1	16.2	32.5	44.2	46.3	45.6	41.9	21.4
1979	33.6	15.6	31.6	43.1	45.2	46.6	41.2	22.1
1980	34.2	15.5	31.0	43.9	46.9	46.2	42.3	24.1
1981	33.6	14.5	30.8	42.6	45.2	44.7	41.5	22.1
1982	35.2	15.5	32.8	44.7	46.7	46.3	41.3	21.3
1983	35.7	15.2	35.8	48.7	44.2	44.7	37.9	18.9
1984	36.7	14.4	38.7	49.7	44.7	43.1	36.5	17.2
1985	35.9	14.0	38.3	47.7	43.0	42.3	35.9	17.7
1986	39.0	17.8	40.4	49.7	44.2	44.2	37.2	18.4
1987	40.0	18.7	41.9	51.0	44.5	43.2	35.8	19.1
				MALE POPULATION				
1977	57.4	24.4	51.3	78.2	87.6	84.8	72.3	37.0
1978	56.8	24.5	51.2	76.9	86.3	84.4	76.0	37.8
1979	56.9	25.6	50.6	76.1	84.9	86.1	74.4	39.3
1980	57.7	24.9	49.7	76.9	87.9	86.5	75.8	42.1
1981	57.8	24.3	50.4	76.1	88.4	85.0	74.2	38.5
1982	60.0	24.9	53.9	78.7	88.4	85.9	73.9	38.2
1983	62.1	25.4	59.4	82.0	88.8	84.5	72.7	36.6
1984	63.7	23.4	63.7	83.6	89.0	83.4	69.3	33.3
1985	63.9	23.8	65.4	83.0	88.7	84.1	69.7	33.1
1986	69.1	30.4	67.8	86.0	90.1	85.9	72.6	34.8
1987	72.2	32.9	72.2	88.7	91.2	85.4	72.0	36.6
				FEMALE POPULATION				
1977	11.9	5.4	10.4	15.7	17.1	17.3	10.8	4.3
1978	12.7	6.8	11.8	16.0	17.6	17.7	12.6	4.2
1979	11.7	4.6	10.3	15.3	17.3	17.7	12.1	3.1
1980	12.3	5.0	10.2	15.5	18.8	17.4	13.4	4.3
1981	11.3	4.3	9.9	13.9	16.1	16.2	11.9	3.8
1982	12.2	5.0	10.3	14.5	18.1	17.9	13.3	4.1
1983	10.9	3.9	10.2	14.3	15.9	15.9	11.2	3.4
1984	11.2	4.6	10.9	14.1	16.7	14.8	9.4	3.6
1985	9.5	3.2	8.9	12.0	13.8	13.5	9.3	3.4
1986	10.8	4.0	10.1	12.2	16.1	14.8	10.7	4.1
1987	9.5	3.4	8.6	11.3	14.4	12.9	8.8	3.5

(a) For years up to 1986, this age group also included persons of 14 years of age.
Source: Israel, CBS, Judea, Samaria & Gaza Area Statistics, 1985, 1988, 1989, 1990.

Table TS 1/13. GAZA STRIP: DISTRIBUTION OF PALESTINIAN WORKERS, EMPLOYED IN THE GAZA STRIP BY SECTOR, 1969-1988
(percentages)

YEAR	TOTAL EMPLOYED IN GAZA STRIP (a) (thousands)	AGRICULTURE		INDUSTRY		CONSTRUCTION		OTHER SECTORS	
		As a Percentage of Total Employed in Gaza Strip	As a Percentage of Total Employed in Agriculture (b)	As a Percentage of Total Employed in Gaza Strip	As a Percentage of Total Employed in Industry (b)	As a Percentage of Total Employed in Gaza Strip	As a Percentage of Total Employed in Construction (b)	As a Percentage of Total Employed in Gaza Strip	As a Percentage of Total Employed in other sectors (b)
1969	51.8	.	.	.	.	.	.	.	.
1970	52.8	31.8	87.5	12.1	92.7	8.5	61.7	47.5	99.2
1971	51.5	31.1	79.2	12.4	90.2	4.7	43.6	51.8	99.2
1972	46.1	25.0	59.4	12.6	69.4	3.9	22.2	58.5	97.3
1973	45.4	25.6	58.0	12.6	64.9	3.7	14.7	58.1	94.9
1974	46.7	24.8	57.4	12.0	59.0	4.1	13.5	59.1	94.5
1975	46.5	27.1	72.5	12.1	54.5	4.9	14.3	55.9	90.9
1976	48.3	26.4	70.1	13.4	55.7	4.3	12.7	55.9	90.6
1977	49.7	25.3	69.2	12.5	53.5	6.5	20.1	55.7	88.2
1978	49.0	20.8	58.4	15.3	53.9	6.7	19.1	57.1	88.1
1979	45.3	21.0	58.0	18.5	53.1	6.9	17.0	53.6	83.5
1980	46.4	18.9	58.2	18.5	54.4	7.6	18.8	55.0	81.5
1981	46.6	18.2	59.3	16.5	53.8	8.6	18.5	56.6	82.2
1982	45.9	18.1	57.6	14.6	51.7	8.3	17.1	59.0	83.8
1983	45.6	19.2	56.9	15.2	47.7	8.1	16.5	57.5	79.3
1984	47.0	16.4	49.5	17.1	52.4	8.4	18.0	58.1	79.8
1985	49.2	17.9	49.4	16.2	50.2	8.3	18.7	57.7	79.9
1986	50.3	17.0	47.4	18.0	55.0	8.2	17.4	56.8	80.1
1987	54.2	15.9	47.2	17.5	52.5	8.4	19.0	58.2	78.8
1988	53.5	18.3	49.1	16.3	57.3	8.1	16.7	57.3	81.3

(a) Includes persons working in other parts of the occupied territory.
(b) This column represents the percentage of total Palestinians employed in this sector, both in the Gaza Strip and in Israel.

Source: Israel, CBS, Statistical Abstract of Israel, 1971, 1972, 1975, 1977, 1981, 1983, 1985, 1989, Nos. 22, 23, 26, 28, 32, 34, 36, 40, respectively.
Israel, CBS, Judea, Samaria & Gaza Area Statistics, 1980, Vol. X, No. 4.

Table TS 1/14. WEST BANK: DISTRIBUTION OF PALESTINIAN WORKERS EMPLOYED IN THE WEST BANK, BY SECTOR, 1969-1988
(percentages)

YEAR	TOTAL EMPLOYED IN WEST BANK (a) (thousands)	AGRICULTURE		INDUSTRY		CONSTRUCTION		OTHER SECTORS	
		As a Percentage of Total Employed in West Bank	As a Percentage of Total Employed in Agriculture (b)	As a Percentage of Total Employed in West Bank	As a Percentage of Total Employed in Industry (b)	As a Percentage of Total Employed in West Bank	As a Percentage of Total Employed in Construction (b)	As a Percentage of Total Employed in West Bank	As a Percentage of Total Employed in other sectors (b)
1969	101.5	.	.	.	.	.	.	.	.
1970	99.9	42.4	94.2	14.6	88.5	8.4	49.9	34.5	95.1
1971	91.2	40.1	91.7	14.6	75.6	6.1	27.8	39.1	91.3
1972	90.3	37.9	88.9	14.6	67.0	7.2	24.6	40.3	89.5
1973	87.8	34.2	89.8	16.4	64.3	7.6	23.3	41.8	87.4
1974	95.2	37.8	88.9	14.8	63.3	7.2	22.3	40.2	86.6
1975	91.9	34.7	87.9	15.8	65.8	8.5	25.9	41.1	85.8
1976	92.6	33.8	87.4	14.8	63.9	9.9	33.3	41.4	85.7
1977	91.8	33.7	87.3	15.3	63.7	10.2	37.5	40.8	83.7
1978	94.7	34.3	88.6	15.2	62.4	11.0	38.0	39.5	84.3
1979	93.0	31.5	87.7	15.9	60.9	11.7	36.5	40.9	84.1
1980	94.2	33.2	88.6	15.2	62.6	10.8	33.3	40.9	83.3
1981	93.5	30.5	88.5	15.7	67.0	11.6	34.1	42.2	83.2
1982	97.9	32.1	88.6	15.8	66.8	10.8	31.2	41.3	83.5
1983	99.1	29.5	87.9	16.1	64.6	10.9	29.6	43.5	81.7
1984	104.0	28.5	85.8	15.9	64.8	11.3	31.5	44.4	81.2
1985	103.7	27.2	84.7	16.1	67.9	12.2	33.8	44.5	82.6
1986	114.6	29.0	86.2	15.8	66.6	12.9	36.1	42.4	82.0
1987	114.7	26.0	82.9	16.5	63.0	12.2	31.4	45.3	77.4
1988	119.0	31.2	84.9	15.9	64.7	10.6	28.1	42.3	77.5

(a) Includes persons working in other parts of the occupied territory.
(b) This column represents the percentage of total Palestinians employed in this sector, both in the West Bank and in Israel.

Source: Israel, CBS, Statistical Abstract of Israel, 1971, 1972, 1975, 1977, 1981, 1983, 1985, 1989, Nos. 22, 23, 26, 28, 32, 34, 36, 40, respectively.
Israel, CBS, Judea, Samaria & Gaza Area Statistics, 1980, Vol. X, No. 4.

Table TS 1/15. GAZA STRIP: DISTRIBUTION OF PALESTINIAN WORKERTS EMPLOYED IN ISRAEL BY SECTOR, 1969-1988
(percentages)

YEAR	TOTAL EMPLOYED IN ISRAEL (thousands)	AGRICULTURE		INDUSTRY		CONSTRUCTION		OTHER SECTORS	
		As a Percentage of Total Employed in Israel	As a Percentage of Total Employed in Agriculture (a)	As a Percentage of Total Employed in Israel	As a Percentage of Total Employed in Industry (a)	As a Percentage of Total Employed in Israel	As a Percentage of Total Employed in Construction (a)	As a Percentage of Total Employed in Israel	As a Percentage of Total Employed in other sectors (a)
1969	1.1	.	.	.	.	.	.	.	.
1970	5.9	40.7	12.5	8.5	7.3	47.4	38.3	3.4	0.8
1971	8.2	51.2	20.8	8.5	9.8	37.8	56.4	2.5	0.8
1972	17.5	45.0	40.6	14.7	30.6	36.0	77.8	4.3	2.7
1973	22.7	37.0	42.0	13.6	35.1	43.2	85.3	6.2	5.1
1974	26.3	32.7	42.6	14.8	41.0	46.4	86.5	6.1	5.5
1975	25.9	18.5	27.5	18.1	45.5	53.3	85.7	10.1	9.1
1976	27.8	19.6	29.9	18.5	44.3	51.8	87.3	10.1	9.4
1977	27.5	20.4	30.8	19.6	46.5	46.5	79.9	13.5	11.8
1978	31.4	23.2	41.6	20.4	46.1	44.3	80.9	12.1	11.9
1979	34.3	20.1	42.0	21.6	46.9	44.3	83.0	14.0	16.5
1980	34.5	18.3	41.8	20.9	45.6	44.0	81.2	16.8	18.5
1981	35.9	16.2	40.7	18.4	46.2	49.5	81.5	15.9	17.8
1982	36.1	16.9	42.4	17.4	48.3	51.2	82.9	14.5	16.2
1983	39.7	16.7	43.1	19.1	52.3	46.9	83.5	17.3	20.7
1984	40.2	19.6	50.5	18.1	47.6	45.1	82.0	17.2	20.2
1985	41.7	21.6	50.6	19.0	49.8	42.3	81.3	17.1	20.1
1986	43.4	21.8	52.6	17.1	45.0	44.7	82.6	16.4	19.9
1987	46.0	21.0	52.8	18.7	47.5	41.9	81.0	18.4	21.2
1988	45.4	22.3	50.9	14.3	42.7	47.9	83.3	15.5	18.7

(a) This column represents the percentage of total Palestinians employed in this sector, both in the Gaza Strip and in Israel.

Source: Israel, CBS, Judea, Samaria & Gaza Area Statistics, 1985, 1988, 1989, 1990.

Table TS 1/16. WEST BANK: DISTRIBUTION OF PALESTINIAN WORKERS EMPLOYED IN ISRAEL BY SECTOR, 1969-1988
(percentages)

YEAR	TOTAL EMPLOYED IN ISRAEL (thousands)	AGRICULTURE		INDUSTRY		CONSTRUCTION		OTHER SECTORS	
		As a Percentage of Total Employed in Israel	As a Percentage of Total Employed in Agriculture (a)	As a Percentage of Total Employed in Israel	As a Percentage of Total Employed in Industry (a)	As a Percentage of Total Employed in Israel	As a Percentage of Total Employed in Construction (a)	As a Percentage of Total Employed in Israel	As a Percentage of Total Employed in other sectors (a)
1969	8.4		.		.		.		.
1970	14.7	17.7	5.8	12.9	11.5	57.2	50.1	12.2	4.9
1971	25.6	12.9	8.3	16.8	24.4	57.0	72.2	13.3	8.7
1972	34.9	12.3	11.1	18.6	33.0	56.8	75.4	12.3	10.5
1973	38.6	8.8	10.2	20.7	35.7	56.8	76.7	13.7	12.6
1974	42.4	10.6	11.1	19.3	36.7	56.1	77.7	14.0	13.4
1975	40.4	10.9	12.1	18.6	34.2	55.0	74.1	15.5	14.2
1976	37.1	12.2	12.6	20.9	36.1	49.6	66.7	17.3	14.3
1977	35.5	12.7	12.7	22.5	36.3	44.2	62.5	20.6	16.3
1978	36.8	11.4	11.4	23.6	37.6	46.0	62.0	19.0	15.7
1979	39.8	10.3	12.3	23.9	39.1	47.7	63.5	18.1	15.9
1980	40.6	9.9	11.4	21.0	37.4	50.1	66.7	19.0	16.7
1981	39.9	9.3	11.5	18.1	33.0	52.7	65.9	19.9	16.8
1982	43.0	9.4	11.4	17.9	33.2	54.1	68.8	18.6	16.5
1983	48.1	8.4	12.1	18.2	35.4	53.4	70.4	20.0	18.3
1984	50.1	9.8	14.2	17.9	35.2	51.0	68.5	21.3	18.8
1985	47.5	10.7	15.3	16.6	32.1	52.3	66.2	20.4	17.4
1986	51.1	10.4	13.8	17.8	33.4	51.0	63.9	20.8	18.0
1987	62.9	9.8	17.1	17.7	37.0	48.4	68.6	24.1	22.6
1988	64.0	10.3	15.1	16.1	35.3	50.7	71.9	22.9	22.5

(a) This column represents the percentage of total Palestinians employed in this sector, both in the West Bank and in Israel.

Source: Israel, CBS, Judea, Samaria & Gaza Area Statistics, 1985, 1988, 1989, 1990.

CHAPTER III

ECONOMIC DATA

A. Sources for the historical period

1. General remarks

As mentioned earlier, the time series used for the framework were constructed on the basis of series published by the CBS. These series suffered from a number of problems and limitations. The most common problem was that published estimates were usually revised several times. In the case of foreign trade and national accounts series, data figured in three denominations of the Israeli currency (Israeli lira, Israeli shekel, and new Israeli shekel) which had to be unified. Nevertheless, the more substantive shortcomings emanating from the methodology and definitions used by the CBS pose questions as to the degree of reliability and representativeness of the data. While specific problems are treated explicitly in the sections below, three general deficiencies will be mentioned at this point.

Firstly, the specific ways in which economic variables have been defined and estimated mean that the terms used often do not correspond to standard definitions. Secondly, the poor coverage and collection procedures result in over-aggregated flows, and imply that some of the most interesting variables remain unmeasured. Thirdly, most statistics quoted are estimates, i.e. they are neither historical values nor rough measurements, not to mention the fact that they are mostly based on out-dated and incomplete sample surveys. The only census ever taken by the Israeli occupation authorities was the Population Census in 1967.

2. Data limitations

Regarding the economic time series used for the framework, it is important to note that the original time series suffer from the following definitional limitations and/or divergences as compared to standard international definitions:

(a) While the CBS uses domestic consumption expenditure by all households as a component of total expenditure on GDP, private final consumption expenditure, which only includes resident households, was used for the framework.

(b) Expenditure by non-profit institutions is not itemized separately from private consumption expenditure by households.

(c) Expenditure on the purchase of residential dwellings is not included in private consumption expenditure as is conventionally the case, and has been categorized by the CBS as an investment flow.

(d) Regarding investment:

- No sectoral breakdown of investment spending is available.
- No allowance is made for capital depletion or asset depreciation, hence it is difficult to estimate NET investment flows.
- "Changes/increases in stocks/inventories" have been limited to changes in olive oil stocks, and thus reflect the two-year production cycle. One consequence of this definition is that in the Gaza Strip, which has no significant olive oil stocks, gross FIXED capital formation is the same as TOTAL gross capital formation.
- Despite the claim by CBS that consumption and investment expenditure on Israeli settlements and defence posts in the territory is not included in the data on infrastructures, the latter series encompass expenditures by: the Israeli Ministry of Housing, the Israeli Ministry of Defence, and the Jewish National Fund (i.e. on roads, buildings, and other infrastructures serving Israeli settlements).

(e) The CBS does not specify whether the "labour income" component of "net factor payments" is inclusive of taxes and social security contributions paid by Palestinians working in Israel.

(f) Official estimates in national accounting terms of the size and the type of transfer payments to and from the territory and information on component series are deficient, as only NET current transfers are estimated.

(g) As estimated by the CBS, "private savings" measure only GROSS SAVINGS held by PRIVATE individuals, which is an inadequate basis for assessing the economy's propensity to save. Thus, this series is not used for the

quantitative framework, and instead domestic/ national savings ratios were estimated to be equal to the difference between GDP/GNP and total consumption (i.e. private and government) over GDP/GNP.

(k) National disposable income is in fact GROSS national disposable income (i.e., GNDI) since it is not net of the consumption of fixed capital.

(l) It is not possible to know how significant are the duties levied on imports nor how much subsidies are given to exports, since these are not separated in the respective total flows.

(m) Transactions on the current account of the balance of payments do not include transactions between the Gaza Strip and the West Bank.

(n) The definition of the capital account is limited to estimates of foreign currency cash holdings of private individuals.

3. Data for 1988-1990

(a) General remarks

Preliminary data for 1988 and 1989 were published by the CBS in; Judea, Samaria, and Gaza Area Statistics, Vol. XIX, (Jerusalem, CBS, 1991). Though incomplete and provisional, these were found adequate as a frame for compiling more comprehensive series. When necessary, other available data sources (see below) have been used to clarify and round out the incomplete series and range estimates of growth published by CBS for these years. Estimates for 1988 and 1989 are based on an aggregation of data from CBS, Palestinian and other sources, and observations on percentage changes in different indicators made in the occupied Palestinian territory.

At the time of preparation of the framework, no CBS data had been published for 1990. Accordingly, estimates for 1990 were made in light of available information on sectoral performance and established 1988-1989 trends. The main sources other than the CBS consulted for the 1988-1990 estimates are as follows:

- Various sectoral estimates reported in UNCTAD, "Recent economic developments in the occupied Palestinian territory" (TD/B/1266), paras. 11-17;
- G. T. Abed, "The Palestinians and the Gulf Crisis", Journal of Palestine Studies, No. 78, Winter 1991;
- I. Abdel Hadi (ed.), The impact of the Gulf crisis on the economic situation in the Palestinian occupied territories (Ramallah, Bisan, 1990) (in Arabic);
- "Memorandum by Palestinian personalities to the Consuls General, East Jerusalem", 18/09/90;
- Palestinian Agricultural Relief Committees, "Report on the economic costs to the agricultural sector from the prolonged curfew in the occupied territories", 01/02/91;
- "Proposal by Palestinian credit institutions to the EEC for channelling funds to the three sectors of the economy of the West Bank, Gaza Strip", Jerusalem, March 1991;
- Palestine Economic Planning and Coordinating Committee, "A plan of action for relief and development aid to the West Bank and Gaza Strip", Jerusalem, 20/02/91;
- Palestine (PLO), "Memorandum by the Department of Economic Affairs and Planning" (in Arabic), February 1991;
- The Agricultural Cooperative Union in the West Bank, "Report on damages to the agricultural sector of the West Bank during the curfew" (in Arabic), 25/02/91.

(b) Specific variables

Gross domestic product (GDP): the CBS data provided no breakdown of the contribution to GDP of services and construction in the West Bank for 1988-1989. Estimates for 1988 (in current NIS) assume a 25 per cent fall in construction output, in view of a reported 25 per cent fall in private investment in building and construction and a reported 44 per cent fall in public investment in these areas (half of which is assumed to be in construction activity). The output of the services sector in 1988 is assumed to have declined by the same proportion as the average for industry and construction combined, i.e. by 20 per cent for West Bank and 7 per cent for Gaza Strip. Estimates for 1989 assume a sectoral share similar to that of 1988, though taking into account the overall decline in 1988-1989 of 30 per cent in GDP in current NIS, as reported by Palestinian sources. Estimates (in current NIS) for 1990 sectoral performance (based on

Palestinian sources) were as follows: agriculture grew by the same rate as in 1987-1988; industry remained constant; construction activity fell by 25 per cent in both West Bank and Gaza Strip; and services fell by 10 per cent in both areas.

Net factor income from abroad (NFI): estimates for 1988 are those published by CBS. For 1989, it is assumed that factor income (in current US dollars) in the West Bank and Gaza Strip declined by 2 per cent and 23 per cent, respectively. This is calculated according to 1988/1989 comparative data for monthly work days and average daily wages. In order to arrive at 1990 estimates, it is assumed that: (a) there was a 5 per cent nominal increase in NIS terms (to maintain the current dollar value in light of a devalued NIS); (b) constant receipts from work in Israel (owing to the stable level of workers and work hours until the end of 1990); and, (c) a loss of half of factor income from Jordan and the Gulf region, which constitute some 20 per cent of the total factor income accruing to the territory (i.e. half of 20 per cent = 10 per cent).

Net current transfers from abroad (NTR): in the Gaza Strip, estimates for 1988 and 1989 assume a constant level of transfers (in dollar values). In the West Bank, available CBS estimates for 1988 and 1989 appear to take into account the effect of the overall fall in transfers and the fall in current dollar value of transfers in Jordanian dinars as of mid-1988. For 1990, the West Bank is assumed to have lost 50 per cent or half of total transfers (i.e. those which come from countries affected by the Middle East crisis). In the Gaza Strip, it is assumed that transfers in dollar value declined to 1987 levels. The combined situation is as follows:

Estimated net current transfers (NTR), 1988-1990

(in million US dollars)

	1988			1989			1990		
	WB	GS	OPT	WB	GS	OPT	WB	GS	OPT
Private	30	50	80	40	60	100	10	20	30
Aid	20	40	60	40	60	100	10	20	30
UNRWA	30	50	80	35	55	90	35	55	90
Total	80	140	220	115	175	290	55	95	150

Source: UNCTAD secretariat estimates

Private investment (IP): for the Gaza Strip, the 1988 and 1989 data are from CBS. In the West Bank, the 1988/1989 relation between this indicator and other investment aggregates is assumed to have remained the same as the average which prevailed in 1983-1987, i.e. approximately 5 times as large as government investment in the West Bank; and, approximately 2.5 times as large as private investment in the Gaza Strip. For 1990, the indicator is assumed to have remained at the 1989 level in current NIS terms.

Public consumption expenditure (CG) and investment (IG): data on public consumption expenditure and investment in the West Bank for 1988 and 1989 are from CBS. Data on the Gaza Strip for 1988 are estimated as mid-point between published 1987 and 1989 CBS estimates. No change is assumed in current NIS values for 1990, except to account for the slight devaluation of the NIS against the US dollar.

Imports (M) and exports (X) of goods and non-factor services: the only CBS data available for the 1988-1989 period on these indicators cover the Gaza Strip for 1989. In order to complete the series, two other sources were used, and comparisons were made with previous years' data on exports of goods and services (national accounts definition) and balance of payments data on merchandise and services trade. The sources relied upon were Israeli balance of payments data published in Israel, CBS, Monthly Bulletin of Statistics, Supplement No. 42, December 1990, and provisional data on external merchandise trade of the occupied territory for 1988, published in Israel, CBS, Statistical Abstract of Israel, (Jerusalem, CBS, 1990). The resultant estimates do not depart significantly from trends elsewhere in the economy during the period, and it is assumed that the pre-1987 structure and composition of trade (both between West Bank and Gaza Strip and between services and merchandise) hold for the 1988-1989 period. In 1990, exports are assumed to have stayed at previous levels for the first half

of the year (worth NIS 230 million), but fallen severely in the second part of the year (NIS 70 million). Imports are assumed to have fallen to a total of NIS 1600 million (composed of NIS 1,400 million from Israel and NIS 200 million from elsewhere), thus maintaining the prevailing shares of each of the West Bank and Gaza Strip out of total imports.

Private consumption expenditure (CP): data for all years are calculated as follows: Private consumption = GDP + Imports - Exports - Public investment - Private investment - Public consumption.

Current account balance (CAB): the only available estimates for 1988 and 1989 are based on data published by CBS, using the Israeli balance of payments data published in Israel, CBS, Monthly Bulletin of Statistics, Supplement No. 42, December 1990. Data for 1990 were based on extrapolations for the whole year of quarterly data published in that same reference, and taking into account the above assumptions regarding exports and imports of goods and non-factor services, and net factor payments.

B. Deflation

1. Introduction

No time series in constant values were available. Therefore, the establishment of the quantitative framework necessitated transforming the time series compiled above from current to constant values, thus allowing the analysis of results to be conducted in real terms. Normally, the process of deflating economic variables relies on various indices collected and monitored by the national authorities or intergovernmental organizations. However, in the case of the West Bank and Gaza Strip, the only price index ever systematically collected and up-dated has been the consumer price index (CPI), which is based on 1976 prices in both cases. Constant price series published by CBS covered inconsistent and short time periods. The longest series covered the period 1981-1987 and were based on 1986 prices. Given the lack of price indices, the series used had to be deflated on a uniform base that consistently covered data for a period of at least 15 years. This base had to be also centred on the CPI of Gaza (CPIgs) and CPI of the West Bank (CPIwb), notwithstanding the inadequacy of using the CPI alone for deflating national accounts and balance of payments data.

2. The selection process

Thus, in the absence of alternative price indices, a universal deflator had to be found, and to the extent possible, it had to be slightly broader than the CPI. Hence, a GDP deflator (DEF) was devised on the basis of the following assumption:

$$\frac{CPIx}{CPIopt} = \frac{DEFx}{DEFopt} \simeq 1$$

where CPIx = CPI of a country X which has had strong economic links and parallels with the OPT.

DEFx = the GDP deflator of that country.

opt = either the West Bank or Gaza Strip

The formula yields the GDP deflator for the OPT in the following way:

$$DEFopt = DEFx \times (CPIopt / CPIx)$$

In fact, the equality only holds if country X is a relevant country for comparison. The choice of country X was made on the basis of two considerations: (a) The closeness in structure between the two CPIs used in the formula; (b) The dominance in the consumer basket and hence in the CPIopt of goods traded with country X.

Consequently, the choice of countries was limited to Jordan and Israel. Of the two possibilities, only the use of Israeli CPI and GDP deflator yielded ratios close to 1, although a priori it was expected that Jordan, with its closed economic structure, would give better results. This can most probably be explained by the balance of payments and foreign trade data, which indicate that most imports of the occupied territory, which are the main components of their consumer basket, originate from Israel. This and other economic links with Israel imply that the price structures in the territory are predominantly influenced more by those in Israel than by those in Jordan.

3. Aligning the base year

(a) The CPI of OPT (CPIopt)

CPI series provided by the CBS for both the West Bank and Gaza Strip cover two periods. The CPIs based on 1968 cover the years 1968 up to and including 1976, while the current CPIs are based on January 1976 and cover all the years since then. Thus, as a preliminary step, it was necessary to chain the two CPIs, using the two chaining factors provided by the CBS, namely 4.095 for the West Bank and 4.892 for the Gaza Strip. The resulting CPI values for each are presented in tables TS1/17 and TS1/18.

Having obtained a unified CPI for each of the West Bank and Gaza Strip covering 1968-1988 (base = January 1976), it was necessary to re-base them to the years used as a basis for the CPI and the deflator of country X, namely Israel. Hence, three series were available, namely: CPIopt (1976), CPIopt (1980) and CPIopt (1985). In other words, the 1976 basket of goods can be expressed either in 1976, 1980 or 1985 prices:

(i) Chaining the CPI of West Bank (CPIwb)

West Bank chaining coefficient = 4.095
New value = Old value/4.095

(ii) Chaining the CPI of Gaza Strip (CPIgs)

Gaza Strip chaining coefficient = 4.892
New value = Old value/4.095

(b) CPI Israel (CPIi)

Neither Israel nor Jordan continue to use out-dated CPI series with base year in the previous decade. The CPI currently quoted and used for Israel is based in 1985, the previous one being based in 1980. Here too, there were two possible series that could be used in the formula: CPIi (1980) and CPIi (1985). The first series covers 1948 to 1987, while the second starts in 1976 up till 1990.

(c) GDP deflator for Israel (DEFi)

To obtain a GDP deflator for Israel, the GDP of Israel expressed in current prices was divided by its GDP expressed in constant prices. Since statistics published by the International Monetary Fund (IMF) were used in the CPI data, it was necessary to abide by constant GDP series provided by the IMF, which yielded a GDP deflator based on 1985. To obtain a deflator aligned with the CPIi(1980), the DEFi (1985) was re-based on 1980.

All the preceding adjustments ((a) to (c)) led to six possible combinations of the components of the above-mentioned formula. The first three combine DEFi (1980) and CPIi (1980) with either:

(i) CPIopt (1976), CPIopt (1980), or CPIopt (1985).

In the same manner, it was possible to combine DEFi (1985) and CPIi (1985) with either:

(ii) CPIopt (1976), CPIopt (1980), or CPIopt (1985).

The six CPI series are presented in table TS1/19.

Since the base year had to be the same in all the indexes used (i.e. the CPI of the OPT and of Israel as well as the deflator(s) of the OPT and of Israel had to be either all based on 1980 or all based on 1985), only two options were retained, yielding two deflator(s):

(i) DEFopt (1980) (using CPIi (1980), DEFi (1980), CPIopt (1980))

(ii) DEFopt (1985) (using CPIi (1985), DEFi (1985), CPIopt (1985))

Before obtaining the two deflator(s), some adjustments to the 1985 deflator for Israel had to be made.

4. Adjusting DEFi(1985)

To obtain a GDP deflator that went back to 1968/1969, the 1985 CPI for Israel, which is based on 1976, had to be chained to the 1980 based series. In that manner, pre-1976 values could be obtained. However, there seemed to be another problem which made it necessary to extend the chaining exercise to the 1976-1979 period.

Looking at the 1976-1979 published values of the CPIi(1985), it is noticeable that all were rounded up to 0.1, whereas the CPIi(1980) shows that values rose from 12 in 1976 to 16.1 in 1977 and 24.3 in 1978. Given the magnitude of the CPI values for the OPT in those years, the degree of precision of the

1985-priced CPI was unsatisfactory. To obtain the original unrounded figures, 1980 CPIi figures for the years 1968 till 1979 were re-multiplied by the chaining coefficient originally used by the CBS. The chaining yielded the values in column (4) in table TS1/20.

$$\text{Chaining coefficient} = \frac{\text{CPI Israel 1980 (1985)}}{\text{CPI Israel 1985 (1985)}} = \frac{22498.5}{100} = 2.2499$$

Having obtained the 1969-1979 values for the CPIi (1985), the CPIi could then be multiplied according to the formula by the respective values of the DEFi (1985). The results were in turn multiplied by the CPIgs (1985) and the CPIwb (1985) to yield the respective deflators. The figures below show the process for the years 1969-1978, data for the latter years being calculated automatically.

5. Choosing the deflator

Having smoothed the deflator series, these were then used to obtain the GDP of occupied territory at constant 1980 and 1985 prices from which growth rates were subsequently calculated. The results were also compared with CBS-published constant price series for short periods based on 1980 and 1986 prices. Consequently, discrepancies became apparent between derived constant price series and CBS estimates. Differences in real growth rates were also found when the exercise was extended to calculating percentage shares of various economic variables such as gross domestic capital formation, exports and imports from constant GDP. These differences were reduced when three and five year averages of derived constant price series were taken.

The comparison revealed several disadvantages with the CBS constant price series for short periods, namely:

(a) For the same reference years (e.g. 1980-1981), the real growth rates obtained by the CBS for the same economic variable using 1980 or 1986 prices were different. This suggests inconsistent deflating methods that may have been used owing to the nature of CBS data base on the West Bank and Gaza Strip.

(b) CBS series gave a smooth progress of constant values. Thus, the CBS method of deflating seems not only to remove the effect of inflation, but also to smooth the historical trend. While such a process might facilitate fitting a trend line to the constant values, on the other hand, it might obliterate some interesting real fluctuations in the economy.

(c) None of the CBS constant series covers a time span long enough to cover the whole or most of the period under study (1968-1990).

(d) Each constant CBS series was obtained by using a different deflator, considered to be most appropriate for the variable being deflated. In the case of the constant series derived by the UNCTAD secretariat, the deflation process was conducted on a uniform basis, rendering comparison easier.

In light of the above discussion, it was decided to adopt the derived constant price series. Since DEFopt (1985) reflected most accurately the changes in price levels that have occurred since 1976 (because of the use of 1985 based CPIi and DEFi), DEFopt(1985) was selected and used to deflate all the economic time series needed for the parametric exercise.

6. Estimates of DEFopt for 1989 and 1990

Since estimates for the DEFi(1985) were not available for 1989 and 1990, special methods were followed to obtain estimates for DEFopt(1985). In the case of 1989, the DEFopt was derived in the following manner:

(a) Knowing that:

CPI Gaza (1989) = 211.9 CPI West Bank (1989) = 309.8
CPI Israel (1989) = 248.2 Deflator Israel (1988) = 211.4
CPI Israel (1988) = 206.4

(b) Assuming that the relationship between the CPI and the GDP deflator of Israel that existed in 1988 will hold pro-rata in 1989, it was deduced that:

Implicit deflator Israel (1989) = 248.2 x (211.4/206.4) = 254.694

(c) Hence,

$$\text{Deflator Gaza (1989)} = \text{DEF Israel (1989)} \times \frac{\text{CPI Gaza (1989)}}{\text{CPI Israel (1989)}}$$

$$= 254.694 \times \frac{211.9}{248.2} = 217.44$$

$$\text{Deflator West Bank (1989)} = \text{DEF Israel (1989)} \times \frac{\text{CPI W.Bank (1989)}}{\text{CPI Israel (1989)}}$$

$$= 254.694 \times \frac{209.8}{248.2} = 215.29$$

In the case of 1990, the change in the value of the deflator for that year over 1989 was assumed to be equal to the change that occurred in the value of the exchange rate of the new Israeli shekel to the United States dollar. The final series used are presented in table TS1/23.

Table TS1/17: CHAINING THE WEST BANK'S CPI

YEAR	OLD (1968 base)	NEW (1976 base)
1969	103.0	25.15
1970	108.4	26.47
1971	125.9	30.75
1972	148.1	36.17
1973	179.9	43.93
1974	256.5	62.64
1975	367.4	89.72
1976	..	114.9

(..) not covered by the series

Source: UNCTAD secretariat calculation

Table TS1/18: CHAINING THE GAZA STRIP'S CPI

YEAR	OLD (1968 base)	NEW (1976 base)
1969	104.9	21.44
1970	105.2	21.48
1971	128.1	26.19
1972	153.1	31.30
1973	190.3	38.90
1974	294.3	60.16
1975	452.7	92.54
1976	..	113.2

(..) not covered by the series

Source: UNCTAD secretariat calculation

Table TS1/19: CPI OF THE GAZA STRIP, THE WEST BANK, ISRAEL, AND JORDAN, 1969-1989

	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
GAZA STRIP											
BASE = 1976	21.4400	21.4800	26.1900	31.3000	38.9000	60.1600	92.5400	113.2000	151.5000	216.4000	373.0000
BASE = 1980	2.2460	2.2500	2.7430	3.2790	4.0750	6.3010	9.6930	11.8570	15.8690	22.6670	39.0700
BASE = 1985	0.0096	0.0096	0.0117	0.0140	0.0174	0.0270	0.0415	0.0507	0.0679	0.0970	0.1671
WEST BANK											
BASE = 1976	25.1500	26.4700	30.7500	36.1700	43.9300	62.6400	89.7200	114.9000	156.3000	235.1000	395.3000
BASE = 1980	2.6580	2.7980	3.2500	3.8230	4.6430	6.6200	9.4820	12.1430	16.5190	24.8470	41.7780
BASE = 1985	0.0129	0.0136	0.0158	0.0185	0.0225	0.0321	0.0460	0.0589	0.0801	0.1205	0.2026
ISRAEL											
BASE = 1980	2.900	3.100	3.500	3.900	4.700	6.500	9.100	12.000	16.100	24.300	43.300
BASE = 1985	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.100	0.100	0.200
JORDAN											
BASE = 1980	32.500	34.400	36.000	38.800	43.100	51.500	57.700	64.300	73.700	78.800	90.000
BASE = 1985	25.000	26.500	27.700	29.900	33.200	39.600	44.400	49.500	56.700	60.600	69.300

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
GAZA STRIP										
BASE = 1976	954.70	2000.50	4294.00	10784.60	51006.80	223200.00	333900.00	370500.00	411720.00	473000.00
BASE = 1980	100.00	209.54	449.77	1129.62	5342.70	23379.06	34974.32	38807.99	43125.57	49544.34
BASE = 1985	0.43	0.90	1.92	4.83	22.85	100.00	149.60	165.99	184.46	211.92
WEST BANK										
BASE = 1976	946.20	2025.20	4199.50	10069.00	46384.30	195080.00	292710.00	330930.00	359770.00	409210.00
BASE = 1980	100.00	214.04	443.83	1064.15	4902.15	20617.20	30935.32	34974.63	38022.61	43247.72
BASE = 1985	0.49	1.04	2.15	5.16	23.78	100.00	150.05	169.64	184.42	209.77
ISRAEL										
BASE = 1980	100.00	216.80	477.70	1173.50	5560.39	22498.49	33330.48	39937.29	.	.
BASE = 1985	0.40	1.00	2.10	5.20	24.70	100.00	148.10	177.50	206.40	248.20
JORDAN										
BASE = 1980	100.00	107.70	115.70	121.50	126.20	130.00	130.00	129.60	.	.
BASE = 1985	77.00	82.90	89.00	93.50	97.10	100.00	100.00	99.80	106.40	133.80

Source: UNCTAD secretariat computations based on CBS data.

Table TS1/20: CHAINING ISRAEL'S CPI(1985)

YEAR	CPIi(1985) Published Values	CPIi(1985) Published Values	CPIi (1985) Chained Values
1968	2.8	..	0.01245
1969	2.9	..	0.01289
1970	3.1	..	0.01378
1971	3.5	..	0.01556
1972	3.9	..	0.01733
1973	4.7	..	0.02089
1974	6.5	..	0.02889
1975	9.1	..	0.04045
1976	12.0	0.1	0.01334
1977	16.1	0.1	0.07156
1978	24.3	0.1	0.10801
1979	43.3	0.2	0.19246
1980	100.0	0.4	0.44544
.	.		.
1985	22498.5	100	100

(..) Not covered by the series.

Source: UNCTAD secretariat estimates based on CBS data.

Table TS1/21: ADJUSTING DEFi(1985)

YEAR	CPIi(1985) (1)	DEFi(1985) (2)	(2)/(1)=(3)
1969	0.01289	0.023	1.78433
1970	0.01378	0.017	1.23367
1971	0.01556	0.017	1.09254
1972	0.01733	0.025	1.44259
1973	0.02089	0.023	1.10101
1974	0.02889	0.034	1.17688
1975	0.04045	0.039	0.96415
1976	0.05334	0.051	0.95613
1977	0.07156	0.089	1.24371
1978	0.10801	0.131	1.21285

Source: UNCTAD secretariat computations based on CBS data.

Table TS1/22: ADJUSTING DEFgs(1985) AND DEFwb(1985)

YEAR	CPIgs (4)	DEFgs (5) (5)=(3)X(4)	CPIwb (6)	DEFwb (7) (7)=(3)x(6)
1969	0.009606	0.01714	0.012892	0.023
1970	0.009624	0.01187	0.013569	0.01674
1971	0.001734	0.01282	0.015763	0.01722
1972	0.014023	0.02023	0.018541	0.02675
1973	0.017428	0.01919	0.022519	0.02479
1974	0.026953	0.03172	0.032110	0.03779
1975	0.041461	0.03997	0.045991	0.04434
1976	0.050717	0.04849	0.058899	0.05632
1977	0.067877	0.08442	0.080121	0.09965
1978	0.096953	0.11759	0.120515	0.14617

Source: UNCTAD secretariat computations based on CBS data.

Table TS 1/23. GDP DEFLATORS, 1969-1989
(Base 1985)

YEAR	GAZA STRIP GDP DEFLATOR (1985)	WEST BANK GDP DEFLATOR (1985)
1969	0.0171	0.0230
1970	0.0119	0.0167
1971	0.0128	0.0172
1972	0.0202	0.0267
1973	0.0192	0.0248
1974	0.0317	0.0378
1975	0.0400	0.0443
1976	0.0485	0.0563
1977	0.0844	0.0996
1978	0.1176	0.1462
1979	0.1656	0.2008
1980	0.4892	0.5547
1981	0.9271	1.0738
1982	2.1112	2.3624
1983	5.3755	5.7423
1984	25.9479	26.9976
1985	100.0000	100.0000
1986	152.7190	153.1778
1987	167.5580	171.2359
1988	189.3171	189.2754
1989*	217.4442	215.2893
1990*	228.7694	226.5023

Source: * Estimates based on UNCTAD calculations.

PART TWO

STRUCTURE AND FUNCTIONING OF THE QUANTITATIVE FRAMEWORK UNDER THE BASELINE AND ALTERNATIVE SCENARIOS

INTRODUCTION

This part of the technical supplement explains how the quantitative framework depicts and projects the behaviour of the demographic and economic structures of the West Bank and Gaza Strip as revealed by key variables. The quantitative framework described in this part is organized in three components which are linked in a recursive manner. The first component, discussed in **chapter I**, consists of the demographic accounting framework which generates population figures by age and sex, both resident in the territory and emigrated. This set of information leads to the second component, presented in **chapter II**, which is concerned with the evolution of the total and sectoral labour force, its employment and productivity. In the third component, discussed in **chapter III**, the main macroeconomic relationships are analysed and projected. In chapters I to III below, references are made to estimation techniques and to the underlying assumptions made in calculating the projections for the 'baseline' scenario, the results of which are discussed in the main text of the study itself. Chapter IV reviews the process of integrating east Jerusalem into the framework. Chapter V deals with adjustments made in the quantitative framework for the baseline variant and alternative scenarios.

As in any time trend analysis exercise, it is expected that the levels of the variables under study incorporate strong trend elements, and that they will exhibit sluggishness in their behaviour. Thus, it can be expected a priori that a problem of auto-correlation will affect the results. Furthermore, the relative simplicity of the functional forms used means that the equations will suffer from specification bias. However, by no means do these limitations discredit the exercise. While the results may not provide the best specifications that can be envisaged, they are robust enough for the purpose of aggregate projections. So long as the overall significance of the equations and variables is substantial, the statistical weaknesses remain of secondary importance.

CHAPTER I
THE DEMOGRAPHIC ACCOUNTING FRAMEWORK

The projection of population (and hence of labour force) required for the quantitative framework made it necessary to keep track of developments in the structure of population of the occupied territory over time. This is carried out under what is best termed a 'demographic accounting framework', which monitors the evolution of the population by age and sex using information on:

(a) fertility patterns,
(b) mortality patterns, and
(c) emigration rates.

The input parameters required for this purpose were historical data for total population and for five-year age cohorts. These were translated into single age groups, which were the basis of the derivation of the fertility and mortality patterns of the population concerned, with emigration derived indirectly from the above two. Sections A to C below detail how the computations are carried out.

A. Fertility

The projected number of births of a population, as required by the framework, depends on its fertility behaviour. This behaviour, as summarized by a fertility schedule, is characterized by the evolution of the total fertility rate, the relative distribution of child-bearing at different ages, and the structure of the female population in child-bearing age groups.

To describe the fertility schedule, an approach suggested by Brass was used. Brass discovered that most fertility patterns can be described fairly well by a function which relates the observed pattern to a "standard fertility schedule" by a two parameter function. The function can most simply be noted to express a certain transformation of the observed fertility rates as a linear function of the same transformation of a standard fertility schedule. The two parameters of the function, alpha and beta, respectively, determine the peak of the derived schedule and the spread of the fertility rates over the reproductive ages.

To obtain alpha and beta, given that we are dealing with annual data over time, the system had to allow for changes in their levels. Thus, for each year of the 1968-1984 period, a separate regression was run, generating two time series of alphas and betas for the observed period, as appear in tables TS2/1 and TS2/2. For the projection period, since no reliable information was available with respect to possible changes in the shape of the fertility curve, the two parameters alpha and beta were kept constant at their average levels of the first half of the 1980s. On the other hand, total fertility rates were assumed to decline in line with projections for neighbouring countries in the region as carried out by the Population Division of the United Nations Department of International Economic and Social Affairs.

B. Mortality

The mortality pattern of a given population can be summarized in a similar way as the fertility pattern, i.e. by its level and its relative distribution. The level of mortality can best be expressed by the average life expectancy, which is usually higher for females than for males. The relative mortality at different ages is most conveniently summarized in so-called life-tables. For a number of countries, model life-tables which summarize the mortality patterns for population and for given life expectancies have been tabulated. Where data show a mortality pattern that cannot be defined accurately or does not strictly conform with established patterns, as is the case in the occupied Palestinian territory, resort has to be made to a more flexible system. The system selected here is the Brass logit life-table system.

Under the Brass logit life-table system, the probability of survival to an age x in an observed life table can be expressed approximately by a linear transformation of the corresponding probability in a standard life table. Hence, for every observed set of age-specific mortality rates, there exists a unique set of coefficients alpha and beta that express this information as a function of the standard levels, with the size and sign of alpha determining the level

of the mortality schedule, and those of beta determining its shape. Together, they generate probabilities of survival that can be either lower at younger ages and higher at the older ages, or lower at younger ages and higher at older, this being in relation to the standard survival probabilities. To find the appropriate model life table for a given population, it is sufficient to set the values of the parameters in a way that the generated mortality pattern fits as close as possible to the available information on mortality rates of that population. Once the mortality schedule is determined, life expectancies can be translated into a unique set of age-specific mortality rates, which are subsequently aligned with life expectancy levels by an iterative procedure.

The Brass system requires the knowledge of mortality rates. In the case of the occupied territory, hardly any information is available on the subject. Thus, the mortality parameters needed for the Brass system had to be estimated indirectly on the basis of two sets of information: the levels of life expectancies and the levels of infant and child mortality. In other words, since the exact historical levels of the two parameters were hard to determine, the only recourse possible was to adopt the values of alpha and beta that gave mortality rates for the group aged 0 to 1 year broadly in line with current regional infant mortality rates, i.e. rates established for neighbouring Arab countries.

In conclusion, given the lack of empirical data on mortality rates and life-tables, the Brass technique synthesized estimated child and adult mortality levels into a coherent mortality schedule. In the specific case of the West Bank and Gaza Strip, Brass's alpha and beta mortality parameters had to be calculated so that they give a mortality behaviour close to the observed one, i.e. characterized by: a high level of infant mortality, a medium to high level of old age mortality, and a crude death rate that fell within the range of known values for neighbouring countries. A process of trial and error was resorted to in order to arrive at the desired behaviour whereby, for each of the West Bank and Gaza Strip populations, various combinations of alphas (A) and betas (B) were attempted. The combinations that produced the most satisfactory results were:

West Bank: A = -0.095 and B = 0.83
Gaza Strip: A = -0.090 and B = 0.83

Of course, should more information be available or should the target infant mortality levels change, the adopted parameters would be altered accordingly.

C. Emigration

Incorporating emigration in the framework permits the assessment of the impact on economic performance of an eventual cessation or reversal of this flow. The first case became particularly relevant as of 1990, with growing indications of a significant decline in the absorption and retention by the Arab host countries of Palestinians from the occupied territory. The second possibility would emanate in the event of changing political and economic circumstances that would permit some of the emigrated population to return.

For the historical period, i.e. 1968-1990, the yearly levels of emigration were calculated as the difference between the potential and the actual population, both for the total population and for age cohorts, after allowing for mortality. In other words, each age group of emigrants constitutes that part of the age-group of the population that is "missing". Allowance was also made for the growth of the emigrated population, assuming the same fertility and mortality patterns.

For the projection period of 1991-2010, a certain emigration rate had to be adopted, this rate being determined by the scenario in question. Under the baseline scenario, where current trends are assumed to continue, the emigration rate is set so as to reflect the average percentage share of emigrated population out of total end-year population in the years 1980-1987, i.e. at 1.1 per cent for the West Bank and 0.78 per cent for Gaza Strip. Emigration levels were around twice those levels in the 1970s, and since 1982, they have come down to less than 1 per cent (0.9-0.58 per cent). The emigration rate can be set to 0 per cent if no emigration occurs, and to a negative figure should the territory receive a net flow of emigrants and returnees.

To incorporate emigration in this manner, it was necessary to make an important assumption, namely that the demographic parameters of the emigrated and resident population are the same, both in the historical and in the projection period. This assumption is not entirely unreasonable, since the two population groups come from the same total population, and hence probably follow the same demographic behaviour. The only difference likely to exist is that, should the emigrant population have access to better health services particularly for mothers and their infants, the current infant and old age mortality rates could be slightly exaggerated. However, this will only affect the estimated "stock of emigrants", whose level is difficult to determine exactly, and is only of theoretical importance for the purposes of the present exercise. Thus, at least for the purpose of the baseline scenario, it can be argued that the assumption of similar demographic parameters largely holds.

Given these parameters of fertility, mortality and emigration, the demographic accounting framework generates projections that can be summarized in the following way. For the age group 0 to 1, in each projection year the new population is derived as the product of female population of child-bearing ages and its corresponding age-specific fertility rate, minus infant mortality, minus emigration. The sex ratio between male and female births is calculated to be 1.05 for the Gaza Strip and 1.07 for the West Bank. For all other age cohorts, the new population is derived as previous year's population, one year younger in age, reduced by the number of persons expected to have died or emigrated in that age cohort.

Table TS 2/1. GAZA STRIP: A & B BRASS FERTILITY COEFFICIENTS, 1968-1984

YEAR	ALPHA	BETA
1968	0.62272	1.60301
1969	0.59046	1.06357
1970	0.53612	1.06311
1971	0.26304	1.05234
1972	0.20825	1.05309
1973	0.21206	1.05096
1974	0.35563	1.04391
1975	0.21420	1.04523
1976	0.16797	1.05178
1977	0.18334	1.03990
1978	0.19752	1.04279
1979	0.18113	1.04317
1980	0.16787	1.05459
1981	0.18080	1.05062
1982	0.19974	1.04825
1983	0.04945	1.03987
1984	0.17870	1.05585
AVERAGE 1980-1985	0.15531	1.04984

Source: UNCTAD secretariat computations based on CBS data.

Table TS 2/2. WEST BANK: A & B BRASS FERTILITY COEFFICIENTS, 1968-1984

YEAR	ALPHA	BETA
1968	0.51279	1.04668
1969	0.51074	1.04577
1970	0.45087	1.04799
1971	0.17863	1.04643
1972	0.11629	1.04782
1973	0.07834	1.04811
1974	0.01525	1.04459
1975	0.00535	1.05194
1976	0.01321	1.05377
1977	0.03926	1.05407
1978	0.04361	1.05861
1979	0.06361	1.06059
1980	0.24206	1.05709
1981	0.22864	1.06053
1982	0.31190	1.06487
1983	0.14159	1.05663
1984	0.30535	1.05606
AVERAGE 1980-1985	0.24591	1.05904

Source: UNCTAD secretariat computations based on CBS data.

CHAPTER II

THE LABOUR FORCE COMPONENT

The labour force component of the quantitative framework focuses on three aspects of the labour force, namely its size, its productivity, and its employment in the domestic economy and in Israel. These aspects provide an empirical basis for the projections of these variables in future scenarios, as the sectoral labour shares and relative labour productivities obtained here constitute the key to projecting sectoral output and hence GDP.

With respect to the size of the labour force, the historical data on age and sex-specific labour force participation rates were applied to population data. For the projection period under the baseline scenario, it is assumed that the average participation rates which prevailed in the last available five years, i.e. 1985 to 1989, remain constant. This assumption probably leads to an underestimation of the size of the future labour force, since it takes account neither of the full effect of developments since 1987, nor of the expected rise in female labour force participation rates as total fertility rates decline and as incentives to increased involvement by women in the formal economy became apparent.

The labour force employed in the domestic economy was grouped into four main sectors (agriculture, industry, construction, services), with the labour force employed in Israel treated effectively as a fifth sector. Adopting such a distribution permits a dynamic evaluation of the impact of the cessation of work in Israel, and of the partial or total absorption of this labour force into domestic economic sectors. In other words, such a method reveals the relative importance of sectoral labour force trends as well as the magnitude of the dependency of the labour force on job opportunities in the Israeli economy. For the historical period, sectoral labour shares were calculated and then regressed against time. The resulting time trends, which are discussed in section A below, were used to calculate future shares.

Having obtained sectoral distribution of domestic employment, relative sectoral labour productivities were derived and defined as the labour productivity of a particular sector expressed as a ratio of total labour productivity (measured as GDP at factor cost per domestically employed person). Data for the historical period were used to fit time trends, which are extrapolated in the forecast period. The time trends for relative labour productivities are discussed in section B below. As for the workforce employed in Israel, it is treated for projection purposes as a variable whose level may fluctuate according to the scenario being considered. Under the baseline scenario (and indeed under the alternative scenarios), it is assumed that the workforce employed in Israel in absolute numbers in 1990 will remain the same across the projection period. Other formulations are of course possible, but were not deemed relevant to the scenarios under analysis here.

Calculation of unemployment was not required for the historical period. In the projection period, unemployment was derived from the gap between the projected demand for domestically produced goods, i.e. projected GDP at market price, and the potential domestic capacity as derived from the available labour force, i.e. potential GDP that would result if all that labour force was employed at the corresponding productivity levels. In other words, the unemployment rate is equal to the labour force (less the number of persons working in Israel) multiplied by this gap.

A. Trends in sectoral labour shares

The aim of this part of the exercise was to assess past and future trends in the sizes of the sectoral labour force employed in the West Bank and Gaza Strip rather than to identify the determinants of the historically established levels. Thus, the shares of labour in agriculture (LSAGR), industry (LSIND), construction (LSCON), and services (LSSVC) were each regressed solely against time (T) or the natural logarithm of time (LOGT), and the dummy variable (INT), covering the impact of the 1988-1990 period. As for the share of labour force employed in Israel (LSISR), the regression against time was merely effected for

analytical purposes, since in the projection period, it is treated as an exogenous variable. The results of the equations for this section are presented in table TS2/3. Equations retained for projection purposes are indicated by an asterisk.

1. LSAGR

A cursory examination of the levels of agricultural employment in both the West Bank and Gaza Strip reveals their clear decline throughout the 1970s, the fall being much less accentuated thereafter. Since 1987, the shares established in the late 1980s stabilized and even exhibited a modest increase. Thus, since 1985, at least 25-27 per cent of domestically employed labour has been engaged in agricultural activities in the West Bank, while in the Gaza Strip, the ratio is closer to 10-11 per cent. The equations monitoring these trends are equations I.3.1 and I.3.2 for the Gaza Strip and II.3.1 and II.3.2 for the West Bank.

In the Gaza Strip, both regressions were highly significant, yielding high R-square (R^2) levels. The INT coefficient was positive and significant at less than 5 per cent significance level in the first equation, and at around 10 per cent in the second. Thus, according to equation 3.1, INT increased LSAGR by around 4.5 per cent. Time trend coefficients were significant and negative in both cases, with the coefficient of T implying an annual decline of 0.75 per cent. However, in both cases, the first-order auto-correlation coefficient was around 0.4. This suggests that the straight declining line implied by the regression does not perfectly characterize the real trend. Consequently, a logistic regression was attempted, using a minimum line of 10 per cent for the LSAGR. The equation (No. I.3.11) gave a high R^2 and a very low first-order coefficient. The INT coefficient was highly significant, while the time trend coefficient, which is the proportionate rate of growth, equalled -0.037. In light of the improved results, this regression is retained for projection purposes.

In the West Bank, both regressions were highly significant, with good R^2 levels. The INT coefficient was positive and significant at less than 5 per cent in the former case, implying an addition of 2 per cent to the share of agricultural labour force, but proved insignificant in the latter, this being probably due to the fact that 1988-1990 levels have not yet exceeded 1987 levels. As for time trend parameters, their coefficients were significant and negative. As in the Gaza Strip, the first-order auto-correlation coefficients were relatively large. This suggests that a straight declining line does not well characterize the real trend, which is, among other things, highly seasonal in its fluctuations.

To improve the results, logistic equations using various minimum levels of agricultural employment were run. The most successful one (which also implied that LSAGR will reach 10 per cent by the year 2010) gave a high R^2, and its explanatory variables were significant. Thus, for projection purposes, this equation (No. II.3.13) is retained.

2. LSIND

The number of people working in industry in the occupied territory has grown minimally over the last 20 years, reflecting the poor performance of the sector itself. During the 1980s, the share almost stagnated in the West Bank, while in Gaza it weakened slightly before recovering with the expansion of subcontracting industries. Since 1987, LSIND stabilized at around 17 per cent of local employment in the former, but decreased slightly (by 4 per cent) to around 18 per cent in the latter. The equations monitoring these trends are equations I.3.3 and I.3.4 for the Gaza Strip and II.3.3 and II.3.4 for the West Bank.

In the Gaza Strip, both regressions were significant, but seemed to explain less than 60 per cent of the observed pattern, and the first-order auto-correlation coefficient was fairly high. Despite the mediocre overall fit of the equations, the explanatory variables were all significant. The INT coefficient displayed a negative sign, and in equation I.3.4 it showed that LSIND registered a fall of just under 3.8 per cent after 1987. By contrast, time trend coefficients were positive and significant in both cases, with the coefficient of T showing a rise of 0.38 per cent a year. Thus, the equations do capture the trend of the last 20 years, which is acceptable for projection purposes.

Furthermore, the historical data indicate that the trend itself is not very strong, and hence does not lend itself to more sophisticated specifications. For the projection exercise, equation I.3.4 is selected because of its higher R^2.

In the West Bank, the regressions showed similar results as in the Gaza Strip, in that both were significant and had adequate R^2 levels. Here too, the first-order correlation coefficients were around or above 0.35. The time trend variables were significant and positive, but very weak. Equation II.3.3 showed that industrial employment has grown at just around 0.1 per cent per annum over the last two decades! The INT variable implied a positive but marginal effect, raising the percentage of people employed in the local industries by less than 1 percentage point. This rise was only significant in the second regression. For projection purposes, the first equation is selected because of its higher R^2.

3. LSCON

The construction sector has been probably the leading sector of the Palestinian economy in terms of nominal rates of growth. This has led to a clear rise in the share of the labour force employed in the sector. The rise was especially felt in the 1975-1980 period, reflecting the increased flow of financial resources from the region as well as the rapid inflationary trend in Israel. The trend became more sluggish thereafter. After 1987, LSCON increased slightly and stabilized at around 11 per cent of local employment in Gaza, while in the West Bank, levels stabilized at around 12-13 per cent of the domestically employed in 1988-1990. The equations for this sector are equations I.3.5 and I.3.6 for Gaza and II.3.5 and II.3.6 for the West Bank.

In the Gaza Strip, the regressions were highly significant, with good overall fits. As expected, the time trends were both highly significant and positive. The INT coefficient had a positive sign, but the t-test was only successful in the second equation, meaning that the addition of some 0.8 per cent since 1987 cannot yet be characterized as substantive. The regression retained for projection purposes is equation II.3.6, because of its higher R^2 and lower first-order auto-correlation coefficient.

In the West Bank, regressions showed similar results as in Gaza, in that both had fairly high R^2, and in both, the time trend variables were significant and positive. The T coefficient in equation II.3.5 showed an overall rate of growth of 0.35 per cent a year. The decline in the number of employed witnessed since 1987, as captured by INT, seemed to be significant, and according to the equations, LSCON fell by some 2-2.5 per cent. Since LSCON seemed to display a declining rate of growth, it is not surprising that the R^2 proved higher and the auto-correlation lower in the second than in the first equation. Thus, it is the former that is retained.

4. LSSVC

The services sector referred to in this exercise is the combination of all other sectors except agriculture, industry and construction, and consists mainly of public and personal services, trade, and transport and communications. While a breakdown of the importance of these activities in relation to total employment (which includes workers in Israel) is available, data on domestic employment only allocate it to agriculture, industry, construction and "other sectors". Hence, the share of labour in the latter sector is considered a residual share, and being influenced by the different dynamics of the activities that it includes, it is expected that its behaviour will not show a clear pattern over time. Looking at the data for LSSVC, in the Gaza Strip, the share of labour in that sector, since its 1974 peak of 60 per cent, has fluctuated between 55 per cent and 59 per cent of domestic employment, and has remained at 55 per cent since 1987. In the West Bank, the share of labour employed in this sector rose marginally from 40-42 per cent of domestic employment to a peak of around 45 per cent in 1987. Subsequently, it dropped slightly in 1988 only to recover later on. LSSVC equations are Nos. I.3.7 and I.3.8 for the Gaza Strip and II.3.7 - II.3.9 for the West Bank.

In the Gaza Strip, the absence of a trend gave poor results, with the regressions only significant above 28 per cent, an overall goodness of fit of around 0.15 in both cases. Inevitably, the explanatory variables were insignificant. Improved results were obtained when a logistic curve setting the

minimum share of the services sector at 50 per cent was run. However, since the R^2 remained low, it was decided that for the projection period, the share of services in domestic employment will be calculated as a residual share, and no equation is retained.

In the West Bank, the results were better than those for the Gaza Strip, with regressions significant and displaying satisfactory R^2 levels. Time trend variables were positive and significant, but remained small. The INT dummy variable did not show any substantial or determined effect (changing signs). When a logistic curve was attempted, the share of LSSVC was a maximum level of 50 per cent. The R^2 rose to 0.64, but the first order auto-correlation coefficient was high. Hence, equation II.3.9 is selected for the simulation exercise. In this equation, the INT is not used, and the time trend variable implies an annual growth rate of around 2.5 per cent.

5. LSISR

The importance of this source of employment has grown significantly in the territory since 1967 the fastest rise being witnessed during the late 1970s. After 1987, levels declined clearly in the Gaza Strip, while in the West Bank they remained at around 35 per cent of the labour force. The equations depicting these trends are equations I.3.9-I.3.10 for the Gaza Strip and II.3.9-II.3.10 for the West Bank. As mentioned previously, none are retained for the projection exercise since, in the projection period, the labour engaged in Israel will be determined exogenously.

In the Gaza Strip, the regressions showed very good fits. Time trends were significant and the highest among all sectors, with the first equation showing an annual growth rate of 1.1 per cent. The INT variable had a substantial negative effect, bringing the share down by 6-8 per cent.

In the West Bank, the results were slightly weaker as the trend has been more unstable. The R^2 levels were at 75 per cent for equation II.1.9 and 69 per cent for the second equation. In this case too, time trend coefficients were positive and significant, but remained small, with the coefficient of T in the first equation showing a growth of 0.23 per cent a year. The INT variable had a positive impact, probably because the 1988-1990 period continued the rise seen in 1986-1987.

B. Trends in sectoral labour productivity

In this section, as with labour shares, the aim was to arrive at valid time trends for total and relative labour productivities, which are crucial determinants of technical progress and of growth in sectoral output. Total labour force productivity (LFP) was defined as GDP at factor cost divided by the total domestically employed labour force (total employed minus labour employed in Israel). The relative sectoral labour productivity is sectoral productivity (output of the sector over employed labour force in that sector) divided by total labour force productivity. The relative productivity of labour in agriculture (LFPAGR), industry (LFPIND), construction (LFPCON), and services (LFPSVC) were regressed either against time (T) or the natural logarithm of time (LOGT), and the dummy variable (INT). The equations for this section are presented in table TS2/4. As with labour shares, it is expected that such simple modelling of the behaviour of sectoral productivity will not yield very good results in terms of goodness of fit and auto-correlation. However, the results are adequate enough for projection purposes under the quantitative framework. Equations retained for projections are indicated by an asterisk.

1. LFP

Since the growth of employed labour force tracks the growth of the total supply of labour, the main source of variation in the total productivity levels in the occupied territory has been the erratic behaviour of total domestic output, this being especially the case for the Gaza Strip. In the West Bank, LFP rose significantly in the 1970s, stabilized in the first half of the 1980s, then rose again before declining sharply during 1988-1989. In the Gaza Strip, there was an overall rise with fairly wide annual fluctuations during the 1970s, followed by a sharp decline in the 1982-1985 period. Levels then recovered, only to plummet again during the Intifada. The equations monitoring these trends are

equations I.4.1-I.4.2 for the Gaza Strip and II.4.1 -II.4.2 for the West Bank.

In the Gaza Strip, the erratic historical behaviour resulted in fairly weak R^2 in both equations. Yet, the explanatory variables were all significant. The time trend registered a meagre annual growth rate of $183 of output per employed person. The INT coefficient showed that production levels declined by $2,500-2,800 in 1988-1990. Equation I.4.1 was selected initially for projections because the other equation would imply a declining productivity. However, given the constraints on the growth of other variables in the framework, namely output, this equation, which implied production growth of just under 2 per cent per annum, gave extremely high unemployment levels. Hence, under the baseline scenario, LFP is set to grow at 0.5 per cent per annum, which is assumed to be a reasonable rate of growth.

In the West Bank, the more definite trend gave in both equations an R^2 of 0.80, very good F-ratios, and significant variables. The time trend variable registered a higher annual growth rate of $390 of output per employed person. The INT coefficient showed that production levels dropped by $1,850-2,900 in 1988-1990. Here too, unacceptable unemployment levels were obtained when the equations were run in the framework, and so LFP growth in the projection period is fixed at 1 per cent per annum.

2. LFPAGR

Productivity in the agricultural sector of the occupied territory did not display any strong or clear trend during the observed period as a whole. In both the West Bank and Gaza Strip, LFPAGR registered a decline from the early 1980s onwards, this being particularly clear in the West Bank. The 1988-1990 period, which witnessed a revival of agricultural activities, exhibited a positive effect on productivity levels. The equations concerning these trends are equations I.4.3-I.4.4 for the Gaza Strip and II.4.3-II.4.4 for the West Bank.

In the Gaza Strip, the regressions were significant despite the low R^2. Time trends were only significant at the 10 per cent significance level, with T showing an annual marginal decline of $15. The INT coefficients were significant in both equations, and pulled up productivity levels by $310-$350 per employed person. Equation I.4.4 is retained because of its higher R^2. In the West Bank, the regressions were only significant at the 10 per cent significance level, with time trend parameters being insignificant. Two alternative interpretations were attempted. Equation II.4.5 used as the dependent variable the three-year moving average of LFPAGR, the idea being to smooth the efect of the two-year olive production cycle. Equation II.4.15 is a logistic interpretation of the LFPAGR setting the minimum level of productivity at 0.8 ($800 per employed person). This equation gave the best results in terms of overall significance and the presence of auto-correlation. Given the improved statistical performance, equation II.4.15 is retained.

3. LFPIND

Productivity in the manufacturing sector of the Gaza Strip and the West Bank has shown little progress over the last 20 years, and its performance tended to weaken throughout the 1980s. Since 1987, there has been a small improvement in the Gaza Strip and a marginal decline in the West Bank. The equations concerning these trends are equations I.4.5-I.4.6 for the Gaza Strip and II.4.6-II.4.8 for the West Bank.

In the Gaza Strip, the regressions gave low R^2 levels and seemed to suffer from auto-correlation. Only the INT parameter was significant, showing a gain of $200-225 per employed person. Given the weakness of the results, for the projection period, LFPIND in the Gaza Strip is treated as an exogenous variable. Under the baseline scenario, it assumes the value of the 1985-1989 average, namely 0.75.

In the West Bank, the results were better as the regressions were highly significant, with acceptable R^2 levels. Time trend parameters were significant, with the coefficient for T showing a small but statistically significant annual loss in productivity. The changes since 1987, as captured by INT, were not substantial. Thus, for projection purposes, the INT variable is excluded from equation II.4.8, which is selected for the projection exercise. The presence of

auto-correlation in all three regressions seems to indicate a mis-specification problem. Consequently, factors other than the time trend should be taken into account when determining future productivity levels in industry.

4. LFPCON

Productivity in the construction sector in the Gaza Strip and the West Bank has been more erratic than the growth in the sectoral output and the sectoral labour force. In both regions, the strongest gains were achieved before 1977, and by the mid-1980s productivity had settled down to lower levels. In the Gaza Strip, the 1987 level was not significantly different from the one established in 1972. On the whole, the 1988-1990 period exhibited declining productivity levels in the territory, but the changes were neither continuous nor confirmed. The equations for this sector are equations I.4.7-I.4.9 for the Gaza Strip and II.4.9-II.4.11 for the West Bank.

In the Gaza Strip, the regressions gave R^2 of 0.50-0.55 and were highly significant. Time trend variables were significant and showed a small annual decrease in productivity of $90-110 per employed person. The INT coefficient had a negative but undetermined effect. Given the weak nature of the results, a logistic curve setting the minimal level of relative productivity at 0.9 ($900) was attempted. The resulting equation (I.4.12) gave a high R^2, and both the INT and T variables were significant. This equation is selected for the projections.

In the West Bank, results reflected the erratic behaviour and showed poor R^2 levels. Parameter coefficients were insignificant except in equation II.4.9, where time was the only regressor. Thus, a logistic interpretation was formulated in equation II.4.16, where the minimum level of productivity was set at 1.5 ($1,500), which is representative of the levels achieved in recent years. The equation gave a more acceptable R^2, and the negative time trend became significant, and so it is retained for projection purposes.

5. LFPSVC

As with labour shares, attempting to capture the behaviour of productivity in what is truly a combination of sectors has been problematic. Here, what is in fact being measured is the average productivity of all domestic employment apart from agriculture, industry and construction. Thus, the absence of a clear trend is not surprising. The only useful observation that could be made is that productivity in this sector has fluctuated around 1 ($1,000) in the Gaza Strip and 1.3 ($1,300) in the West Bank, although the behaviour of the latter has been more erratic. Since 1987, there has been a slight decline in productivity in the West Bank, but in the Gaza Strip, the 1987 level was well maintained.

Equations for this sector are I.4.10-I.4.11 for the Gaza Strip and II.4.12-II.4.14 for the West Bank. In both cases, the simple regressions attempted for other sectors were insignificant. Consequently, there were two optional treatments of LFPSVC in the projection period: either to try alternative equations, or treat the productivity in this sector as a residual.

In the Gaza Strip, equation I.4.13 setting a maximum future productivity level of 1.1 ($1,100), gave a relatively low R^2, but was significant. More importantly, both parameters displayed significant coefficients. Hence, it is retained for projection purposes.

In the West Bank, no logistic trend was successful, but results were improved by dropping out the first two observations, as in equation II.4.14. Given the dispersion of the observations around the actual data, it is not surprising that the R^2 of that equation failed to exceed 0.30. Thus, for the projection period, LFPSVC is held constant at the 1985-1989 average, namely 1.3.

Table TS 2/3: TRENDS IN SECTORAL LABOUR SHARES

(t-values in brackets; coefficients significant at 5%)

		EXPLANATORY VARIABLES				REGRESSION DIAGNOSTICS		
Equation No.	Dependent Variable	Intercept	Dummy (INT)	Time (T)	Logtime (LOGT)	R2	Prob>F	First Order Auto-correlation
				GAZA STRIP				
I.3.1	LSAGR	29.035	4.583 (3.66)	-0.755 (-9.06)		.85	0.0001	0.375
I.3.2	LSAGR	35.385	2.296 (1.72)		-6.398 (-7.32)	.79	0.0001	0.444
I.3.3	LSIND	11.168	-3.776 (2.92)	0.381 (4.43)		.55	0.0016	0.361
I.3.4 *	LSIND	7.546	-2.765 (-2.44)		3.416 (4.58)	.57	0.0012	0.341
I.3.5	LSCON	2.830	0.823 (1.01)	0.366 (6.78)		.85	0.0001	0.228
I.3.6 *	LSCON	-0.639	1.800 (2.57)		3.279 (7.13)	.86	0.0001	-0.010
I.3.7	LSSVC	56.968	-1.630 (-1.30)	0.008 (0.09)		.14	0.3005	0.368
I.3.8	LSSVC	57.709	-1.332 (-1.19)		-0.297 (-0.40)	.15	0.2781	-0.380
I.3.9	LSISR	28.826	-8.938 (-4.49)	1.111 (8.38)		.82	0.0001	-0.023
I.3.10	LSISR	17.635	-6.203 (-4.45)		10.243 (11.24)	.89	0.0001	-0.025
Logistic functions								
I.3.11 *	LSA10	-0.290	0.256 (5.21)	-0.037 (-10.53)		.88	0.0001	-0.022
I.3.12	LSS50	-2.500	-0.395 (-2.28)	0.028 (1.91)		.30	0.1025	0.109

LSA10 = LOG (1 - 10 / LSAGR) , beginning 1973
LSS50 = LOG (1 - 50 / LSSVC) , beginning 1975

(Continued)

Table TS 2/3: TRENDS IN SECTORAL LABOUR SHARES (continued)

(t-values in brackets; coefficients significant at 5%)

Equation No.	Dependent Variable	EXPLANATORY VARIABLES: Intercept	Dummy (INT)	Time (T)	Logtime (LOGT)	REGRESSION DIAGNOSTICS: R2	Prob>F	First Order Auto-correlation
				WEST BANK				
II.3.1	LSAGR	39.405	2.260 (2.29)	-0.694 (-9.10)		.87	0.0001	-0.577
II.3.2	LSAGR	45.167	0.489 (0.39)		-5.850 (-7.15)	.80	0.0001	-0.273
II.3.3 *	LSIND	14.815	0.706 (1.51)	0.077 (2.47)		.58	0.0010	-0.389
II.3.4	LSIND	14.288	0.9803 (2.24)		0.599 (2.09)	.54	0.0020	-0.349
II.3.5	LSCON	6.748	-2.673 (-4.25)	0.345 (8.23)		.81	0.0001	0.520
II.3.6 *	LSCON	3.285	-1.821 (-4.05)		3.175 (10.74)	.88	0.0001	0.325
II.3.7	LSSVC	39.258	-0.653 (-0.68)	0.273 (4.27)		.61	0.0005	-0.080
II.3.8	LSSVC	37.260	0.352 (0.36)		2.077 (3.24)	.50	0.0042	0.046
II.3.9 *	LSSVC	39.258		0.2452 (5.037)		.60	0.0001	-0.137
II.3.10	LSISR	27.547	2.579 (2.23)	0.279 (3.62)		.75	0.0001	0.201
II.3.11	LSISR	25.717	3.601 (3.16)		2.133 (2.85)	.69	0.0001	0.254
Logistic functions								
II.3.12	LSS50	-1.046	0.174 (1.07)	-0.056 (-4.39)		.64	0.0007	-0.260
II.3.13	LSA10	-0.270	0.0347 (1.71)	-0.0104 (-7.13)		.81	0.0001	-0.485

LSS50 = LOG ((50 - LSSVC) - 1) , beginning 1974

Source: UNCTAD secretariat computations based on CBS data.

Table TS 2/4: TRENDS IN SECTORAL LABOUR PRODUCTIVITY

(t-values in brackets; coefficients significant at 5%)

Equation No.	Dependent Variable	EXPLANATORY VARIABLES: Intercept	Dummy (INT)	Time (T)	Logtime (LOGT)	REGRESSION DIAGNOSTICS: R2	Prob>F	First Order Auto-correlation
					GAZA STRIP			
I.4.1	LFP	5.212	-2.833 (-2.85)	0.183 (2.78)		.38	0.0225	0.114
I.4.2	LFP	2.905	-2.538 (-3.15)		1.900 (3.58)	.49	0.0047	0.038
I.4.3	LFPAGR	1.544	0.347 (2.71)	-0.015 (-1.74)		.31	0.0489	0.311
I.4.4 *	LFPAGR	1.546	0.312 (2.74)		-0.139 (-1.86)	.33	0.0412	0.342
I.4.5	LFPIND	0.753	0.227 (1.93)	-0.001 (-0.19)		.26	0.0935	0.446
I.4.6	LFPIND	0.711	0.204 (1.94)		0.012 (0.18)	.26	0.0936	0.479
I.4.7	LFPCON	4.453	-0.435 (-0.91)	-0.091 (-2.86)		.56	0.0014	-0.185
I.4.8	LFPCON	4.604		-0.110 (-4.46)		.54	0.0003	-0.138
I.4.9	LFPCON	5.009	-0.784 (-1.70)		-0.679 (-2.24)	.50	0.0042	-0.119
I.4.10	LFPSVC	0.877	-0.100 (-1.36)	0.006 (1.19)		.11	0.3849	0.523
I.4.11	LFPSVC	0.870	-0.068 (-1.00)		0.031 (0.68)	.06	0.6036	0.562
Logistic functions								
I.4.12 *	LFPCO9	-0.170	-0.166 (-2.51)	-0.0126 (-2.65)		.71	0.0001	-0.052
I.4.13 *	LFPS11	-0.367	1.410 (2.50)	-0.126 (-2.63)		.38	0.0461	0.140

LFPCO9 = LOG (1 - 0.9 / LFPCON) , beginning 1973
LFPS11 = LOG ((1.1 / LFPSVC) - 1) , beginning 1975

(Continued)

Table TS 2/4: TRENDS IN SECTORAL LABOUR PRODUCTIVITY (continued)

(t-values in brackets; coefficients significant at 5%)

Equation No.	Dependent Variable	EXPLANATORY VARIABLES Intercept	Dummy (INT)	Time (T)	Logtime (LOGT)	REGRESSION DIAGNOSTICS R2	Prob>F	First Order Auto-correlation
				WEST BANK				
II.4.1	LFP	3.623	-2.934 (-3.87)	0.394 (7.81)		.80	0.0001	0.198
II.4.2	LFP	-0.011	-1.851 (-2.73)		3.482 (7.82)	.80	0.0001	0.300
II.4.3	LFPAGR	1.211	0.354 (2.35)	-0.013 (-1.26)		.26	0.0903	-0.137
II.4.4	LFPAGR	1.302	0.310 (2.28)		-0.099 (-1.12)	.25	0.1052	-0.116
II.4.5	LFPAAV	1.254	0.187 (2.20)	-0.015 (-2.24)		.30	0.0844	0.302
II.4.6	LFPIND	0.595	-0.003 (-0.07)	-0.006 (-2.99)		.47	0.0060	0.504
II.4.7	LFPIND	0.657	-0.008 (-0.30)		-0.066 (-3.97)	.59	0.0008	0.427
II.4.8 *	LFPIND	0.680			-0.068 (-4.89)	.58	0.0001	0.424
II.4.9	LFPCON	1.695	-0.165 (-1.06)	-0.011 (-1.04)		.27	0.0782	0.016
II.4.10	LFPCON	1.753		-0.018 (-2.20)		.22	0.0419	-0.001
II.4.11	LFPCON	1.709	-0.223 (-1.57)		-0.057 (-0.61)	.24	0.1099	0.054
II.4.12	LFPSVC	1.156	-0.139 (-1.65)	0.010 (1.74)		.18	0.2028	-0.075
II.4.13	LFPSVC	1.096	-0.102 (-1.31)		0.073 (1.43)	.14	0.3102	-0.036
II.4.14	LFPSV2	1.078	-1.176 (-2.03)	0.156 (2.23)		.29	0.0902	-0.047

(Continued)

Table TS 2/4: TRENDS IN SECTORAL LABOUR PRODUCTIVITY (continued)

(t-values in brackets; coefficients significant at 5%)

Equation No.	Dependent Variable	EXPLANATORY VARIABLES: Intercept	Dummy (INT)	Time (T)	Logtime (LOGT)	REGRESSION DIAGNOSTICS: R2	Prob>F	First Order Auto-correlation
				WEST BANK				
Logistic functions								
II.4.15*	LFPA08	-0.013	2.265 (2.40)	-0.164 (-2.23)		.32	0.0690	-0.009
II.4.16*	LFPC15	-1.191		-0.137 (-2.91)		.46	0.0155	-0.436

LFPAAV uses for the regressor the three-year moving average of LFPAGR, which smoothes out the effect of the olive output cycle.
LFPSV2 is the same as equation II.2.9, only the starting period is 1974.

LFPA08 = LOG (1 - 0.8 / LFPAGR), beginning 1974
LFPC15 = LOG (1 - 1.5 / LFPCON), beginning 1974

Source: UNCTAD secretariat computations based on CBS data.

CHAPTER III

THE ECONOMIC COMPONENT

A. General description

According to the economic component of the quantitative framework, the supply side of GDP was determined mainly by the availability of the employed labour force to the four main economic sectors and by their respective labour productivities. In the historical period, GDP at factor cost is calculated as the sum of the actual sectoral components. Its potential value, which is equal to the value that it would have at full employment, is obtained by inflating its actual value by the level of unemployment. The demand side, i.e. expenditure on GDP at market price, is calculated as the addition of consumption, investment (both in their public and private components), and foreign trade. Thus, unemployment balances out actual aggregate demand and potential full domestic productive capacity. In the projection period, GDP at factor cost is the sum of projected potential sectoral outputs. Assuming the ratio of NITP (net indirect taxes on domestic production) to GDP at factor cost remains constant in the future, potential GDP at market price grows at the same rate as projected potential GDP at factor cost. The discrepancy between projections for potential GDP at market price and actual domestic demand is accounted for by unemployment.

Having obtained GDP at market price, GNP is then calculated by adding net factor income (NFI). National income is measured by gross national disposable income (GNDI), and is obtained by summing up GNP (GDP at market price plus NFI) and net current transfers (NTR). GDP and GNDI being endogenously determined, only NFI and NTR need to be treated explicitly in separate equations.

Turning to the components of aggregate demand, private consumption and investment flows are expressed primarily as a function of GNDI. As for government expenditure on consumption and capital formation (CG and IG respectively), they were initially expressed in terms of the income level of Palestinian inhabitants and of government tax revenue. The main justification for introducing the latter was that, according to the Israeli sources, the Israeli administration held a policy of keeping its expenditure on the occupied territory in line with the level of tax revenues it collected from Palestinians. However, this specification proved only useful in explaining the past. For projection purposes, the growth of CG and IG is set to depend on their respective share in domestic output, meaning that they are set to grow at the same rate as GDP.

Regarding foreign trade, exports are treated as an exogenous variable and are expressed as a function of time. Imports are simply determined by GNDI. Finally, the trade balance (TB) and the current account balance (CAB) are accounting identities, the latter being the result of the addition of TB, NFI and NTR.

B. The consumption functions

As with the overall income level, consumption in the occupied territory witnessed remarkably strong growth in the last 20 years, this being particularly felt during the 1972-1977 period. Since 1987, there has been a fairly important disruption of the pattern, with the decline in economic activity and income levels bringing a strong compression in the consumption levels of the inhabitants. The other main feature of consumption expenditure of the territory is that it is mostly composed of private consumption. The size of government consumption expenditure, roughly speaking, has been equal to one tenth of private consumption, which has been the largest component of aggregate demand. The regressions concerning the two components of consumption expenditure are tabulated in table TS2/5. Equations retained for projection purposes are indicated by an asterisk.

1. Private final consumption expenditure

Private final consumption expenditure by resident households and non-profit institutions (CP) has displayed a strong rising trend over time. More importantly, its value has constantly exceeded that of GDP, because of the heavy reliance of the territory on transfers and earnings from abroad. The importance of these external sources of income meant that GNDI rather than GDP had to be the determinant variable. Lagged private consumption (CP_{-1}) was also introduced to take into account a possible effect of previously established consumption patterns, although a priori it was not known whether it would be a significant explanatory variable.

For the Gaza Strip, equations run are Nos. I.5.1 and I.5.2. Both showed high

overall fits and were highly significant. Parameter coefficients in both equations were significant. The introduction of CP_{-} in equation I.5.2 reduced the problem of auto-correlation, with the first-order correlation ratio declining from 0.511 to 0.345. Thus, the second equation is selected for projections. According to that equation, the propensity to consume out of GNDI is close to 42 per cent, with some 30 per cent of current consumption being determined by what was consumed in the previous year. According to INT in that equation and to official data, the period since 1987 has seen a significant fall in private consumption expenditure of $90-$104 million, which is roughly 13-14 per cent of the 1987 level of $654 million.

For the West Bank, the consumption equations run are Nos. II.5.1 and II.5.2. Both equations yielded high R^2 and were highly significant. However, lagged consumption having proved to be insignificant, equation II.5.1 is adopted, although here too there seems to be a problem of auto-correlation. According to this equation, the propensity to consume out of GNDI income is at a high 77 per cent. The INT variable implies that since 1987, private consumption expenditure has dropped by around $150 million from the estimated 1987 level of $1,452 million.

It should be noted at this stage that multiplicative forms of the consumption function (namely where the dummy variable is added to the slope coefficient) were also attempted. In the West Bank, the added variables were not significant, and the R^2 obtained were either unchanged or lower. In the Gaza Strip, the coefficient for the differentiated slope was significant. However, the implied long-run propensity to consume was not significantly different from the one deduced from the equation used in the framework.

2. Government consumption expenditure

Government consumption expenditure (CG) in the case of the Gaza Strip has been composed of the expenditure of the Israeli "Civil Administration", while in the case of the West Bank, it also includes Jordanian Government and other external expenditure on local authorities. At any rate, CG in both territories has seen little change in real terms. The only tendency that is more or less clear is the modest rise in the few years preceding 1987, which was subsequently reversed.

In standard economic analysis, government spending is linked to two major factors: domestic income levels and government revenue, the latter being more or less constrained by budgetary considerations. To account for the first factor, GNDI was chosen to capture the link with income levels. As for government revenue, the occupation authorities do not disclose the total income they collect from the Palestinian inhabitants in terms of taxes, levies and other changes. However, as previously mentioned, analysis can be guided by the fact that the Israeli authorities have geared their spending to revenues collected from Palestinians. The only proxy variable that could represent this link was income tax and transfers to government (ITT). Consequently, various regressions were run using INT, GNDI, and ITT or lagged ITT (ITT-). The equations retained are I.5.3 to I.5.8 for the Gaza Strip and II.5.3 to II.5.8 for the West Bank.

In the Gaza Strip, all five equations gave satisfactory results in terms of R^2 and overall significance. The coefficients for GNDI were only significant in two cases. When it was dropped out from the exercise, as in equations I.5.5 and I.5.8, the overall explanatory power of the equations was not affected. ITT proved significant and positive in all equations. Its coefficients show that between 83 per cent and 90 per cent of past government expenditure could be explained by their tax revenue. The INT coefficient shows that the rise of $9 million seen between 1987 and 1990 was significant.

In the West Bank, the equations showed high R^2 and were all significant at the 1 per cent significance level. In contrast with the Gaza Strip, the coefficients for GNDI were always significant, though they remained small in magnitude. ITT and ITT_{-} proved significant and positive in all equations. The fact that their value exceeds 1 does not imply that the authorities spend more then they collect. Rather, it indicates the importance of other sources of income for spending, namely disbursements from the Jordanian Government. INT was insignificant and positive in all three equations.

Equations I.5.8 for the Gaza Strip and II.5.5 for the West Bank were used in initial runs of the framework. However, the resultant values they projected were excessively high (because of the projected high growth of ITT). In order that projected CG maintains the same importance it had to domestic output as in the historical period, CG was run against its share out of 1990 GDP, the most recent indicator of its level.

C. Investment functions

As with consumption expenditure, the bulk of gross domestic capital formation, referred to as investment, is accounted for by the Palestinian private sector, which, in the 1980s, was responsible for 82 to 88 per cent of total investment spending in the occupied territory. A priori, it was not possible to know whether government investment expenditure would be substantial enough to allow a separate treatment of the two components, and so regressions of private investment (IP), government investment (IG), and total investment (IT) were attempted. In the case of the West Bank where changes in olive oil stocks are included in total investment flows, separate regressions were run for fixed private and fixed total investment (IP2 and IT2). The most satisfactory equations are found in table TS2/6. Equations retained for projection purposes are indicated by an asterisk.

1. Private investment expenditure

As with most other variables in the Palestinian economy, private investment experienced its highest growth in the 1970s, with the trend reversing itself or losing speed in the 1980s. Since 1987, IP in the West Bank fell only in 1988, with levels tending to stabilize below the 1986-87 peak later, while in the Gaza Strip, the setback appeared to be much smaller.

In understanding the behaviour of IP, it should be noted that it covers two types of flows, namely what have been termed "building and construction works" and "machinery and equipment". In the West Bank, changes in olive oil stocks are also included, implying that IP can be different from fixed private investment (IP2). Regarding the importance of each type of investment, the building and housing sector has constituted the largest part of fixed private investment. In the 1980-1986 period, some 84 per cent of fixed capital formation went to this sector, the shares being 87 per cent and 82 per cent for the Gaza Strip and the West Bank, respectively. Consequently, much of the behaviour of IP being analysed here reflects developments in the building and construction sector. Given the above and the absence of data on the sectoral distribution of IP, it was not possible to relate the behaviour of private investment in any meaningful way to a determinant other than income, represented by GNDI. However, the importance of this variable in private investment decisions, especially regarding housing, should overcome the drawbacks resulting from this simple specification.

Thus, for the Gaza Strip, IP was run against GNDI and INT, and the resulting equations are I.6.1 and I.6.2. In the West Bank, the same exercise was carried out for IP and IP2, the equations being II.6.1 to II.6.4.

In the Gaza Strip, both equations were highly significant, with good R^2 levels. GNDI was a highly significant variable. According to equation I.6.1, the propensity to invest out of GNDI, including housing, is close to 22 per cent. In equation I.6.2, the coefficient of INT had a positive but yet undetermined effect on IP and IT. Hence, equation I.6.1, which does not include INT, was retained for projection.

In the West Bank, all the equations proved highly significant in terms of R^2 and F-test. Equations using fixed investment were worse in terms of auto-correlation and were not retained. According to equation II.6.2, INT did not prove significant, and the equation was not retained. This leaves equation No. II.6.1 regressing IP simply against GNDI, in which the propensity to invest is 22 per cent (including olive oil stocks). This equation is retained for projection.

2. Government investment expenditure

The details of the allocation of government investment (IG) not being available, there was little information to allow a profound analysis of the behaviour of IG over 1970-1990. In the Gaza Strip, no real trend could be deduced from the data, but it is possible to say that up to 1979, IG levels were slightly above $20 million, and settled at or below that level in the 1980s. By contrast, the West Bank has seen a modest rise in IG levels, which reached around $50 million in the mid-1980s. The 1988-1990 period witnessed a negative trend, especially in the West Bank, where IG dropped back to the late 1970s' levels.

To regress IG, two explanatory variables were used, namely time (T) and income tax and transfers to government (ITT). Lagged ITT was also examined in case there was an important time lag between the collection of taxes and their partial disbursement in the form of investment expenditure. The equations retained initially are I.6.3-I.6.6 and II.6.3-II.6.8 for the Gaza Strip and the West Bank, respectively.

In the Gaza Strip, the poor time trend gave insignificant regressions and

poor R^2 levels, and the coefficients on the explanatory variables were insignificant. Regressions on time alone were also attempted, but they gave worse results. Consequently, it was decided that for the baseline scenario, government investment would be treated as an exogenously determined variable.

In the West Bank, where the time trend was clearer, more statistically meaningful results were obtained. As can be seen in equations II.6.6 and II.6.8, both T and ITT were significant variables on their own. However, when they were combined, the T coefficients became insignificant, and so retaining it became less relevant. Consequently, equation II.6.6 was selected initially. According to this equation, almost 99 per cent of the variation in past levels of IG could be explained by the levels of revenue collected. The INT coefficient was negative and significant in all cases. According to equation II.6.6, the 1987-1990 period saw IG levels fall by $21 million, which is below the actual figure of $50 million.

However, when equation II.6.6 was used in projections, as with government consumption, projected IG levels were too high. Since regressions were also unsuccessful for the Gaza Strip, IG had to become an exogenously determined variable. As with CG, its projected behaviour is set to depend on the growth of GDP, assuming that its share of domestic output in the projection period remains fixed at the 1990 level. Regarding total investment expenditure, equations gave satisfactory results, but are not used in the initial run of the framework. They are only presented here for analytical interest.

D. Foreign trade

Exports and imports have absorbed a large part of the domestic use of resources, meaning that foreign trade has constituted a sizeable proportion of the occupied territory's aggregate demand. Imports in particular have historically satisfied most of the consumption demand. Thus, in the 1980-1985 period, the exports (in current US$) of the occupied territory accounted for 36 per cent of GDP (51 per cent in the Gaza Strip and 29 per cent in the West Bank), while imports equalled 92 per cent of GDP (133 per cent in the Gaza Strip and 77 per cent in the West Bank).

In foreign trade, no behavioral relationship was explored in the case of exports, which were only regressed against time and INT. No attempts were made to explore their geographical distribution because the overwhelming share of the Israeli market would have distorted the results. Imports, on the other hand, were regressed against GNDI and INT, with GDP not being chosen for the previously mentioned reasons. The equations for foreign trade of the Gaza Strip and West Bank are presented in table TS2/7. Equations retained for projection purposes are indicated by an asterisk.

1. Exports

Up to 1981, exports in both areas witnessed a significant but unsteady growth. Thereafter, and up to 1987, West Bank exports tended to stabilize around $250 million, while in the Gaza Strip, they experienced a severe drop which was only partially reversed in 1985-1987. Since then, both trends were disrupted and sizeable falls were seen. In the Gaza Strip, the decline was continuous and has brought levels down to one tenth of the 1987 level. The corresponding equations are Nos. I.7.1.-I.7.4. for Gaza Strip and Nos. II.7.1-II.7.3. for the West Bank.

In the Gaza Strip, unstable export performance yielded unimpressive results. Though the R^2 in all the first three equations was satisfactory, the time trend was not significant. Even when the log of exports was regressed against T, the resultant 2.6 per cent annual growth was still insignificant. Only LOGT proved to be significant. On the other hand, the INT variable had a substantial impact in all equations. According to the first two equations, it saw levels plummeting to $170 million, which corresponds to official estimates. Given the weakness of the results, no equation was retained. Thus, in the projection period, exports are exogenously determined. Under the baseline scenario, they grow at 3 per cent per annum, which is the rate implied by the equation and equal to the historical average.

In the West Bank, where the overall growth was clearer, results proved more satisfactory and R^2 levels were high. More importantly, the parameters for the time trend as well as for INT were all significant. The estimated annual rate of growth of exports according to equation II.7.3. equalled 5.3 per cent. According to the INT coefficient, the 1988-1990 period saw a fall of $129-$153 million, which represents a cut of some 50 per cent from the 1987 level. Given the low R^2 levels, for projection purposes, exports are set to grow at an exogenously determined rate. Under the baseline scenario, this rate is set at 5 per cent, which is the historical average indicated by the equations.

2. Imports

Imports have shown quite significant and virtually unabated growth throughout the observation period, the only relapse being the years 1981-84, when levels stagnated in the West Bank and retreated slightly in the Gaza Strip. Since 1987, there has been an impressive reversal of the trend, particularly in the case of the Gaza Strip. Historical data show that imports have often grown faster than both consumption and GDP. Indeed, they seem to have only been pinned down by the levels of disposable income. So it can be expected, a priori, that characterizing the behaviour of imports as being simply a function of GNDI would give convincing results. The empirical results confirmed this, and only one equation was needed in each case.

In the Gaza Strip, regressing imports against GNDI and INT yielded a high R^2 and a highly significant equation. The propensity to import out of GNDI according to the resulting equation (number I.7.5) is close to 68 per cent, which indicates that the largest part of aggregate demand is satisfied by the inflow of external resources rather than by local production. The 1988-1990 period saw a significant drop in import levels of around $160 million from the 1987 level of almost $600 million, and hence the INT variable was significant.

In the West Bank, similar results were obtained, with the highly significant regression giving an R^2 of 0.88. In this case, however, the propensity to import out of GNDI was less than 50 per cent, with the larger productive base of the West Bank apparently being able to satisfy a larger part of domestic consumption. Here too, the INT coefficient registered a large decline in imports of $177 million in 1988-1990 from a level of $884 million in 1987.

E. Net current transfers

Net current transfers (NTR) have constituted an important supplementary source of external income available to the occupied Palestinian territory. Historically speaking, it has accounted for a rough annual average of 5 per cent, 8 per cent, and 5 per cent of GNDI in 1972-1975, 1976-1982, and 1983-1987, respectively. Levels rose significantly in 1988-1989, but in 1990, they fell back again, with the West Bank receiving less transfers than it did in 1987.

The main components of NTR are: transfers to the local Palestinian administration from Jordanian and other official Arab sources; participation by the Israeli Government in the budget of the Civil Administration; transfers from international aid agencies, mainly UNRWA; and most importantly, remittances from workers abroad, particularly those working in Jordan and the Arab countries of Gulf. This is the major reason that NTR reached its highest levels at times when migrant workers in those countries were most numerous, e.g. in the 1975-1981 period.

NTR levels being determined mostly by factors exogenous to the local economy, it was not entirely inappropriate to capture their behaviour by a time trend. At the same time, the importance of migrants' remittances had to be reflected by some proxy variable. Since these were primarily determined by transfers from Palestinian emigrated population and hence by the local emigration, "Balance of Population Movement" (MOV), which is the CBS's measure of the net annual migration flow, was selected. One advantage of using this variable is that it allows for observing what would happen to NTR should people stop migrating or should Palestinians residing abroad stop sending remittances. With no data available for 1988-1990, MOV was held at the average of 1987-1988 levels, which is not totally unrealistic, given that these already reflected the observed tendency for migration to decline. Regressions combining INT, T, MOV and MOV_{-} (lagged MOV) are run, and the best equations are found in Table TS2/8. The equations retained for projection purposes are indicated by an asterisk.

In the Gaza Strip, the equations had good overall significance and acceptable R^2 levels. The lack of a clear time trend meant that the coefficient of T failed to be significant. By contrast, emigration, as captured by the MOV variable, was significant in determining the levels of net transfers received by Gaza, with the time lag in the process of transfer remaining unimportant. The 1988-1990 period witnessed a statistically significant boost in levels. The average growth per annum according to the equations, which is around $74 million, should be treated with caution, given the marked fall in 1990 levels. For the projection period, the equation 1.8.2 having the highest R^2 and significant explanatory variables, was selected.

In the West Bank, results were poorer. When NTR was regressed against T, a combination of T and MOV, or MOV alone (equations II.8.1, II.8.2, and II.8.3 respectively), the equations were only significant at levels above the 5 per cent

level, with an average R^2 of 0.32. However, when MOV_{-} was used, its coefficient was significant, and R^2 rose to around 0.50. Furthermore, the coefficient on INT became significant. The fact that MOV_{-} was significant rather than MOV indicates that some time usually elapses before West Bank migrants send back remittances. It also reflects the fact that these migrants have the option of staying in Jordan when leaving or returning to the territory. For the projection period, equation II.8.5 is selected because all its regressors are significant. In this equation, the rise in NTR implied by INT is statistically significant, but should be treated with caution, since it does not reflect the fall in 1990 levels.

F. Net factor income from abroad

Net factor income (NFI) has gained increasing importance as a source of income for the occupied territory. However, since 1987, there has been a substantial reduction in the total supply of Palestinian labour to the Israeli economy and hence a more or less important fall in NFI. Being composed chiefly of the earnings of workers employed in Israel, NFI has been largely determined by the actual size of that labour force and by the demand for it in the Israeli economy.

To capture these links, three possible explanatory variables were available: the number of people working in Israel (LISR); the GDP per capita of Israel (YISR); and a proxy variable combining the two, namely LYISR, which is equal to LISR multiplied by YISR. One disadvantage of using LYISR is that it may overstate the actual labour income, but so long as there is no deterioration in wage levels, the relationship will hold in the future. To see whether a time lag influenced the behaviour of NFI flows, lagged NFI (NFI_{-}) was also introduced. The best regressions exploring various combinations of NFI_{-}, LYISR, YISR, LISR, and INT are presented in table TS2/9.

In the Gaza Strip, the five equations retained were highly significant, with good R^2 levels and relatively low first-order auto-correlation levels. When LISR and YISR were used as explanatory variables, the t-ratios (equations I.9.3 to I.9.5) showed that LISR was more important, with YISR remaining insignificant. Lagged NFP performed poorly and was not a determining variable. LYISR was significant in both regressions where it was used, meaning that the combination of LISR and YISR, statistically speaking, captured their influence on NFI better than their separate treatment. INT was significant and negative in all cases, and showed a fall in the region of $65 million. This seems to underestimate the actual fall, as levels in the first year alone declined from just under $350 million to over $260 million. For the purpose of projections, equation I.8.1 is retained (indicated by an asterisk) because both regressors used are significant, and its R^2 is the highest.

In the West Bank, all equations retained were highly significant and had high R^2 levels. When LISR and YISR were used as explanatory variables (equations I.9.4 and I.9.5), both proved significant, though the first order auto-correlation coefficients seemed important. However, when NFI was introduced, it reduced the influence of LISR, and improved the R^2 from 88 per cent to 90 per cent, with the auto-correlation problem seeming to disappear. Comparing LISR and YISR to LYISR (II.9.1 vs. II.9.3 and II.9.2 vs II.9.5), LYISR has a marginally lower explanatory power. As for the period 1988-1990, NFI levels in the West Bank fell from $385 to $354 million. Consequently, INT did not prove significant in any of the equations, the size of the fall not being statistically significant. In light of the above discussion, equation II.9.2 is selected for the projections (indicated by an asterisk).

The difference in the behaviour of these variables in the Gaza Strip and the West Bank sheds interesting light on the way work in Israel affects these economies. The fact that NFI_{-} is important in explaining the present level of the West Bank's factor income from abroad, indicates that a good part of West Bank workers have stable posts and/or are paid on a monthly or weekly basis. The significance of the YISR parameter shows that the growth of the GDP in Israel has a direct and positive correlation with the West Bank's NFI. By contrast, in the Gaza Strip, the labour market is much more dependent on work in Israel, yet more of the workers are recruited and paid on a daily basis, which is probably why LISR is statistically important while NFI_{-} is not. Lastly, the fact that YISR is not significant in Gaza probably shows that people will seek work in Israel more or less regardless of the state of the Israeli economy, and hence regardless of the wage differential between the occupied territory and Israeli economies.

G. The trade and current account balances

The quantitative framework does not attempt to model the behaviour of either

the trade balance or the current account balance. Instead, it calculates the first as being equal to the difference between the export and import of goods (i.e. the balance of payments definitions). Both exports and imports were adjusted by being multiplied by the ratio of their respective value according to balance of payments statistics to their value in national accounts. For the Gaza Strip, these ratios equalled 0.95 and 0.78 for exports and imports, respectively, while in the West Bank, they equalled 0.92 and 0.73. Similarly, the balance on the current account is an accounting identity calculated as being equal to balance of exports and imports, plus foreign transfers and factor payments from abroad. While data for the historical period are presented in current dollars, projections are expressed in constant 1990 US dollars.

Table TS 2/5: CONSUMPTION FUNCTIONS

(t-values in brackets; coefficients significant at 5%)

		EXPLANATORY VARIABLES						REGRESSION DIAGNOSTICS		
Equation No.	Dependent Variable	Intercept	Dummy (INT)	GNDI	CP_	ITT	ITT_	R2	Prob>F	First Order Auto-correlation
					GAZA STRIP					
I.5.1	CP	32.332	-89.032 (-3.11)	0.641 (8.93)				.83	0.0001	0.511
I.5.2 *	CP	39.892	-104.390 (-3.77)	0.416 (3.33)	0.333 (1.98)			.84	0.0001	0.345
I.5.3	CG	18.069	15.362 (3.28)	0.059 (5.00)				.74	0.0001	0.283
I.5.4	CG	21.979		0.009 (0.50)		0.896 (3.87)		.84	0.0001	0.109
I.5.5	CG	24.820				0.986 (7.47)		.79	0.0001	0.087
I.5.6	CG	22.326	10.630 (1.98)	0.042 (2.61)			0.290 (1.58)	.73	0.0005	0.071
I.5.7	CG	25.420	9.525 (2.39)	0.0005 (0.31)		0.835 (3.94)		.85	0.0001	-0.262
I.5.8	CG	25.994	9.488 (2.56)			0.915 (7.41)		.89	0.0001	-0.280

(Continued)

Table TS 2/5: CONSUMPTION FUNCTIONS (continued)

(t-values in brackets; coefficients significant at 5%)

		EXPLANATORY VARIABLES						REGRESSION DIAGNOSTICS		
Equation No.	Dependent Variable	Intercept	Dummy (INT)	GNDI	CP_	ITT	ITT_	R2	Prob>F	First Order Auto-correlation
					WEST BANK					
II.5.1 •	CP	9.402	-144.505 (-4.91)	0.770 (22.77)				.97	0.0001	-0.484
II.5.2	CP	5.681	-153.897 (-4.67)	0.728 (10.42)	0.063 (0.69)			.97	0.0001	-0.517
II.5.3	CG	12.193	12.233 (1.23)	0.073 (6.99)				.81	0.0001	0.354
II.5.4	CG	8.516		0.077 (7.93)				.79	0.0001	0.387
II.5.5	CG	13.634		0.021 (2.21)		1.354 (6.53)		.95	0.0001	0.217
II.5.6	CG	16.772	5.940 (0.68)	0.040 (2.79)			0.823 (2.82)	.85	0.0005	0.063
II.5.7	CG	22.990	9.942 (1.54)			1.686 (13.85)		.94	0.0001	0.291
II.5.8	CG	15.617	7.521 (1.24)	0.019 (1.95)		1.355 (6.66)		.95	0.0001	0.140

Source: UNCTAD secretariat computations based on CBS data.

Table TS 2/6: INVESTMENT FUNCTIONS

(t-values in brackets; coefficients significant at 5%)

Equation No.	Dependent Variable	EXPLANATORY VARIABLES: Intercept	Dummy (INT)	GNDI	CP_	ITT	ITT_	REGRESSION DIAGNOSTICS: R2	Prob>F	First Order Auto-correlation
					GAZA STRIP					
I.6.1 *	IP	-29.456		0.216 (8.76)				.82	0.0001	0.349
I.6.2	IP	-26.307	15.300 (1.58)	0.207 (8.51)				.85	0.0001	0.346
I.6.3	IG	22.568	0.848 (0.16)		-0.468 (-0.94)	0.100 (0.57)		.08	0.7367	0.228
I.6.4	IG	25.626			-0.418 (-1.03)	0.003 (0.017)		.15	0.3221	0.161
I.6.5	IG	28.370			0.170 (0.45)		-0.316 (-1.96)	.33	0.0588	0.007
I.6.6	IG	28.007	-1.823 (-0.44)		0.280 T (0.60)		-0.340 (-1.99)	.36	0.0920	0.030
I.6.5	II	-9.525		0.217 (9.24)				.83	0.0001	0.274
I.6.7	IT	-6.979	12.370 (1.31)	0.209 (8.86)				.85	0.0001	0.229
I.6.8	IT	39.350	-5.682 (-0.32)	0.892 (0.53)		2.337 (3.53)		.77	0.0001	0.248
I.6.9	IT	75.656	-17.205 (-0.82)	5.303 (2.24)			-0.332 (-0.38)	.50	0.0188	0.130

(Continued)

Table TS 2/6: INVESTMENT FUNCTIONS (continued)

(t-values in brackets; coefficients significant at 5%)

		EXPLANATORY VARIABLES						REGRESSION DIAGNOSTICS		
Equation No.	Dependent Variable	Intercept	Dummy (INT)	GNDI	CP_	IIT	IIT_	R2	Prob>F	First Order Auto-correlation
					WEST BANK					
II.6.1 *	IP	-48.207		0.217 (9.77)				.85	0.0001	-0.108
II.6.2	IP2	-23.801		0.170 (8.55)				.82	0.0001	-0.362
II.6.3	IP	-49.710	-5.002 (-0.21)	0.219 (8.87)				.85	0.0001	-0.104
II.6.4	IP2	-30.365	-24.937 (-1.04)	0.178 (8.36)				.83	0.0001	-0.395
II.6.5	IG	-10.878	-27.706 (-3.14)		1.427 (1.28)	0.643 (2.08)		.79	0.0001	0.440
II.6.6	IG	-10.228	-20.681 (-2.92)			0.993 (6.69)		.77	0.0001	0.479
II.6.7	IG	- 5.948	-35.063 (-3.64)		3.225 T (2.50)		0.075 (0.22)	.72	0.0006	0.338
II.6.8	IG	-3.521	-38.687 (-4.98)		3.302 T (6.39)			.73	0.0001	0.383
II.6.9	IT	-68.901	-28.756 (-1.38)	0.264 (12.09)				.91	0.0001	-0.224
II.6.10	IT2	-53.304	-51.759 (1.98)	0.246 (10.60)				.89	0.0001	-0.527
II.6.11	IT	-60.258		0.253 (12.18)				.90	0.0001	-0.183
II.6.12	IT2	-36.741		0.208 (9.84)				.86	0.0001	-0.374
II.6.13	IT	-73.429	-47.137 (-1.91)	0.303 (7.58)		-0.929 (-1.10)		.91	0.0001	-0.390
II.6.14	IT2	-46.141	-48.540 (-2.16)	0.180 (4.96)		1.085 (1.43)		.90	0.0001	-0.470
II.6.15	IT	-74.147	-45.510 (-1.75)	0.281 (7.49)			-0.342 (-0.45)	.90	0.0001	-0.168
II.6.16	IT2	-41.632	-48.735 (-1.95)	0.210 (5.82)			-0.207 (-0.28)	.87	0.0001	-0.583

Source: UNCTAD secretariat computations based on CBS data.

Table TS 2/7: FOREIGN TRADE FUNCTIONS

(t-values in brackets; coefficients significant at 5%)

		EXPLANATORY VARIABLES						REGRESSION DIAGNOSTICS		
Equation No.	Dependent Variable	Intercept	Dummy (INT)	GNDI	CP_	ITT	ITT_	R2	Prob>F	First Order Auto-correlation
					GAZA STRIP					
I.7.1	X	138.585	-170.055 (-4.27)	4.126 (1.59)				.56	0.0014	0.410
I.7.2	X	64.574	-170.477 (-5.22)		53.005 (2.47)			.63	0.0004	0.426
I.7.3	LOGX	4.893	-1.747 (-5.04)	0.026 (1.47)				.67	0.0001	0.155
I.7.4	X110	-0.688	-3.792 (-5.04)	-0.015 (-0.75)				.95	0.0001	0.155
I.7.5 *	M	19.415	-160.584 (-7.11)				0.6787 (11.96)	.91	0.0001	0.178
					WEST BANK					
II.7.1	X	111.683	-152.823 (-6.57)	10.193 (6.58)				.77	0.0001	-0.031
II.7.2	X	5.930	-128.793 (-7.53)		95.359 (8.48)			.84	0.0001	-0.313
II.7.3	LOGX	4.798	-0.775 (-5.64)	0.053 (5.76)				.71	0.0001	0.086
II.7.4 *	M	58.384	-176.649 (-4.25)				0.4723 (10.86)	.88	0.0001	0.108

X110 = LOG (1 - 110 / X), the regression being run as of 1975, with 1988-90 data treated as missing

Source: UNCTAD secretariat computations based on CBS data.

Table TS 2/8: NET CURRENT TRANSFER FUNCTIONS

(t-values in brackets; coefficients significant at 5%)

Equation No.	Dependent Variable	EXPLANATORY VARIABLES: Intercept	Dummy (INT)	T	MOV	MOV_	REGRESSION DIAGNOSTICS: R2	Prob>F	First Order Auto-correlation
					GAZA STRIP				
I.8.1	NTR	54.710	69.845 (3.84)	0.507 (0.42)			.64	0.0014	-0.015
I.8.2 *	NTR	36.614	76.996 (6.45)		7.032 (2.58)		.74	0.0001	-0.213
I.8.3	NTR	43.525	74.139 (3.86)	0.183 (0.131)		4.316 (1.28)	.68	0.0010	-0.153
I.8.4	NTR	45.140	75.435 (5.48)			4.435 (1.41)	.68	0.0002	-0.161
					WEST BANK				
II.8.1	NTR	36.865	17.988 (1.06)	1.317 (1.17)			.30	0.0592	0.013
II.8.2	NTR	22.417	23.417 (1.40)	1.664 (1.49)	1.326 (1.41)		.38	0.0602	-0.226
II.8.3	NTR	42.382	37.380 (2.55)		1.020 (1.07)		.29	0.0653	-0.089
II.8.4	NTR	10.596	34.685 (2.15)	1.710 (1.61)		2.446 (2.77)	.55	0.0089	-0.341
II.8.5 *	NTR	30.018	49.510 (3.54)			2.376 (2.56)	.47	0.0088	-0.245

Source: UNCTAD secretariat computations based on CBS data.

Table TS 2/9: NET FACTOR INCOME FUNCTIONS

(t-values in brackets; coefficients significant at 5%)

		EXPLANATORY VARIABLES						REGRESSION DIAGNOSTICS		
Equation No.	Dependent Variable	Intercept	Dummy (INT)	GNDI	CP_	ITT	ITT_	R2	Prob>F	Fit Order Auto-correlation
					GAZA STRIP					
I.9.1 *	NFI	-10.575	-65.149 (-3.33)	0.0009 (10.34)				.87	0.0001	0.153
I.9.2	NFI	-20.498	-67.932 (-3.25)	0.0009 (4.93)	0.031 (0.17)			.85	0.0001	0.124
I.9.3	NFI	-164.158	-54.815 (-2.53)			6.686 (3.54)	0.021 (1.34)	.85	0.0001	0.118
I.9.4	NFI	-151.507			-0.094 (-0.38)	7.534 (2.33)	0.016 (0.77)	.75	0.0001	0.182
I.9.5	NFI	-244.937	-66.865 (-2.89)		0.063 (0.31)	5.615 (2.08)	0.035 (2.00)	.85	0.0001 (11.96)	0.093
					WEST BANK					
II.9.1	NFI	8.736	-38.739 (-1.23)	0.0008 (7.76)				.86	0.0001	0.418
II.9.2 *	NFI	33.521		0.0004 (2.92)	0.348 (1.86)			.86	0.0001	0.085
II.9.3	NFI	1.559	-43.225 (-1.40)	0.0005 (3.33)	0.381 (2.08)			.88	0.0001	-0.020
II.9.4	NFI	-241.407	0.192 (0.01)			3.482 (2.07)	0.050 (4.03)	.88	0.0001	0.315
II.9.5	NFI	-241.547				3.489 (3.15)	0.050 (4.37)	.88	0.0001	0.315
II.9.6	NFI	-231.633			0.329 (2.02)	1.193 (0.86)	0.052 (3.35)	.90	0.0001	0.068
II.9.7	NFI	-235.653	-10.732 (-0.34)		0.341 (1.98)	1.525 (0.87)	0.050 (2.95)	.90	0.0001	0.060

Source: UNCTAD secretariat computations based on CBS data.

CHAPTER IV

INTEGRATING EAST JERUSALEM

A. Introduction

Official Israeli statistics treat east Jerusalem not as part of the occupied territory, but as part of Israel, and cover only population and some aspects of labour force and employment. No other official published data on the economic activity of the Palestinian population of the city are available. Consequently, east Jerusalem could not be incorporated in the quantitative framework in the same way as the Gaza Strip or the rest of the West Bank, since data for the set of equations and parameters necessary for the projections could not be obtained.

However, given the inter-linkages between east Jerusalem and other parts of the occupied territory (especially in the West Bank), and in view of its particular economic importance, some solution was necessary, if only for illustrative purposes. Since a separate treatment was not possible, east Jerusalem could nonetheless be incorporated in the projections if actual relationships between its demographic and economic characteristics and those of the rest of the occupied territory could be determined. Given the integration of many of the economic activities of east Jerusalem with those of the West Bank, the values of its economic, demographic and labour force variables can be expressed in terms of their significance vis-a-vis the corresponding known values of these variables for the West Bank. Furthermore, data on population, the labour force and sectoral employment, though only available for several years, can together help to trace the broad lines of current economic activity in east Jerusalem. In other words, aggregate economic projections for east Jerusalem can be obtained once they are expressed as a proportion of the corresponding values projected for the West Bank. The following sections describe data used, assumptions made, and the relationships established for that area of the occupied territory.

B. Available data on east Jerusalem

The main sources of available data relevant to the exercise were recent volumes of the Statistical Yearbook of Jerusalem,[1] which are mostly based on data provided by the CBS. A field survey conducted in 1986 on the economic situation of east Jerusalem was also consulted.[2] These sources provided the following data on the Palestinian population of east Jerusalem:

(a) Mid-year population by sex 1972-1988;
(b) Population by age structure 1983-1988;
(c) Live births and infant deaths 1979-1988;
(d) Civilian labour force 1984-1988;
(e) Total number of employed persons 1986-1988; and,
(f) Sectoral employment of the total employed labour force for 1983, 1985 and 1987.

No empirical data are available on the domestic output of the east Jerusalem economy, on labour productivity levels, on factor payments and transfers to and from east Jerusalem, or on any of the major variables such as consumption and investment.

C. Assumptions and methodology

The next step was to establish the relationships between historical data on east Jerusalem and the corresponding data on the West Bank. These were then used to link projections for east Jerusalem to those for the West Bank.

1. The demographic component

Available information on the size and age structure of the population, though revealing, is not sufficient to allow the construction of a demographic accounting system for east Jerusalem in the way that was established for the rest of the West Bank and Gaza Strip. In particular, no data could be obtained on the fertility behaviour (total fertility rate and age-specific fertility) of the

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[1] Municipality of Jerusalem & the Jerusalem Institute for Israel Studies, Statistical Yearbook of Jerusalem, Jerusalem: No. 3, 1984, No. 5, 1986, No. 6, 1987, and No. 7, 1988.

[2] Atef Alawneh and Qassem Abu Harb, Economic conditions in Arab Jerusalem, (Jerusalem, Arab Studies Society, 1988) (in Arabic).

Palestinian population of east Jerusalem. Furthermore, even if a demographic component could be constructed, in the absence of detailed information on the labour market and on the economy, it could not be linked as required to the labour force and economic components.

Thus, the only way to incorporate the Palestinian population of east Jerusalem in the framework was to express it as a constant ratio of the West Bank's total population, which implied the following assumptions:

(a) The two population groups will grow at the same rate; and,

(b) The two population groups have and will continue to have the same fertility and mortality behaviour.

Empirical data suggest that these assumptions will lead to a slight overestimation of the east Jerusalem population, since its current rate of natural increase is slightly below that of the West Bank's population.

2. The labour force component

Data on the sectoral distribution of east Jerusalem's labour force in 1983 and 1987 were used in conjunction with other data for 1986 and 1988, to arrive at the sectoral distribution of total employment for the period 1986-1988. Data used for the calculation are presented in table TS2/10.

In the projection period, the labour force and total employment in east Jerusalem can be expressed as a constant proportion of the labour force and of total employment in the West Bank, respectively, assuming that in the projection period of 1990-2010:

(a) The average ratio of the labour force in east Jerusalem to the labour force in the West Bank in 1986-1988 will be unchanged; and,

(b) The average ratio of total employment in east Jerusalem to total employment in the West Bank in 1986-1988 will be unchanged.

As for the number of the unemployed persons, in the historical period of 1986-1988, it was calculated as the difference between the civilian labour force and the employed labour force. Similarly, in the projection period, unemployment can be obtained once projections for the civilian labour force and employed labour in east Jerusalem are made. Since these depend on the corresponding values for the West Bank, unemployment in east Jerusalem will also reflect the projections for unemployment in the West Bank.

The next step was to establish sectoral employment shares, which is also a prerequisite for determining sectoral output. Except for 1987 (where 1987 data were used), average sectoral distribution of total employment for 1983-1987 was applied to data for total employment in 1986-1988. In order to obtain *domestic* total and sectoral employment in the same way that was carried out for the Gaza Strip and the rest of the West Bank, the labour force working in Israel had to be estimated. Since no official data were available on the number of Palestinians from east Jerusalem working in Israel, estimates for the current period relied on the knowledge that:

(a) The greater part of construction workers in Jerusalem as a whole are Palestinians, while relatively more construction activity has been taking place in west Jerusalem and Jewish settlements in east Jerusalem;

(b) In the rest of the West Bank in the 1984-1987 period, around 70 per cent of persons employed in construction worked in Israel, and these constituted around 50 per cent of the total number of persons working in Israel;

(c) Industry in west Jerusalem relies partly on the employment of local and neighbouring Palestinian labour;

(d) In the rest of the West Bank, in the 1984-1987 period, around one third of the number of persons employed in industry worked in Israel, and these constituted around 17 per cent of the total number of persons working in Israel;

(e) In the 1986 survey (see footnote 2), the number of people domestically employed corresponded closely to official estimates except in the cases of construction and industry, where field survey results were below official estimates by around 1,440 persons in the former case, and 950 in the latter.

All this implied that in that particular year, the total number of persons from east Jerusalem working in Israel could be calculated as the sum of 50 per cent of persons employed in construction (excluding the 373 workers of the east Jerusalem electricity company) plus 39 per cent of those employed in industry, which adds up to just over 12 per cent of the employed labour force. Applying this method to data for 1986-1988, as was done in table TS2/9, estimates for the number of persons working in Israel were calculated. These were then subtracted from total and sectoral employment to give total and sectoral *domestic* employment. Thus, the estimated average shares of the labour force working in

Israel out of total employment and of sectoral domestic employment out of domestic employment for the 1986-1988 period could be obtained.

For the projection period, the number of persons working in Israel could thus be obtained by expressing it as a constant proportion of total employment in east Jerusalem. This number was then deducted from total employment projections to arrive at domestic employment. Projections for total domestic employment were then translated into projections for domestic sectoral employment by applying the average sectoral shares from domestic employment in 1986-1988 to total domestic employment in 1990-2010. This process assumes that in the projection period:

(a) The share of employment in Israel out of total east Jerusalem employment will remain constant; and,

(b) The sectoral distribution of the domestically employed labour force in east Jerusalem will not change.

As for labour productivity, the absence of data made it necessary to adopt productivity levels prevailing elsewhere in the West Bank. The only correction that can be made is to use the known sectoral distribution of the labour force in east Jerusalem as weights for sectoral labour productivity. In that manner, the total productivity of labour in east Jerusalem is not the simple equivalent of the total productivity in the West Bank. Rather, it reflects the type of economic activity taking place in east Jerusalem, which is characterized by the relative dominance of the services sector.

3. The economic component

To arrive at projections for each of the economic variables required for the framework, it was necessary to:

(a) Calculate estimated values in east Jerusalem for the period of available data (1986-1988);

(b) Express these values as a proportion of the corresponding historical values for the West Bank (excluding east Jerusalem); and,

(c) Apply these proportions to the projected values for the West Bank (excluding east Jerusalem) to obtain projected values for east Jerusalem.

This procedure thus assumes that the relationship between economic parameters in the West Bank and in east Jerusalem that prevailed in 1986-1988 will remain the same in the projection period. Table TS2/11 presents the results of the first step (a), while table TS2/12 gives the values obtained for the second (b).

Thus, the exercise consists of determining the following variables for east Jerusalem:

(a) GDP at factor cost (GDPF);

(b) The level of net indirect taxes on production (NITP), which would allow the calculation of GDP at market price (GDPM);

(c) The level of net factor income (NFI), which thus leads to GNP; and,

(d) The level of net transfer payments (NTR) which, when added to GNP, gives gross national disposable income (GNDI).

As for the components of demand for GDP at market price in east Jerusalem, since they are not known in the historical period, they could not be expressed directly in terms of their corresponding values in the West Bank (excluding east Jerusalem). However, in the projection period, the GDPM in east Jerusalem could be expressed as a ratio of the projected value of GDPM in the rest of the West Bank. If this relationship is assumed to hold between the respective components of demand as well, these components can be calculated accordingly. Meaning, that for example, if projected GDPM in east Jerusalem equals **x per cent** of the GDPM projected for the rest of the West Bank, then consumption will also be **x per cent** of projected consumption in the West Bank. Similarly, the trade balance (TB) and current account balance (CAB) can be obtained once the components, namely exports (X), imports (M), NFI and NTR are calculated. The way this is done is examined under (e) below. The main relationships needed to calculate projections for east Jerusalem are summarized in table 2/5 of the main text of the study.

(a) GDP at factor cost

To calculate GDP at factor cost for 1986-1988, annual sectoral output was calculated by multiplying the domestically employed sectoral labour force in east Jerusalem by the respective sectoral labour productivity for the rest of the West Bank. These were added to yield values for the GDPF of east Jerusalem for the 1986-1988 period. Each of these was then expressed as a ratio of the GDPF of the West Bank (excluding east Jerusalem) for the corresponding years. The average of the three proportions was calculated and was found to be equal to 19.1 per cent of the GDPF of the rest of the West Bank. This share is slightly higher than the average ratio of east Jerusalem's domestic employed labour force to the rest of the West Bank's domestic employed labour, which is under 18 per cent. This should be interpreted in the light of the predominance of the services sector

in the economy of east Jerusalem, with a generally higher labour productivity than other sectors.

In the projection period, sectoral output in east Jerusalem is thus equal to the domestically employed sectoral labour force multiplied by the projected sectoral labour productivity for the West Bank. Projected GDPF can then be obtained by summing up the projected values of sectoral components. Given that the sectoral distribution of labour in east Jerusalem is constant, it is likely that GDPF of east Jerusalem will be equal to a more or less constant proportion of the West Bank GDPF.

(b) Net indirect taxes on production

In the absence of historical data, NITP in east Jerusalem had to be related to NITP rates prevailing in the rest of the West Bank, where NITP in the period 1980-1987 equalled on average 5.6 per cent of GDP at factor cost. Assuming NITPs in the two areas are equal, and assuming that NITP will remain a constant share of GDPF in the projection period, projected NITP in east Jerusalem can be calculated as a constant share of its projected GDPF (i.e. 5.6 per cent). Calculating GDP at market price becomes a matter of adding NITP and GDPF.

(c) Net factor income from abroad

With no data available on the size or composition of net factor income (NFI) received by east Jerusalem, parallels had to be established with those received by the rest of the West Bank, where NFI is overwhelmingly constituted by factor payments to persons working in Israel. If it can be assumed that a worker from east Jerusalem working in Israel will receive the same income as his counterpart from elsewhere in the West Bank, then this per capita income can be multiplied by estimates of the number of workers from east Jerusalem working in Israel to obtain an estimated NFI for east Jerusalem. Thus, in the projection period, NFI in east Jerusalem will be equal to the projected number of people working in Israel times the per capita NFI for other West Bank workers in Israel.

When this method was applied to data for 1986-1988, it meant that with net factor income per West Bank worker in Israel around $6,200, east Jerusalem would have received between $15 and $17 million a year in net factor income. This implies that the GDP at market price of east Jerusalem for that period equalled some 94 per cent of GNP, which is a much higher proportion than the one prevailing in the rest of the West Bank, whose labour and national product depend much more importantly on the labour working in Israel. It should also be noted that east Jerusalem's economy has a relatively higher level of factor payments to abroad than does the rest of the West Bank, be it in terms of wages paid to Palestinians from the rest of the occupied territory, or payments to factors of production in the Israeli part of the city and elsewhere in Israel or abroad.

(d) Net transfer payments

Following the same logic, estimates for net transfer payments (NTR) to east Jerusalem were based on estimates for those received by the rest of the West Bank. However, here the underlying assumption is that NTR per capita of population in east Jerusalem and elsewhere in the West Bank will be the same. Thus, in the projection period, NTR in east Jerusalem will be equal to the projected population of east Jerusalem times the projected NTR per capita for the rest of the West Bank. When this method was applied to data for 1986-1988, it meant that with NTR per capita in the rest of the West Bank varying between $41 and $89, east Jerusalem would have received between $5 million and $12 million a year in net transfers. When these figures are added to GNP to obtain GNDI, the GNDI of east Jerusalem equalled on average 16 per cent of the West Bank's GNDI for the same period, while in terms of population, the proportion stood at just below 16 per cent.

(e) Trade and current account balances

The projected trade balance is the difference between exports and imports, adjusted to meet the balance of payments definition. This is usually done by multiplying the ratios of their respective values according to balance of payments statistics to their values in national accounts. However, in the absence of such data, and given the reliance on West Bank projections, the corresponding ratios for the rest of the West Bank were used. These equalled 0.92 and 0.73 for exports and imports respectively. The balance on the current account is an accounting identity calculated as being equal to the trade balance, plus foreign transfers and net factor income from abroad.

Table TS2/10. PALESTINIAN POPULATION, LABOUR FORCE AND EMPLOYMENT IN EAST JERUSALEM: AVAILABLE MAIN AGGREGATES, 1983-1988

	1986	1987	1988
		(thousands)	
Population	132.8	136.4	139.4
Labour force	24.8	24.7	27.8
Employed	23.8	22.2	24.1
Unemployed	1.0	2.5	3.7
Employed in agriculture	64	66	65
Employed in industry	3570	3745	3615
* in Israel	1392	1461	1410
* in east Jerusalem	2178	2284	2205
Employed in construction	2990	2020	3032
* in Israel	1495	1010	1516
* in east Jerusalem	1495	1010	1516
Employed in electricity	373	373	373
Employed in services	16803	15954	17015
* Total employed in Israel	887	2471	2926
* Total employed domestically	20913	19687	21174
		(percentage of total employment)	
* Total employed in Israel	12.1	11.1	12.1
		(percentage of domestic employment)	
* Employed in agriculture	0.3	0.3	0.3
* Employed in industry	10.4	11.6	10.4
* Employed in construction	7.2	7.0	7.2
* Employed in services	82.1	81.0	82.1
	1983	1985	1987
		(percentage of total employment)	
Employed in agriculture	0.5	0.0	0.3
Employed in industry	15.1	13.0	16.9
Employed in construction	15.6	16.0	10.8
Employed in services	68.8	71.0	72.0

* Item estimated by the UNCTAD secretariat.

Sources:

(1) Population: Statistical Yearbook of Jerusalem (SYJ), 1988, No 7, p.38

(2) Labour force: Ibid, p.91; SYJ, op.cit., 1987, No 6, p.121; op.cit., 1986, No 5, p. 109.

(3) Employed: SYJ, op.cit., 1988, No 7, p.104.

(4) Sectoral distribution: calculated on the basis of data in: SYJ, op.cit., pp.140-141, SYJ, op.cit., pp.118-119; Hyman, Kimhi, & Savitzky, Jerusalem in Transition, Jerusalem, 1985, pp.43-45.

Table TS2/11. EAST JERUSALEM: ESTIMATES OF MAIN AGGREGATES, 1986-1988

	1986	1987	1988
WEST BANK		(constant 1990 US$)	
Labour productivity in:			
Agriculture	12.70	8.45	10.60
Industry	5.43	5.28	4.46
Construction	12.81	16.02	11.97
Services	12.13	14.48	10.91
EAST JERUSALEM		(millions of constant 1990 US$)	
Value added in:			
Agriculture	0.81	0.56	0.69
Industry	11.83	12.06	9.83
Construction	19.15	16.18	18.15
Services	208.35	236.42	189.70
GDP at factor cost	241.44	265.22	219.47
WEST BANK		(per cent of GDP at factor cost)	
Net indirect taxes	4.1%	5.4%	5.7%
EAST JERUSALEM		(millions of constant 1990 US$)	
GDP at market price	251.34	280.13	232.05
WEST BANK		(constant 1990 US$)	
Net factor income/person employed in Israel	6266	6119	6223
EAST JERUSALEM		(millions of constant 1990 US$)	
Net factor income	18.09	15.12	18.21
Gross national product	268.66	294.66	253.18
WEST BANK		(constant 1990 US$)	
Net transfer payments per capita	40.6	89.4	84.2
EAST JERUSALEM		(millions of constant 1990 US$)	
Net transfer payments	5.40	12.20	11.70
Gross disposable income	274.06	306.86	264.88

Source: for the West Bank: CBS data; for east Jerusalem: UNCTAD secretariat calculations.

Table TS2/12. EAST JERUSALEM: MAIN AGGREGATES AS PROPORTION OF WEST BANK AGGREGATES, 1986-1988
(percentage)

	1986	1987	1988	average
Population	16.1	16.0	15.8	16.0
Labour force	14.5	13.6	14.8	14.3
Total employment	14.0	12.5	13.2	13.2
Total domestic employment	18.4	17.2	18.0	17.8
Employment in Israel	5.6	3.9	4.6	4.7
GDP at factor cost	18.5	20.0	18.7	19.1
GDP at market price	18.6	20.0	18.7	19.1
GNP	16.1	16.5	15.5	16.0
Gross disposable income	16.1	16.5	15.5	16.0

Source: UNCTAD secretariat calculations based on CBS data for the West Bank

CHAPTER V

BASELINE VARIANT AND ALTERNATIVE SCENARIOS

A. Baseline variant scenario

The logic behind the functioning of the baseline variant scenario is the same as that of the baseline, in so far as it is still composed of three blocks linked in a recursive manner. The main difference lies in the assumptions about migration and about the intensifications of restrictions (INT) dummy variable, which is phased out gradually as of 1992. Net migration, which was positive in the baseline, is now set to zero, to better reflect post -1990 realities in the region, and results in increased population growth.

As for the dummy variable, which had been set equal to 1 after 1987 in the baseline, it is phased out as of 1992 in the following manner:

PHASING OUT OF "INT"

YEAR	INT
1988-1991	1
1992	0.8
1993	0.4
1994	0.2
1995	0.1
1996	0

Other combinations of values such as (0.9, 0.5, 0.3 and 0.1) are of course possible and were also attempted, but the above-mentioned combination gave the most satisfactory results in terms of the smooth evolution of the values of the projected variables. Nevertheless, the period determining the pace of recovery could be of shorter or longer duration depending on developments in the actual policy environment which will emerge after 1992.

This procedure gradually restores by 1996 projected levels to those already achieved in 1987, by adding/subtracting the amount of the fall/rise witnessed during the 1988-1990 period, which had previously been captured by INT. The effect of that period, where significant, is thus eliminated, so that in 1996 each variable regains the historical trend that would have continued were it not for the intensified restrictions and the ensuing disruptions of that period. With this in mind, the following sections briefly review the new functions of the framework under the baseline variant and alternative scenario.

1. The demographic component

With net migration set to zero, in each projection year, the new population for age group 0 to 1 is derived as the product of female population of child-bearing age and its corresponding age-specific fertility, minus infant mortality only. For all other age groups, the new population is derived as the previous year's population, one year younger in age, reduced by the number of persons expected to have died in that age cohort.

2. The labour force component

The size of the labour force is obtained as in the baseline, by applying age and sex-specific labour participation rates to their respective population cohorts. However, the latter are now slightly higher, since migration has ceased. As for labour shares, the intercepts for each sector are gradually augmented or reduced depending on whether the INT variable assumed a negative or positive value, respectively. For example, for LSIND in the Gaza Strip, the 1996 value is projected now to reach 18.8 per cent instead of 16.1 per cent under the baseline scenario.

A similar approach was followed for labour productivity functions, except for total labour productivity (LFP), which had been set to grow at an exogenously determined rate under the baseline. To restore 1987 values by the year 1996, the historical function was relied upon, and in the case of the West Bank, it resulted in the following higher levels, as compared to the exogenously determined trend of the baseline:

WEST BANK LFP

YEAR	Under Baseline	Under Baseline Variant
1990	7.8	7.8
1991	7.9	6.7
1992	8.0	7.6
1993	8.0	9.1
1994	8.1	10.1
1995	8.2	10.2
1996	8.3	10.4

3. The economic component

The equations used under the variant scenario are found in table TS2/14, while table TS2/13 outlines the functioning of the framework under this scenario. In the economic component, functions were changed in the following manner:

(a) The falls in the intercept in private consumption and in the import functions were not added back, on the assumption that the reduced consumption and the import compression under the baseline were irreversible changes in consumption and import propensities.

(b) The 1988-1991 fall in exports ($170 million in the Gaza Strip and $129 million in the West Bank) is added back so that by 1996, exports reach the value of $180 million and $296 million, respectively. Afterwards, exports are projected to grow at the historical rates of 3 per cent for the Gaza Strip and 5 per cent in the West Bank.

(c) NTR in any year equals the projected population for that year times the per capita NTR in 1990, this being equal to $151 and $60 for the Gaza Strip and the West Bank, respectively. This approach was necessitated by the assumed cessation of migration, which had acted as a determining variable in the NTR function under the baseline scenario (MOV).

B. Alternative I

The functioning of the framework under Alternative I, described in table TS2/15, builds on the structure established under the baseline scenario variant. The key difference is in the way the gap between actual GDP and potential GDP is closed. While previously adjustments were reflected in the unemployment rate, under this scenario NTR adjusts for the difference between the two flows in the following way.

In the first round of internal adjustment, actual demand still determines actual production, and actual GDP and unemployment are calculated. If the discrepancy between actual and potential GDP exceeds 10 per cent, then NTR is recalculated so as to reflect and compensate for this gap. This increased NTR is added back into GNDI, which now results in higher CP, IP, M. The boost in demand results in a boost in supply. Hence, through an iterative procedure, actual demand and actual supply are boosted so that the gap between actual GDP and potential GDP and hence the rate of unemployment does not exceed the exogenously fixed rate (of 10 per cent in this alternative).

C. Alternatives II and III

1. Alternative II

The aim of this alternative was to address the main structural problems that emerged under previous scenarios, namely: reducing the trade gap, increasing production, and restructuring demand away from consumption and in favour of investment. The current structure of the framework was refined using the results of Alternative I and of sensitivity analysis. Sensitivity analysis was conducted as follows. Using the baseline variant scenario as the basis, five scenarios were constructed, featuring, respectively, a 7 per cent annual increase in:

- exports;
- private investment;
- NTR;
- government investment; and
- government consumption.

The rate of 7 per cent was adopted for trial purposes as it produced levels which doubled every 10 years. The relative impact of each of these changes on key macro-indicators and on the three gaps were analysed and resulted in the following points:

(a) Increased exports resulted in positive impacts on most indicators, but being exogenously determined, the impact on production was not fully reflected.

(b) Increased IP seemed to be the key to pulling the economy out of its current state of weakness, and gave the best results.

(c) NTR increase gave the weakest results in terms of domestic job creation, though it had a powerful impact on income aggregates.

(d) The 7 per cent increase in IG and CG gave very weak results on their own, indicating that the envisaged increase would probably be insufficient.

(e) With the import function left unchanged, imports grew rapidly under all five cases, resulting in a worsening of the trade gap. This indicates the need to restrain import growth in order to minimize the trade deficit.

Using these results, combinations of scenarios were constructed, and the most satisfactory option proved to be that presented under Alternative II. The main functions of this alternative are summarized in table TS2/16. Under this structure, IP is not only boosted, but its increase is linked to increased

exports and reduced imports. Several percentages of GDP dedicated to investment were attempted as guiding parameters, but the 1-1.5 per cent chosen gave the most convincing and consistent results overall. As for the ICOR level of 5 chosen here, it gave 'intermediate' results in terms of the gains in output. The attempted levels of 3 and 7 gave better and worse results, respectively. As for the growth rates chosen for CG and IG, percentages ranging from 7 to 14 per cent were tried. However, given the changes introduced to other components of aggregate demand, the rates of 7 and 10 per cent chosen for CG and IG proved sufficient, as they allowed levels to double in 10 years or less.

2. Alternative III

The structure of Alternative III is summarized in table TS2/17. It combines the main features of Alternatives I and II in the following manner. The framework calculates actual production and actual demand, and the gap between these and potential GDP, including the effects of the above-mentioned changes in the domestic components of aggregate demand. If the gap still exceeds 10 per cent, i.e. if unemployment in the domestic economy is still above 10 per cent, then NTR is increased by this difference. NTR boosts GNDI, which results in higher demand and hence higher supply. Thus, in any one year, aggregate demand is high enough to result in an actual domestic production level that is equal to 90 per cent of potential production. Consequently, here too it is foreign finance, rather than unemployment, which balances out the difference between demand and supply.

D. Alternatives IV and V

Alternative Scenarios IV and V differ from Alternatives II and III in the incorporation of returning population, and thus, the changes are essentially in the demographic component. Under the baseline scenario, emigration was expressed as positive migration, i.e. as a percentage of the resident population that is reduced from total population. Under the current two Alternatives, the return of population was assumed at a certain rate and was incorporated in the population block following the same principle. More specifically, it was expressed as 'negative migration', i.e. as a percentage of the resident population that is added to the total population. The percentages adopted were the results of many trials, and were chosen so as to give a fairly even flow of returnees, a flow that was supposed to add up by the year 2010 to one of two targets: 1 or 2 million returnees. To give a constant average flow, the percentages had to be gradually declining.

The 'low returning' population target of 1 million people was obtained by adding the following percentages to the resident population in the period after 1996: 3 per cent, 2.5 per cent, 2 per cent, and 1.5 per cent. This gives a period average of 2.3 per cent for 1996-2010, and represents an annual average flow of around 27,000 returnees for the Gaza Strip and 40,380 for the West Bank. The 'high returning' population target was obtained using consecutively the following percentages: 4.5 per cent, 4 per cent, 3.5 per cent, and 3 per cent. This represents an average rate of 3.75 per cent of the population for the period as a whole, resulting in an annual average flow of over 50,000 returnees in the Gaza Strip and 80,193 for the West Bank.

The returning population is assumed to have the same age and sex structure, and to display the same mortality and fertility behaviour as that of the resident population. This implies that once incorporated into the population, the natural increase of returning population will be the same as that of the resident, with no lag observed. To assume different behaviour would require specific investigation on the population groups that will eventually constitute this returning population, an endeavour which is beyond the scope of this study.

Given these parameters and percentages, the demographic accounting framework generates projections in the following way. For the age group 0 to 1, the new population is the product of female population of child-bearing age and its corresponding age-specific fertility rate, minus infant mortality, plus returnees. Similarly, for all other age cohorts, the new population is derived as the previous year population, one year younger in age, reduced by the number of people from the group expected to have died, and augmented by the number of people expected to have 'returned'.

As for the labour force component, the returnee population is assumed to follow the same participation behaviour and to be distributed among economic sectors in the same manner that is done for the resident population.

Similarly, for the economic component, the changes in domestic policies were accelerated to reflect both the increased needs and the potential boost to economic activity expected to result from the increased population and from the

assumed political and economic conjuncture underlying such a process of return. By the same token, the extra NTRs required under Alternative V to maintain the internal balances are proportionately higher, since the economy has to accommodate larger human resources.

The summary of the structure of Alternative IV can be found in table TS2/18. The structure of Alternative V is the same as that appearing in table TS2/18 except for the functioning of NTR, which is defined in the same way as in table TS2/17.

Table TS2/13: FUNCTIONS, IDENTITIES AND VARIABLES UNDER THE BASELINE VARIANT SCENARIO

1. POP(age,sex) = f {POP(age,sex)t-1, Fertility, Mortality}

2. LF = POP(age,sex) * LFPR(age,sex)
   LF(i) = f {LF,t}
   ELF(i) = LF(i) * (GDP/GDPP)
   ELF = sum{ELF(i)}
   UNEMPL = (LF-LISR) * (GDPP/GDP - 1)
   LFP = exogenous
   LFP(i) = f {LFP,t}

3. GDPP(i) = f {LF(i),LFP(i)}
   GDPP = sum{GDPP(i)}
   GDP = CP + CG + IP + IG + X - M
   GDP(i) = GDPP(i) * GDP/GDPP
   GNP = GDP + NFI
   GNDI = GDP + NFI + NTR
   CP = f {GNDI, lagged CP}
   CG = f {GDP}
   IP = f {GNDI}
   IG = f {GDP}
   M = f {GNDI}
   X = f {exogenous}
   NFI = f {workers in Israel, GDP per capita of Israel}
   NTR = f {POP, NTRpc(1990)}
   TB = $(X - M)^*$
   CAB = (X - M)* + NFP + NTR

POP	=	Population by age and sex
LFPR	=	Labour force participation rates by age and sex
LF	=	Labour force
UNEMPL	=	Unemployment rate
ELF	=	Employed labour force
LISR	=	Labour force employed in Israel
LFP	=	Total labour force productivity
LFP(i)	=	Sectoral labour force productivity
GDPP	=	Potential output resulting from full employment at current productivity levels.
GDPP(i)	=	Potential sectoral output
GDP(i)	=	Actual sectoral output
GDP	=	Gross domestic product at market price
NFI	=	Net factor income from abroad
NTR	=	Net current transfer payments
NTRpc(1990)	=	NTR per capita in the year 1990
GNP	=	Gross national product
GNDI	=	Gross national disposable income
CP	=	Private consumption
CG	=	Government consumption
IP	=	Private investment
IG	=	Government investment
M	=	Imports (* for balance of payments definition)
X	=	Exports (* for balance of payments definition)
TB	=	Trade balance
CAB	=	Current account balance
(i)	:	agriculture, industry, construction, or services

Table TS2/14: FUNCTIONS OF THE ECONOMIC COMPONENT UNDER THE BASELINE VARIANT SCENARIO

Equation No.	Dependent Variable	EXPLANATORY VARIABLES Intercept	Dummy (INT)	Variable (1)	Variable (2)
		GAZA STRIP			
I.14.1	CP	39.892	-104.390	0.416 GNDI	0.333 CP_
I.14.2	IP	-29.456		0.216 GNDI	
I.14.3	X		+170.477	0.03 T	
I.14.4	M	19.415	-160.589	0.6787 GNDI	
I.14.5	NTR	(equals population times per capita 1990 NTR)			
I.14.6	NFI	-10.575	65.149	0.0009 LYISR	
		WEST BANK			
II.14.1	CP	9.402	-144.505	0.770 GNDI	
II.14.2	IP	-48.207		0.217 GNDI	
II.14.3	X		+129.00	0.05 T	
II.14.4	M	58.384	-176.649	0.4723 GNDI	
II.14.5	NTR	(population times per capita 1990 NTR)			
II.14.6	NFI	33.521		0.0004 LYISR	0.358 NFI__

Table TS2/15: FUNCTIONS, IDENTITIES AND VARIABLES UNDER ALTERNATIVE I

```
1. POP(age,sex) = f {POP(age,sex)t-1, Fertility, Mortality}

2. LF           =  POP(age,sex) * LFPR(age,sex)
   LF(i)        =  f {LF,t}
   ELF(i)       =  LF(i) * (GDP/GDPP)
   ELF          =  sum{ELF(i)}
   UNEMPL       =  (LF-LISR) * (GDPP/GDP - 1)
   LFP          =  exogenous
   LFP(i)       =  f {LFP,t}

3. GDPP(i)      =  f {LF(i),LFP(i)}
   GDPP         =  sum{GDPP(i)}
   GDP          =  CP + CG + IP + IG + X - M
   GDP(i)       =  GDPP(i) * GDP/GDPP
   DISC         =  (GDPP-GDP)/GDPP * 100
   GNP          =  GDP + NFI
   GNDI         =  GDP + NFI + NTR
   CP           =  f {GNDI, lagged CP}
   CG           =  f {GDP}
   IP           =  f {GNDI}
   IG           =  f {GDP}
   M            =  f {GNDI}
   X            =  f {exogenous}
   NFI          =  f {workers in Israel, GDP per capita of Israel}
   NTR          =  f {POP, NTRpc(1990)}
   If t > 1996 & DISC(t) > 10 per cent,
   NTR          =  NTR * (DISC(t)/10 - 1)
   TB           =  (X - M)*
   CAB          =  (X - M)* + NFP+ NTR
```

POP	=	Population by age and sex
LFPR	=	Labour force participation rates by age and sex
LF	=	Labour force
UNEMPL	=	Unemployment rate
ELF	=	Employed labour force
LISR	=	Labour force employed in Israel
LFP	=	Total labour force productivity
LFP(i)	=	Sectoral labour force productivity
GDPP	=	Potential output resulting from full employment at current productivity levels.
GDPP(i)	=	Potential sectoral output
GDP(i)	=	Actual sectoral output
GDP	=	Gross domestic product at market price
NFI	=	Net factor income from abroad
NTR	=	Net current transfer payments
NTRpc(1990)	=	NTR per capita in the year 1990
GNP	=	Gross national product
GNDI	=	Gross national disposable income
CP	=	Private consumption
CG	=	Government consumption
IP	=	Private investment
IG	=	Government investment
M	=	Imports (* for balance of payments definition)
X	=	Exports (* for balance of payments definition)
TB	=	Trade balance
CAB	=	Current account balance
(i)	:	agriculture, industry, construction, or services

Table TS2/16: FUNCTIONS, IDENTITIES AND VARIABLES UNDER ALTERNATIVE II

```
1. POP(age,sex) = f {POP(age,sex)t-1, Fertility, Mortality}

2. LF            = POP(age,sex) * LFPR(age,sex)
   LF(i)         = f {LF,t}
   ELF(i)        = LF(i) * (GDP/GDPP)
   ELF           = sum{ELF(i)}
   UNEMPL        = (LF-LISR) * (GDPP/GDP - 1)
   LFP           = exogenous
   LFP(i)        = f {LFP,t}

3. GDPP(i)       = f {LF(i),LFP(i)}
   GDPP          = sum{GDPP(i)}
   GDP           = CP + CG + IP + IG + X - M
   GDP(i)        = GDPP(i) * GDP/GDPP
   DISC          = (GDPP-GDP)/GDPP * 100
   GNP           = GDP + NFI
   GNDI          = GDP + NFI + NTR
   CP            = f {GNDI}
   If t < 1996,
      CG         = f {GDP}
      IG         = f {GDP}
   If t > 1996,
      CG         = f {exogenous}
      IG         = f {exogenous}
   Iextra        = f {GDPP}
   Kextra        = sum{Iextra(t), Iextra(t-1)}
   Qextra        = Kextra / 5
   IP            = f {GNDI} + Iextra
   M             = f {GNDI} - 0.3 * Qextra
   X             = f {exogenous} + 0.7 * Qextra
   NFI           = f {workers in Israel, GDP per capita of Israel}
   NTR           = f {POP, NTR pc (1990)}
   TB            = (X - M)*
   CAB           = (X - M)* + NFP+ NTR
```

POP	=	Population by age and sex
LFPR	=	Labour force participation rates by age and sex
LF	=	Labour force
UNEMPL	=	Unemployment rate
ELF	=	Employed labour force
LISR	=	Labour force employed in Israel
LFP	=	Total labour force productivity
LFP(i)	=	Sectoral labour force productivity
GDPP	=	Potential output resulting from full employment at current productivity levels.
GDPP(i)	=	Potential sectoral output
GDP(i)	=	Actual sectoral output
GDP	=	Gross domestic product at market price
NFI	=	Net factor income from abroad
NTR	=	Net current transfer payments
NTRpc(1990)	=	NTR per capita in the year 1990
GNP	=	Gross national product
GNDI	=	Gross national disposable income
CP	=	Private consumption
CG	=	Government consumption
IP	=	Private investment
IG	=	Government investment
Iextra	=	Extra investment in productive activities
Kextra	=	Cumulative extra investment
Qextra	=	Gain in output resulting from the extra investment
M	=	Imports (* for balance of payments definition)
X	=	Exports (* for balance of payments definition)
TB	=	Trade balance
CAB	=	Current account balance
(i)	:	agriculture, industry, construction, or services

Table TS2/17: FUNCTIONS, IDENTITIES AND VARIABLES UNDER ALTERNATIVE III

```
1. POP(age,sex) = f {POP(age,sex)t-1, Fertility, Mortality}

2. LF            =  POP(age,sex) * LFPR(age,sex)
   LF(i)         =  f {LF,t}
   ELF(i)        =  LF(i) * (GDP/GDPP)
   ELF           =  sum{ELF(i)}
   UNEMPL        =  (LF-LISR) * (GDPP/GDP - 1)
   LFP           =  exogenous
   LFP(i)        =  f {LFP,t}

3. GDPP(i)       =  f {LF(i),LFP(i)}
   GDPP          =  sum{GDPP(i)}
   GDP           =  CP + CG + IP + IG + X - M
   GDP(i)        =  GDPP(i) * GDP/GDPP
   DISC          =  (GDPP-GDP)/GDPP * 100
   GNP           =  GDP + NFI
   GNDI          =  GDP + NFI + NTR
   CP            =  f {GNDI}
   If t < 1996,
      CG         =  f {GDP}
      IG         =  f {GDP}
   If t > 1996,
      CG         =  f {exogenous}
      IG         =  f {exogenous}
   Iextra        =  f {GDPP}
   Kextra        =  sum{Iextra(t), Iextra(t-1)}
   Qextra        =  Kextra / 5
   IP            =  f {GNDI} + Iextra
   M             =  f {GNDI} - 0.3 * Qextra
   X             =  f {exogenous} + 0.7 * Qextra
   NFI           =  f {workers in Israel, GDP per capita of Israel}
   NTR           =  f {POP, NTR pc (1990)}
   If t > 1996 & DISC(t) > 10 per cent,
   NTR           =  NTR * (DISC(t)/10 - 1)
   TB            =  (X - M)*
   CAB           =  (X - M)* + NFP+ NTR
```

POP	=	Population by age and sex
LFPR	=	Labour force participation rates by age and sex
LF	=	Labour force
UNEMPL	=	Unemployment rate
ELF	=	Employed labour force
LISR	=	Labour force employed in Israel
LFP	=	Total labour force productivity
LFP(i)	=	Sectoral labour force productivity
GDPP	=	Potential output resulting from full employment at current productivity levels.
GDPP(i)	=	Potential sectoral output
GDP(i)	=	Actual sectoral output
GDP	=	Gross domestic product at market price
NFI	=	Net factor income from abroad
NTR	=	Net current transfer payments
NTRpc(1990)	=	NTR per capita in the year 1990
GNP	=	Gross national product
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CP	=	Private consumption
CG	=	Government consumption
IP	=	Private investment
IG	=	Government investment
Iextra	=	Extra investment in productive activities
Kextra	=	Cumulative extra investment
Qextra	=	Gain in output resulting from the extra investment
M	=	Imports (* for balance of payments definition)
X	=	Exports (* for balance of payments definition)
TB	=	Trade balance
CAB	=	Current account balance
(i)	:	agriculture, industry, construction, or services

Table TS2/18: FUNCTIONS, IDENTITIES AND VARIABLES UNDER ALTERNATIVES IV and V

1. POP(age,sex) = f {POP(age,sex)t-1, Fertility, Mortality, IMIG}
   IMIG = % POP(age,sex)
2. LF = POP(age,sex) * LFPR(age,sex)
   LF(i) = f {LF,t}
   ELF(i) = LF(i) * (GDP/GDPP)
   ELF = sum{ELF(i)}
   UNEMPL = (LF-LISR) * (GDPP/GDP - 1)
   LFP = exogenous
   LFP(i) = f {LFP,t}
3. GDPP(i) = f {LF(i),LFP(i)}
   GDPP = sum{GDPP(i)}
   GDP = CP + CG + IP + IG + X - M
   GDP(i) = GDPP(i) * GDP/GDPP
   DISC = (GDPP-GDP)/GDPP * 100
   GNP = GDP + NFI
   GNDI = GDP + NFI + NTR
   CP = f {GNDI}
   If t < 1996,
   CG = f {GDP}
   IG = f {GDP}
   If t > 1996,
   CG = f {exogenous}
   IG = f {exogenous}
   Iextra = *f {GDPP}*
   Kextra = *sum{Iextra(t), Iextra(t-1)}*
   Qextra = *Kextra / 5*
   IP = f {GNDI} + Iextra
   M = f {GNDI} - 0.3 * Qextra
   X = f {exogenous} + 0.7 * Qextra
   NFI = f {workers in Israel, GDP per capita of Israel}
   NTR = f {POP, NTR pc (1990)}
   If t > 1996 & DISC(t) > 10 per cent,
   NTR = NTR * (DISC(t)/10 - 1)
   TB = (X - M)*
   CAB = (X - M)* + NFP+ NTR

POP = Population by age and sex
IMIG = 'negative migration', i.e. returnee population
LFPR = Labour force participation rates by age and sex
LF = Labour force
UNEMPL = Unemployment rate
ELF = Employed labour force
LISR = Labour force employed in Israel
LFP = Total labour force productivity
LFP(i) = Sectoral labour force productivity
GDPP = Potential output resulting from full employment at current productivity levels.
GDPP(i) = Potential sectoral output
GDP(i) = Actual sectoral output
GDP = Gross domestic product at market price
NFI = Net factor income from abroad
NTR = Net current transfer payments
NTRpc(1990) = NTR per capita in the year 1990
GNP = Gross national product
GNDI = Gross national disposable income
CP = Private consumption
CG = Government consumption
IP = Private investment
IG = Government investment
Iextra = Extra investment in productive activities
Kextra = Cumulative extra investment
Qextra = Gain in output resulting from the extra investment
M = Imports (* for balance of payments definition)
X = Exports (* for balance of payments definition)
TB = Trade balance
CAB = Current account balance
(i) : agriculture, industry, construction, or services

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