Distr.
GENERAL
E/ESCWA/AGR/1995/10
7 December 1995
ORIGINAL: ENGLISH

ESCWA
Economic and Social Commission
for Western Asia

FAO
Food and Agriculture Organization
of the United Nations

THE IMPACT OF POPULATION GROWTH AND URBANIZATION ON FOOD CONSUMPTION PATTERNS IN JORDAN

**A joint project of the United Nations
Economic and Social Commission for Western Asia
and the Food and Agriculture Organization
of the United Nations**

**UNITED NATIONS
New York, 1996**

96-0022

Preface

The purpose of this study is to determine the impact of population growth and urbanization on food consumption in Jordan. It comprises five chapters, the first and second of which provide an analysis of the population and of internal migration in Jordan. The third and fourth chapters deal with food policy and food consumption in Jordan, and the fifth chapter analyses the impact of rural migration on food consumption patterns.

This study was initiated by the Food and Agriculture Organization of the United Nations/Regional Office for the Near East (FAO/RNEA) and the former Joint ESCWA/FAO Agriculture Division, and was undertaken as a joint activity between FAO and the Economic and Social Commission for Western Asia (ESCWA). The study was prepared by Mr. Mohamed R. Hamdan, and reviewed by the two organizations.

It is hoped that this document will give decision makers and senior officials concerned with population and food and agriculture issues a better understanding of the impact of population growth and urbanization on food demand and consumption.

CONTENTS

LIST OF TABLES

Page

EXECUTIVE SUMMARY

The main objective of the present study was to investigate and highlight the impact of population growth and urbanization on food consumption patterns in Jordan. The major findings of this study can be summarized in the following points:

- The annual rate of population growth in Jordan during the period 1962 to 1992 was 4.1 per cent. The total population in 1992 was 4,012,000, out of which 22 per cent lived in rural areas.

- The urbanization process has been progressing at an increasing rate. In 1983, about 59.8 per cent of the total population lived in urban areas. In 1992 this percentage was 78 per cent.

- The urban areas in Amman and Zarqa districts are the largest demographic pull areas from all parts of the country. The most significant push areas are the rural areas of Amman, Irbid, Balqa and Mafraq districts. Internal migration within the southern governorates is very limited.

- Limited infrastructure and social services, low income, and unemployment have encouraged rural migration.

- About 76 per cent of the migrants are males, of which 27 per cent are in the age group 10 to 54 years. Ninety-five per cent of the employed migrants are males, and most of them are employed in social services, trade and construction. Economic and social reasons stand behind migration.

- During the period 1985 to 1991, self-sufficiency in red meat, poultry meat, dairy products, wheat, legumes, oils, vegetables and fruits was about 23 per cent, 86 per cent, 80 per cent, 13 per cent, 49 per cent, 28 per cent, 170 per cent, and 155 per cent respectively.

- During the period 1988 to 1992 the total subsidy paid to wheat producers amounted to 9.5 million Jordanian dinars (JD) and to barley producers about JD 1.3 million. On the other hand, consumer subsidies for wheat averaged JD 34.5 million yearly.

- Production of red meat, dairy products and some vegetables (especially tomatoes) have been positively affected by producer subsidies. Subsidies to wheat producers have not led to any significant increase in production, as the amount and distribution of rainfall are the most important factors affecting wheat production in Jordan.

- Until 1992, the Ministry of Supply was the sole importer of cereals, sugar, fresh and frozen meat and oils. Wheat is the most highly subsidized item. The total amount of wheat subsidies at the consumer level during the period 1981 to 1992 was JD 294.6 million. Sugar and rice subsidies amounted to JD 61.1 million and JD 22.5 million respectively during the period 1981 to 1990.

- The main policy instruments used in Jordan are production and consumption subsidies, price controls, and pricing systems for distributing food commodities.

- In quantitative and qualitative terms the food consumption pattern in the northern districts is superior to that of the southern ones. The food consumption pattern in 1992 compared with those of 1983 and 1987 indicated an increase in the intake of cereals, pulses, fruits, meats, oils and sugar. The consumption of fish, eggs and vegetables in 1992 was lower than in 1983.

- In 1992 the rural population consumed more bread, canned fish, dairy products, legumes, tea and coffee than the urban population. The urban population consumed more red meat, eggs, oils, fruits, nuts and beverages.

- In the year 2000 Jordan will continue to depend on imports of cereals, red meat, fish and oils, while it will show a surplus in the production of eggs, vegetables and fruits.

- Food consumption is affected by the variables of income, rural/urban distribution, sex, age and household size.

- Migrants from rural areas are faced with new food consumption patterns affecting their dietary habits, nutrition status, family budget and living standards. Ready meals, new and different kinds of sweets and soft drinks, imported and processed foods, nuts and beverages become the main component of their food consumption patterns.

- The main change in the food consumption habits of rural migrants was reflected in an increase of consumption of particular food items such as bread, cereal products, imported fresh and frozen meats, fish, yoghurt and cheese, eggs, falafel (processed chickpeas), ice cream and beverages. On the other hand, migrants consumed less of wheat flour (replaced by increased consumption of bread), fresh dairy products (replaced by processed dairy products) and local olive oil.

- In 1987 food expenditures as a proportion of total household expenditure amounted to 3.9 per cent for cereals, 10.2 per cent for meat, 4.4 per cent for dairy products, 4.5 per cent for oils and fats, 2.9 per cent for fruits, 3.5 per cent for vegetables and 2.5 per cent for sugar.

- Owing to changes in food prices and income as well as to subsidy policies, the share of cereals, fats, fruits and sugar as a proportion of total expenditure on food decreased in 1992 in comparison with their share in 1987, while expenditure on meat and vegetables increased.

I. THE POPULATION OF JORDAN

A. HISTORICAL BACKGROUND

Owing to its geographical and political situation, the Hashemite Kingdom of Jordan has received waves of migrants from neighbouring countries since its establishment. The Palestinian tragedy of 1948 and the Israeli occupation of the West Bank and Gaza Strip had a strong impact on the internal migration situation in Jordan. Jordan absorbed two massive waves of migrants from Palestine, in 1948 and in 1967. During and after the Gulf war, about 350,000 returnees came back to Jordan from the Gulf States.

B. SIZE AND GROWTH RATE OF THE POPULATION

In 1992, Jordan's population was estimated at 4,012,000 of which 3,129,000 were urban and 883,000 were rural. Growth rates were irregular due to the migrations, as shown in table 1.[1]

TABLE 1. GROWTH RATES OF JORDAN'S POPULATION IN VARIOUS PERIODS

Period	Annual growth rate (percentage)
1962-1966	3.3
1967-1970	3.4
1971-1974	3.5
1975-1978	4.3
1980-1983	4.0
1984-1987	4.2
1991-1992	3.2

Source: Jordan, Department of Statistics, *Statistical Yearbook*, various issues.

C. GEOGRAPHICAL DISTRIBUTION OF THE POPULATION

According to the housing and population census of 1979, the population of Jordan was estimated at 2,133,000 of which about 40 per cent lived in rural areas. In 1986 and 1992 the population increased to 2,796,100 and 4,012,000 respectively. The percentage of rural population decreased to 30.4 per cent in 1986 and to 22.1 per cent in 1992 (table 2).

Table 2 shows that there was no significant difference in the geographical distribution of the population among the Governorates during the period 1986 to 1992. In 1986 about 41.5 per cent of the total population lived in Amman Governorate, 14.5 per cent in Zarqa, 24.3 per cent in Irbid, 3.5 per cent in Mafraq, 6.9 per cent in Balqa, 4.3 per cent in Karak, 1.5 per cent in Tafilah, and 3.5 per cent in Ma'an. In 1992, 40.5 per cent of the total population lived in Amman Governorate, 15.5 per cent in Zarqa, 24.4 per cent in Irbid, 4 per cent in Mafraq, 6.1 per cent in Balqa, 4.2 in Karak, 1.6 per cent in Tafilah, and 3.7 per cent in Ma'an.

Table 2 indicates a considerable change in the percentage of rural population during the period 1986 to 1992. In 1986 the rural population represented 15 per cent of the total population in Amman Governorate, 9.6 per cent in Zarqa, 45.8 per cent in Irbid, 71.6 per cent in Mafraq, 44.7 per cent in Balqa, 80 per cent in

[1] Jordan, Department of Statistics, *Statistical Yearbook, 1992*, No. 43, p. 18. Jordan's population was 4.1 million according to the housing and population survey carried out in December 1994.

Karak, 61 per cent in Tafilah, and 46.6 per cent in Ma'an. In 1992 it decreased by 5.2 per cent in Amman Governorate, 6.6 per cent in Zarqa, 14 per cent in Irbid, 2.1 per cent in Mafraq, 11.6 per cent in Balqa, 6 per cent in Karak, 31.3 per cent in Tafilah, and 7.6 per cent in Ma'an.

The Governorates of Amman, Balqa, Zarqa and Irbid together make up 21.8 per cent of the total area of Jordan and include 86 per cent of the total population.

In 1986 the age group 0 to 14 years represented 47.2 per cent of the total population. In 1990 it dropped to 45.4 per cent and in 1992[2] it dropped again, to 41.3 per cent. This indicates the importance of that portion of the population which is not productive.

During the period 1986 to 1992 the urban population of Amman and Zarqa Governorates increased by 48.8 per cent and 59.4 per cent respectively, while the population of the other districts decreased, with exception of Tafilah district, which showed a slight increase. The percentage of rural population to total population has significantly decreased in all Governorates with exception of Ma'an. This development indicates an active migration phenomenon in the country.

TABLE 2. ESTIMATES OF THE TOTAL, URBAN, AND RURAL POPULATIONS IN JORDAN'S GOVERNORATES, 1986 TO 1992

	1986				1992			
Governorate	Population	Percentage of total	Urban	Rural	Population	Percentage of total	Urban	Rural
Amman	1 160 000	40	985 220	174 780	1 625 000	40	1 466 000	159 000
Zarqa	404 500	15	365 540	38 960	622 000	16	582 800	19 000
Irbid	680 200	24	368 500	311 700	979 000	24	688 000	311 000
Mafraq	98 600	4	27 980	70 620	160 000	4	49 000	111 000
Balqa	193 800	7	17 250	86 550	245 000	6	164 000	81 000
Karak	120 100	4	23 790	96 310	169 000	4	44 000	125 000
Tafilah	41 400	2	16 120	25 280	46 000	2	45 000	19 000
Ma'an	97 500	4	52 080	45 420	148 000	4	90 000	58 000
TOTAL	2 796 100	100	1 946 480	849 620	401 200	100	3 129 000	883 000

Source: Jordan, Department of Statistics. *Statistical Yearbook* 1986 and 1992.

Table 3 shows the trend in the distribution of population among rural and urban. The urban population represented 59.8 per cent, 69.6 per cent, and 77.9 per cent of the total population in the years 1983, 1986 and 1992 respectively. These numbers underline the steady urbanization process in Jordan where the relative share of the rural population in the total population decreased during the period 1983 to 1992 from 40.2 per cent to 22.1 per cent.

[2] The World Bank, *The Middle East and North Africa: Issues in Development*, 1993; United Nations Economic and Social Commission for Western Asia, Demographic and Related Socio-Economic Data Sheets for Countries of ESCWA, as Assessed in 1992 (E/ESCWA/POP/1993/12), December 1993.

TABLE 3. URBAN/RURAL DISTRIBUTION OF JORDAN'S POPULATION, 1983, 1986 AND 1992

	1983		1986		1992	
Areas	Number	Percentage	Number	Percentage	Number	Percentage
Urban	1 492 453	59.8	1 946 480	69.6	3 129 000	77.9
Rural	1 002 847	40.2	849 620	30.4	883 000	22.1
TOTAL	2 495 300	100	2 796 100	100	4 012 000	100

Source: Jordan, Department of Statistics, *Statistical Yearbook*, 1986 and 1992.

II. INTERNAL MIGRATION

A. INTERNAL MIGRATION FROM ONE GOVERNORATE TO ANOTHER

Internal migration in Jordan takes place mainly within Governorates. As can be seen from table 4, about 98 per cent of migrants to the city of Amman come from other parts of Amman Governorate. About 97 per cent of migrants to the Governorates of Zarqa and Irbid come also from other parts of the same Governorates, and this is true of 96 per cent of migrants in Mafraq, 94 per cent in Balqa, 93 per cent in Karak, 92 per cent in Tafilah and 95 per cent in Ma'an Governorate.

TABLE 4. INTERNAL MIGRATION FROM ONE GOVERNORATE TO ANOTHER
(*Percentage*)

From / To	Amman	Zarqa	Irbid	Mafraq	Balqa	Karak	Tafilah	Ma'an
Amman	**98.4**	0.84	0.19	0.07	0.2	0.12	0.04	0.14
Zarqa	1.1	**97.6**	0.5	0.3	0.1	0.1	0.1	0.2
Irbid	0.9	1.1	**97.6**	0.2	0.1	--	--	0.1
Mafraq	0.7	1.9	0.7	**96.5**	0.1	--	--	0.1
Balqa	3.3	1.2	0.4	--	**94.8**	0.1	--	0.2
Karak	2.9	1.9	0.3	0.1	0.2	**93.5**	0.3	0.8
Tafilah	3.2	1.9	0.1	--	0.5	0.5	**92.2**	1.6
Ma'an	0.8	1.5	1.0	0.3	0.1	0.3	0.2	**9.58**

Source: Jordan, Department of Statistics, *Dirasat al-Hijrat il-Dakhiliyati wal-'A'ida wal-Quwa al-Bashariyah* (A study of internal migration, re-migration and the labour force), Amman (1989), p. 72.

Note: An em dash (--) indicates that the item is not applicables.

Table 5 below shows the migration from rural areas to different Governorates. About 10.3 per cent of the population of Amman Governorate came from the rural areas of Amman, less than 1 per cent came from rural areas of other Governorates (0.49 per cent from the rural areas of Irbid Governorate, 0.05 per cent from Mafraq rural areas, 0.4 per cent from Balqa rural areas, 0.1 per cent from Karak rural areas, and 0.05 per cent from Ma'an rural areas). The table also shows the internal migration in other Governorates.

Migration outside Governorates is mainly observed in three areas: Irbid, Mafraq and Balqa. Urban areas of Zarqa Governorate receive migrants from rural areas of Irbid, Balqa, Amman and Mafraq. Zarqa district attracts migrants from different parts of Jordan because of its job opportunities for individuals with low levels of education compared with that of other Governorates such as Amman and Irbid. Zarqa, as a centre for the Jordanian armed forces and for important industries such as petroleum refining and the steel industry, remains a pull-area for internal migrants. Many workers and employees in Amman reside in Zarqa owing to the high housing costs in Amman compared with Zarqa.

TABLE 5. RURAL MIGRATION AMONG GOVERNORATES

(Percentage)

From / To	Amman	Zarqa	Irbid	Mafraq	Balqa	Karak	Tafilah	Ma'an
Amman	10.3	0.04	0.49	0.05	0.4	0.11	--	0.05
Zarqa	0.32	7.33	2.4	0.4	0.5	0.09	0.08	--
Irbid	--	0.02	79.2	0.16	0.15	0.02	--	--
Mafraq	0.08	0.16	1.94	66.1	0.08	--	--	--
Balqa	0.23	0.05	0.29	--	30.1	0.11	--	--
Karak	0.14	0.12	0.06	--	--	75.7	0.04	0.08
Tafilah	0.75	--	0.44	--	--	1.63	44.3	0.5
Ma'an	0.02	0.17	0.78	0.04	--	1.59	0.12	45.8

Source: Jordan, Department of Statistics, *Dirasat al-Hijrat il-Dakhiliyati wal-'A'ida wal-Quwa al-Bashariyah* (A study of internal migration, re-migration and the labour force), Amman (1989), pp. 252-268.

Note: An em dash (--) indicates that the amount is nil or negligible.

TABLE 6. RURAL-TO-URBAN MIGRATION WITHIN AND AMONG GOVERNORATES

(Percentage)

From / To	Amman	Zarqa	Irbid	Mafraq	Balqa	Karak	Tafilah	Ma'an
Amman	0.57	0.03	0.53	0.05	0.4	0.09	--	0.04
Zarqa	4.88	3.51	3.91	3.97	6.46	1.02	1.2	0.11
Irbid	--	--	3.63	0.09	0.03	--	--	--
Mafraq	0.09	0.17	5.77	6.63	0.09	--	--	--
Balqa	0.15	0.05	0.07	--	4.72	--	--	--
Karak	0.33	--	0.11	--	--	8.31	--	0.22
Tafilah	0.05	0.19	1.52	0.05	--	0.05	0.05	1.99
Ma'an	0.02	0.17	0.78	0.04	--	1.59	0.12	4.58

Source: Jordan, Department of Statistics, *Dirasat al-Hijrat il-Dakhiliyati wal-'A'ida wal-Quwa al-Bashariyah* (A study of internal migration, re-migration and the labour force), Amman (1989), pp. 252-268.

Note: An em dash (--) indicates that the amount is nil or negligible.

The size and direction of rural migration to different urban areas in Jordan are shown in table 7. The Governorate of Irbid is the first migration area followed by Balqa. About 75 per cent of the migrants from Amman Governorate settle in urban areas of Zarqa and about 24 per cent in urban areas of Amman. About 72 per cent of migrants from Mafraq move to urban areas of Zarqa. Most of the migrants from Tafilah Governorate move to Zarqa. Migration from the rural areas of Irbid Governorate represented the largest

number of migrants, of which 87 per cent migrated to Zarqa, 8 per cent to urban Irbid and 3 per cent to urban Amman.

TABLE 7. SIZE AND DIRECTION OF RURAL URBAN MIGRATION AMONG GOVERNORATES

From rural To urban	Amman	Zarqa	Irbid	Mafraq	Balqa	Karak	Tafilah	Ma'an
Amman	5 616	2 963	5 222	493	4 138	788	--	394
Zarqa	17 838	12 830	142 999	14 512	23 614	3 729	3 729	402
Irbid	--	--	13 377	3 316	110	--	--	--
Mafraq	25	48	1 615	1 855	25	--	--	--
Balqa	161	54	75	--	5 062	--	--	--
Karak	79	--	26	--	--	1 975	--	52
Tafilah	--	--	--	--	--	--	127	--
Ma'an	26	99	792	26	--	26	26	1 036
Total	23 745	15 994	164 106	20 202	32 949	6 518	3 882	1 884

Source: Jordan, Department of Statistics, *Dirasat al-Hijrat il-Dakhiliyati wal-'A'ida wal-Quwa al-Bashariyah* (A study of internal migration, re-migration and the labour force), p. 70.

Note: An em dash (--) indicates that the amount is nil or negligible.

The urban areas in Irbid Governorate receive migrants from the same Governorate in addition to rural migrants from Mafraq. For rural migrants settling in urban areas of Mafraq, Irbid Governorate is the second push area after Mafraq itself.

The migration movement between the northern and the southern parts of the country is very limited, as shown in table 7.

B. QUALITY-OF-LIFE INDICATORS IN URBAN AND RURAL AREAS

Besides the direct economic and social factors responsible for migration discussed above, there are a set of causes encouraging internal migration. Table 8 includes some of the indicators that might explain increasing migration. It is clear from the table that urban areas exceed rural areas in most of the listed indicators with exception of housing. About 91 per cent of the rural population own their own homes, while this percentage drops to 67 per cent in urban areas. More available in urban areas are modern facilities such as central heating, public electricity, piped water, sanitation, education and employment.

These facts give incentives for rural/urban migration and make reverse-immigration more difficult. Rural development is therefore the key to decreasing rural/urban migration. It is well known, however, that development requires investment, proper management and infrastructure. The low budgets and allocations for rural areas do not provide for investments in these areas. Under such circumstances, infrastructure

development will not take place and in turn will negatively affect the establishing of large or small economic projects. About two thirds of the unemployed poor in rural areas do not find jobs in their regions.[3]

TABLE 8. QUALITY-OF-LIFE INDICATORS IN URBAN AND RURAL AREAS

Indicator	Percentage of households	
	Urban	Rural
Own their home	67	91
Central heating	7.7	1.3
Kerosene heating	90.7	93.2
Density of no more than 2-4 persons/room	52	55
Public electricity	98.5	83.1
Latrine/public sanitation	39.1	0.1
Latrine/cesspool	59.0	91.0
Piped drinking water	94	85
Toilet	91	73
Kitchen	95	83
At least one member of the household with skills, education	74	61
No one in the household has skills or education	26	39
At least one person in the household is economically active	38	34
No one in the household is economically active	62	66
Illiteracy rate	17	28.6

Source: Jordan, Department of Statistics, *Dirasat al-Hijrat il-Dakhiliyati wal-'A'ida wal-Quwa al-Bashariyah* (A study of internal migration, re-migration, and the labour force), Amman (1989), p. 101.

C. CHARACTERISTICS OF MIGRANTS

Jordanian internal migrants in the age group of 20 to 44 make up about one third of the total number of migrants, of which 78.7 per cent are males.

About 41.3 per cent of the total number of migrants to Zarqa Governorate are in the age group 10 to 54. This group accounts for 34 per cent of migrants to Amman Governorate, 33.4 per cent of those coming to Balqa, 29.8 per cent to Tafilah, 27.3 per cent to Ma'an, 19.2 per cent to Karak, 18.7 per cent to Irbid and 17.3 per cent to Mafraq Governorate (table 9). The table shows also that most migrants are males. Female migration has been registered mainly in Amman and Mafraq Governorates followed by Tafilah, Irbid and Ma'an. The contribution of the female element to migration explains the intention of durable migration temporary migrants are not accompanied by their female family members.

[3] Mohammed Sqoor, *Dirasa Juyaob il-Faqr fil-Mamlakat il-Urduniyyat* il-Hashemiyya (A study of pockets of poverty in Jordan), Amman (1989), p. 143.

TABLE 9. AGE AND SEX OF MIGRANTS IN THE AGE GROUP 10 TO 54 YEARS

Governorate	Percentage of total number of migrants	Males as a percentage of total
Amman	34.0	69.6
Zarqa	41.3	80.4
Irbid	18.7	77.2
Mafraq	17.3	67.0
Balqa	33.4	81.4
Karak	19.2	80.0
Tafilah	29.8	76.0
Ma'an	27.3	77.5

Source: Jordan, Department of Statistics, *Dirasat al-Hijrat il-Dakhiliyati wal-'A'ida wal-Quwa al-Bashariyah* (A study of internal migration, re-migration, and the labour force), Amman (1989), p. 352.

D. OCCUPATION OF INTERNAL MIGRANTS

Because of the unskilled and low educational level of migrants, many of them (44.7 per cent) are employed as unskilled workers in services, working for municipalities, restaurants, hotels and others. The other 55.6 per cent of the migrants are distributed among the other sectors as follows: 15.4 per cent in trade and services, 12 per cent in construction, 9.7 per cent in industry, 4.4 per cent in agriculture, 3.1 in financing, 0.8 per cent in the energy sector, and 0.3 per cent in mining (table 10).

Table 10 indicates that the majority of employed migrants are males. It also shows that 83.7 per cent of the migrants employed in social services are males; these services also employed the largest proportion of female migrants. Female employment in other sectors is very low except in the finance sector. Educated females have good job opportunities in banking and insurance.

E. REASONS FOR MIGRATION

An examination of the reasons for migration shows that internal migration is mainly of a temporary nature. The most significant reason for migration, as table 11 shows, is return to previous residence (44.7 per cent), followed by a desire to join family (18.8 per cent). This means that 63.5 per cent of the migration cases involve social factors, 25.6 per cent are due to economic reasons and 10.9 per cent refer to other reasons.

TABLE 10. OCCUPATIONAL FIELDS OF INTERNAL MIGRANTS 13 YEARS AND OLDER, AND THE PERCENTAGE OF MALES EMPLOYED IN EACH SECTOR

Occupational sector	Percentage of migrants employed in this sector	Percentage of migrant employees in this sector who are male
Services	44.7	83.7
Trade and services	15.4	97.8
Construction	12.0	95.5
Transport	9.7	97.7
Industry	4.4	95.8
Agriculture	3.1	97.3
Finance	3.1	89.3
Energy	0.8	97.7
Mining	0.3	100.0
Others	6.5	--

Source: Jordan, Department of Statistics, *Dirasat al-Hijrat il-Dakhiliyati wal-'A'ida wal-Quwa al-Bashariyah* (A study of internal migration, re-migration, and the labour force), Amman (1989), p. 375.

TABLE 11. MAIN REASONS FOR INTERNAL MIGRATION

Reason	Percentage of migrants
Return to previous residence	44.7
Join family	18.8
Seeking work	10.7
Improve income	10.5
Join school	6.0
Take up a job	4.4
Available services and infrastructure	0.9
Others	4.0

Source: Jordan, Department of Statistics, *Dirasat al-Hijrat il-Dakhiliyati wal-'A'ida wal-Quwa al-Bashariyah* (A study of internal migration, re-migration, and the labour force), Amman (1989), p. 368.

III. FOOD SUPPLY IN JORDAN

A. Food supply, production, foreign trade and self-sufficiency

Jordan suffers from a chronic deficit in red meat, wheat, legumes, fish and vegetable oils and had a self-sufficiency rate in these commodities during the period 1985 to 1991 of 22.9 per cent, 12.6 per cent, 49.3 per cent, 1.48 per cent, and 28.1 per cent respectively (table 12). Jordan was self-sufficient in eggs during this period and it enjoyed surpluses in fruits and vegetables. Jordan does not produce rice or sugar.

The deficiency in poultry meat and dairy products (14.3 per cent and 21.2 per cent) could be corrected by measures to increase production. Under the current conditions of food markets in Jordan, the chronic deficiency in wheat, red meat, oils and legumes cannot be improved. During the period 1985 to 1991, the value of the food gap per year in the above-listed commodities averaged JD 172 million.[4]

The total value of the food gap in Jordan is estimated at US$ 475.7 million for 1992, and the per capita food gap at$104.6.[5] Jordan is completely dependent on world markets for rice and sugar.

Table 12. Structure of food supply in Jordan, 1985 to 1991

(Tons)

Category	Production	Imports	Exports	Supply	Percentage of self-sufficiency
Red meat	9 100	30 600	--	39 700	22.9
Poultry	47 668	7 937	--	55 605	85.7
Dairy products	79 740	20 230	--	99 970	79.8
Wheat and wheat products	64 490	447 520	--	512 010	12.6
Legumes	13 554	10 389	3 569	27 511	49.3
Fruits	106 013	66 770	10 412	68 171	155.5
Eggs	415	--	--	415	100.0
Fish	80	5 301	--	5 381	1.5
Vegetable oils	6 196	14 327	1 529	22 053	28.1
Vegetables	531 551	56 245	275 294	312 501	170.1

Source: Mohammed Shahateet et al. *Nahu Muwazana Ghitha'iya lil-Haddi min al-Faqr* (Towards a food budget for limiting poverty) (Amman: Royal Scientific Society, 1992), pp. 21-30.

Note: An em dash (--) indicates that the amount is nil or negligible.

The principle of comparative advantage in the production of goods for domestic and foreign markets was seen by the Government as valid under conditions of free international markets and regional or subregional economic integration. It is obvious that the problem of food security cannot be solved at the national level. Therefore cooperation, coordination and integration between Jordan and the Arab countries are required.

[4] Central Bank of Jordan, *Monthly Statistical Bulletin*, various issues.

[5] Central Bank of Jordan, *Monthly Statistical Bulletin*, various issues. ESCWA, Agriculture and Development in Western Asia, Bulletin No. 16, 1994 (E/ESCWA/AGREB/XVI), p. 18.

B. PRODUCTION AND SUBSIDY POLICY

During the past decade, the production of field crops has decreased. This decrease was mainly due to the low competitiveness of field crops in comparison with other crops such as vegetables, tobacco and fruit trees, on the one hand, and to the use of large areas of agricultural land for housing and infrastructure on the other hand. This situation induced Jordan to look for particular measures to encourage field crops production. Price supports for domestic production were one means to achieve this objective. Thus wheat, barley, chickpeas, lentils and maize were purchased by the Government at subsidized prices. Data available for the period 1980 to 1990 indicate that the Jordanian Government purchased a total quantity of 444,000 tons of these products with a total subsidy of JD 32 million. Subsidization of animal feed was also used to maintain the livestock sector and to keep production costs at low levels. The ultimate goal of this policy was to make dairy products and meat available to consumers at a reasonable prices. The cost of animal feed subsidy during the period 1988 to 1990 totalled JD 39 million.[6]

Government policy took other forms of protecting domestic products, by monopolizing the importation of some fruits and vegetables.

1. Wheat producers' subsidy

Since 1980, wheat, barley, chickpeas, rice, sugar and lentils have been provided to consumers at subsidized prices. But the subsidy was more significant to wheat and barley than to the other commodities, and each year before the sowing season in autumn, the Ministry of Supply (MOS) announces its purchase prices for wheat, barley, chickpeas and lentils. Procurement is made during June and July. Table 13 shows the locally procured quantities and prices, the quantities and values of imports, and the value of the subsidies paid by the MOS during the period 1988 to 1992. The data in the table shows that quantities locally procured during that period averaged 50 per cent of the production. The subsidized producer price for wheat was JD 120 per ton in 1988 and JD 147 per ton in 1991 and 1992.

For the period 1988 to 1992, the difference between the producer's price and the import cost was highest in 1988 (JD 66/ton) and lowest in 1989 (JD 12/ton). It should be noted that higher procurement prices did not lead to increased production, as rainfall is the most important limiting factor of wheat production in Jordan.

2. Barley producers' subsidy

Barley procurement prices are also announced by the Ministry of Supply before the sowing season in autumn. Purchases are made usually at harvest time in May and June. Table 14 shows barley production, imports, government purchases and subsidies paid to producers. The data in the table indicate that:

(a) About 40 per cent of local barley production was purchased during the period 1988 to 1992;

(b) The largest quantity procured was in 1992, while the lowest was in 1989;

(c) Prices were increased in 1991 and 1992 to 105 JD/ton as a measure to encourage farmers to plant barley instead of wheat in arid areas, as it is more suitable for these areas;

---

[6] Mohammed Rafiq Hamdan et al., *Al-Amn al-Ghitha'i fil-Urdun* (Food security in Jordan) (Amman: Higher Council for Science and Technology, 1991), p. 18.

(d) The highest total subsidy paid to barley producers was in 1992 (JD 901,000); however, in 1990 barley producers were taxed JD 13 per ton of production.

TABLE 13. WHEAT PRODUCTION, IMPORTS, GOVERNMENT PROCUREMENT, AND SUBSIDIES TO FARMERS FROM 1988 TO 1992

Year	Production (Thousands of tons)	Procurement (Thousands of tons)	Procurement price (JD/ton)	Imports (Thousands of tons)	Import cost (JD/ton)	Subsidy (JD/ton)	Total subsidy (Thousands of JDs)
1988	137	59	120	360	54	66	3894
1989	86	43	132	406	120	12	512
1990	89	52	142	458	119	23	1196
1991	58	33	147	515	90	57	1881
1992	123	68	147	452	117	30	2040

Source: Jordan, Ministry of Supply, 1992.

TABLE 14. BARLEY PRODUCTION, IMPORTS, GOVERNMENT PROCUREMENT, AND SUBSIDIES TO FARMERS FROM 1988 TO 1992

Year	Production (Thousands of tons)	Procurement (Thousands of tons	Procurement price (JD/ton)	Imports (Thousands of tons)	Import cost (JD/ton)	Subsidy (JD/ton)	Total subsidy (Thousands of JDs)
1988	50	27	75	101	67	8	216
1989	29	1	82	201	93	-11	-11
1990	36	7	100	200	113	-13	-91
1991	27	9	105	293	92	13	117
1992	103	53	105	230	88	17	901

Source: Jordan, Ministry of Supply.

3. Feed subsidy

Barley and wheat bran are the only subsidized animal feed sold to livestock producers. Wheat bran is sold to producers through the Jordan Cooperative Organization (JCO). Wheat bran is produced by the Ministry of Supply mills as a by-product of milling wheat. Until 1990 the price of bran was fixed at JD 20/ton, but in the following years the price was raised to JD 42 /ton in order to cover the costs of milling. Since the new price of bran covers the costs of milling, it has no financial or budgetary burden.

Barley receives two forms of subsidy, at the production level and at the level of livestock consumption for both imported and locally produced quantities. Table 15 shows the total subsidies for imported and domestically produced barley. The highest subsidy was in 1990, when about 200,000 tons were imported

and the difference between import costs and selling price was JD 38.0/ton. The negative figures in the table indicate that the Government made some profit during 1986 and 1987.

C. Objectives and mechanisms for consumer subsidies

As stated earlier, the Ministry of Supply is the sole importer of wheat, flour, rice, sugar, red meat, frozen poultry, oils, lentils and barley. The main objectives of this government intervention are:

(a) To make basic food commodities available to consumers at reasonable prices and at all times;
(b) To cover the shortage in local production of particular food and feed commodities;
(c) To improve the level of the food consumption of the population.

Table 15. Feed subsidies for imported and locally produced barley from 1986 to 1992

	1986	1987	1988	1989	1990	1991	1992
Imports (Thousands of tons)	144	115	101	201	200	293	230
Procurement (Thousands of tons)	2	13	27	1	7	9	55
Import costs (JDs/ton)	41	31	67	93	103	92	88
Procurement cost (JDs/ton)	71	74	75	82	100	105	105
Sales price (JDs/ton)	52	45	42	60	65	65	65
Import cost minus sales price	-11	-14	25	23	38	27	12
Procurement cost minus sales price	20	29	50	22	35	40	40
Total subsidy (Thousands of JDs)	-1485	-1245	3875	4645	9843	8271	4880

Source: Jordan, Ministry of Supply, 1986-1992.

The Ministry of Supply supports the market equilibrium in main food commodities through its import, storage and supply policies and through price control measures.

In cooperation with the Ministry of Agriculture, the Ministry of Supply makes an annual estimate of the local production of cereals and legumes. These estimates are then compared with the consumption needs of the population, taking into consideration the available storage facilities and the overall government policy regarding subsidies.

Based on the above data, an annual import programme is prepared to ensure a regular food supply throughout the year under consideration. In accordance with this policy, the Ministry of Supply imported in 1990, for example, 112,000 tons of rice, 174,000 tons of sugar, 760,000 tons of wheat, 16,000 tons of flour, 44,000 tons of red meat, 25,200 tons of poultry, 6,400 tons of fish, and 21,800 tons of vegetable oil. The value of the total imports amounted to 417.7 million Jordanian dinars.

Bread is the most heavily subsidized food item for the period under consideration. In 1990 the value of the consumer subsidy for bread represented 67.1 per cent of the total subsidy.

Table 16 shows the consumer subsidy for imports, domestic production, and total subsidy for wheat. It is apparent that:

(a) The selling price of wheat to mills was fixed at JD 37/ton during the period 1981 to 1984, at JD 31/ton during the period 1986 to 1988 and at JD 35/ton during the period 1989 to 1992;

(b) During the period 1989 to 1992, the subsidy per ton for imported wheat more than doubled because of the sharp increase in prices of imported wheat. It averaged about JD 74 as against JD 31 for the period 1985 to 1989.

It is also to be noted that the Ministry of Supply extended its operations to include wheat milling. It established the largest mill in the country with a production capacity of 400 tons per day of flour and established several bakeries with a total capacity of 2 tons of bread/hour.[7]

Jordan does not produce sugar and depends totally on imports to satisfy its needs. Annual imported quantities varied between 40,300 tons in 1985 and 187,300 in 1990 at the time of the Gulf crisis (table 17). Import costs fluctuated during the same period. The lowest import cost per ton was JD 78/ton in 1986 and the highest was JD 299/ton in 1990. During the period 1983 to 1988 the Government was taxing consumers, while it subsidized prices in 1981, 1982, 1989 and 1990.

As in the case of sugar, all rice consumed in Jordan is imported. Table 18 shows that the largest imported quantity of rice was 121,000 tons in 1990 at the time of the Gulf crisis and the lowest was 36,000 tons in 1983. In 1981, 1983, 1984, 1986 and 1987, the wholesale price of rice was higher than the import price (that is, the Government was taxing rice prices). However, in 1982, 1985, 1988, 1989 and 1990 the wholesale price of rice was lower than the import price (that is, the Government was subsidizing rice prices).

Since 1990, sugar, rice, and powdered milk were sold to consumers at two different prices: subsidized and market prices. Six kg of sugar, 6 kg of rice and 1 kg of powdered milk per person per quarter are sold at subsidized prices. As of January 1994, only households with a monthly income of less than JD 500 are covered by the subsidy programme. Households whose incomes exceed this limit have to buy these items at market prices.

As a direct result of the increase in income, the food consumption subsidy, and rural migration—which resulted in some changes in consumption patterns—the average per capita daily intake of calories and nutrients increased from about 2,200 calories, 67 grams of protein, 62 grams of fat and 343 grams of carbohydrates in 1974 to about 2,770 calories, 82 grams of protein, 79 grams of fat and 436 grams of carbohydrates in 1987, and decreased to 2,699 calories, 76 grams of protein, 65 grams of fats and 455 grams of carbohydrates in 1992.[8]

D. Food storage and distribution policy

To maintain a strategic reserve of basic food items, the Ministry of Supply established three main storage centres in the southern, middle, and the northern parts of the Kingdom, with a total storage capacity of 374,000 tons, in addition to 39 secondary stores with a storage capacity of 215,000 tons. The Ministry also established cold stores for meat, fish and vegetables with a storage capacity of 11,000 tons.

---

[7] Mohammed Rafiq Hamdan et al., *Al-Amn al-Ghitha'i fil-Urdun* (Food security in Jordan) (Amman: Higher Council for Science and Technology, 1991), p. 24.

[8] Hamdan et al., ibid., p. 26; Jordan, Department of Statistics, *Household Expenditure and Income Survey* in 1986-1987 and 1992.

TABLE 16. THE CONSUMER SUBSIDY FOR WHEAT

Year	*Quantities sold to mills*		*Purchasing price*		*Selling price (JD/ton)*	*Unit subsidy*		*Total subsidy*		
	Local (Thousands of tons)	*Imported (Thousands of tons)*	*Local (JD/ton)*	*Imported (JD/ton)*		*Local (JD/ton)*	*Imported (JD/ton)*	*Local (Thousands of JDs)*	*Imported (Thousands of JDs)*	*Total (Thousands of JDs)*
1981	20	348	104	59	37	67	22	1340	7656	8996
1982	3	209	109	99	37	72	62	216	12958	13174
1983	35	319	109	107	37	72	70	2520	22330	24850
1984	1	451	120	92	37	83	55	83	24805	24888
1985	37	377	120	80	34	86	46	3182	17342	20524
1986	17	271	120	63	31	89	32	1513	8672	10185
1987	64	542	120	56	31	89	25	5696	13550	19246
1988	59	360	120	54	31	89	23	5251	8280	13531
1989	43	406	132	120	35	97	85	4171	34510	38681
1990	55	458	142	119	35	107	84	5885	38472	44357
1991	36	515	147	90	35	112	55	4032	28325	32357
1992	60	452	147	117	35	112	82	6720	37064	43784

Source: Jordan, Ministry of Supply, 1992.

TABLE 17. THE CONSUMER SUBSIDY FOR SUGAR

Year	Imports (Thousands of tons)	Import cost (JD/ton)	Selling wholesale price (JD/ton)	Unit subsidy (JD/ton)	Total subsidy (Thousands of JDs)
1981	91	264	198	66	5 993
1982	91	219	198	21	1 907
1983	61	114	168	-54	-3 299
1984	45	122	168	-46	-2 070
1985	40	98	148	-50	-2 015
1986	123	78	148	-70	-8 582
1987	128	81	128	-47	-6 025
1988	76	116	128	-12	-916
1989	87	147	128	19	1 649
1990	187	299	130	169	31 654

Source: Jordan, Ministry of Supply, 1990.

TABLE 18. THE CONSUMER SUBSIDY FOR RICE

Year	Imports (Thousands of tons)	Import cost (JD/ton)	Wholeseale price (JD/ton)	Unit subsidy (JD/ton)	Total subsidy (Thousands of JDs)
1981	37	156	170	-14	-517
1982	46	190	170	20	918
1983	36	147	165	-18	-650
1984	55	157	165	-8	-442
1985	51	151	145	6	306
1986	72	144	145	-1	-72
1987	72	109	125	-16	-1 149
1988	77	146	125	21	1 611
1989	39	211	125	86	3 371
1990	121	242	130	112	13 496

Source: Jordan, Ministry of Supply, 1990.

The Ministry followed two methods in distributing food commodities: Food items such as chilled and frozen meat, frozen poultry, and bread were distributed through the Ministry's distribution centres; and rice, sugar, lentils and chickpeas were distributed to wholesalers and retailers who in turn sell these commodities to the consumer. Since September 1990, as a result of the Gulf crisis, only rice, sugar, and powdered milk have been distributed at subsidized prices to Jordanian citizens, by coupon. The objectives of the policy include the following: to ensure that the subsidy will reach all eligible Jordanian citizens; to limit hoarding; to limit smuggling of subsidized commodities to neighbouring countries; to prevent private food processing plants from using subsidized commodities; and to reduce government budget allocations for subsidies.

E. FOOD PRICING MECHANISM

The system used for pricing food commodities differs from one commodity to another. Retail prices of fruits and vegetables are set by committees in the wholesale markets in the larger cities of the country. These committees comprise representatives from the Ministry of Supply, the Ministry of Agriculture, the Agricultural Marketing Organization and the concerned Municipality. Daily retail prices are set on the basis of the most frequent wholesale price in the market that day. Factors such as the cost of transportation and the degree of perishability of the crop are also considered, as well as other factors.

Poultry meat, eggs, tomato paste, fresh milk, flour products, oil and fats, and beverages are priced on the basis of production costs, while imported commodities are priced on the basis of import costs.

Government intervention in the market mechanism resulted in price stability for basic food items, while free-priced goods showed considerable price fluctuations and unjustified increases.

During the period 1988 to 1990 a significant price increase in all commodities took place. Prices of officially priced commodities such as cereals and legumes, meat, milk products, and table eggs increased by 48.5 per cent, 40.3 per cent, 65.3 per cent, and 65.3 per cent respectively. However, freely priced articles such as clothes, paper, wood, construction materials, furniture and transportation increased by 62.1 per cent, 102.7 per cent, 118.8 per cent, 109 per cent, 114.3 per cent, and 107.2 per cent respectively.[9]

[9] Hamdan et al., ibid., p. 26.

IV. FOOD CONSUMPTION IN JORDAN

Three food consumption surveys were carried out in Jordan by the Department of Statistics, the first in 1980, the second in 1986-1987 and the third in 1992.

A. Food consumption patterns in 1986-1987 and in 1992

The per capita food consumption pattern (FCP) of 1986-1987 shown in table 19 represents 82 grams of protein, 79 grams of fat, 436 grams of carbohydrate and 2,770 calories/per capita/day. In 1992 the per capita FCP consisted of 76 grams of protein, 65 grams of fat, 455 grams of carbohydrate and 2,699 calories.[10]

The nutritional value of wheat products covered about 49 per cent of the intake of energy, 40 per cent of the intake of protein, 54 per cent of carbohydrates, 74 per cent of phosphorus, 52 per cent of iron, 43 per cent of vitamin B_1 and 48 per cent of niacin, while animal products produced 13.2 per cent of the intake of energy, 43.9 per cent of protein, 28 per cent of fat, 38 per cent of vitamin A and 29 per cent of niacin.

There is no significant variation among Governorates in the intake of nutrients. Balqa, Karak and Ma'an Governorates had slightly higher protein and energy intake due to their high bread consumption.

Table 19. Per capita food consumption by Governorate, 1986-1987
(Kg/year)

Food category	Amman	Irbid,	Balqa	Karak,	Ma'an	Zarqa	Jordan
Rice	18	15	18	19	15	21	18
Sugar	48	53	46	70	32	47	49
Bread	132	157	128	216	183	139	159
Red meat	27	14	15	13	12	21	17
Poultry	32	36	34	44	31	33	35
Fish	3	2	2	1	2	4	2
Dairy products	61	120	53	19	38	53	57
Oils and fats	20	18	13	17	9	20	16
Eggs (No.)	164	110	130	86	101	1 881	129
Fruits	86	67	76	48	49	86	69
Vegetables	1 158	112	124	85	88	122	108
Legumes	6	9	7	8	8	7	8

Source: Jordan, Department of Statistics, *Household Expenditure and Income Survey*, 1986-1987.

The daily per capita consumption of most food items decreased in 1992 compared with that of 1987. Table 21 shows a decrease in the consumption of all food groups with the exception of cereal products and dairy products.

[10] Jordan, Department of Statistics, *Household Expenditure and Income Survey*, 1986-1987 and 1992.

TABLE 20. AVERAGE PER CAPITA FOOD CONSUMPTION BY GOVERNORATE (1992)
(Kg/year)

Food category	Amman	Irbid	Zaraq	Balqa	Mafraq	Karak	Ma'an	Tafilah	Jordan
Rice	38	39	27	37	45	50	40	30	20
Sugar	36	41	28	47	61	60	49	44	33
Bread	146	175	137	202	1 147	226	177	129	174
Red meat	29	14	15	11	6	9	11	9	9
Poultry	29	32	37	25	26	32	31	42	26
Fish	8	9	5	4	6	8	15	10	6
Dairy products	30	50	21	23	18	26	27	23	27
Oils and fats	16	21	12	12	10	13	16	13	14
Eggs (No.)	190	183	155	134	82	173	128	128	165
Fruits	67	73	59	39	38	35	50	44	46
Vegetables	119	135	124	87	106	77	95	118	108
Legumes	5	8	4	4	4	7	9	5	6

Source: Jordan, Department of Statistics, *Household Expenditure and Income Survey*, 1992.

As shown in table 21, the average annual per capita food consumption of cereal and dairy products increased in 1992 compared with 1987 by 15.6 per cent and 50.5 per cent respectively. All other food groups showed a decrease in per capita consumption. The consumption of red meat declined by 35.8 per cent between 1987 and 1992, poultry meat by 24 per cent, fish by 15 per cent, oils and fats by 24.5 per cent, fruits by 41 per cent, vegetables by 6.9 per cent, legumes by 16 per cent, and sugar by 18 per cent.

The rationing measures applied to food distribution in the years 1991 and 1992 by means of coupons, the introduction of a dual pricing system (subsidized price and market price) and price increases in most food items, as well as the stagnation of the Jordanian economy owing to the Gulf crisis, have resulted in a decrease in the consumption of most items except wheat and dairy products. In fact, the price increase of food items had an income effect and a substitution effect: the income effect resulted in a decrease in the consumption of most food items, and the substitution effect resulted in an increase in the consumption of certain commodities such as bread and dairy products to substitute for expensive goods such as red meat and poultry.

B. FOOD CONSUMPTION PATTERNS IN URBAN AND RURAL AREAS IN 1987 AND 1992

The annual per capita consumption of various food categories in 1987 and 1992 is shown in table 22.

In 1987 rural consumers consumed more cereals, poultry meat, vegetables and sugar than urban consumers, while the urban population consumed more red meat, fish, oils and fats, and legumes. This situation reflects the income level in both areas. The rural population consumed more bread and sugar as a major source of energy. Poultry meats have been used in rural areas as a substitute for expensive red meat.

TABLE 21. THE CHANGE IN FOOD CONSUMPTION PATTERNS DURING THE PERIOD 1983 TO 1992 IN JORDAN

(Grams/day/person)

Food item	*1983-1985*	*1987*	*1992*	*Percentage change 1987-1992*
Cereals	493	461	533	15.6
Pulses	21	19	16	-15.8
Vegetables	211	318	296	-6.9
Fruits	206	212	125	-41
Meat	101	148	95	-35.8
Fish	7	20	17	-15
Eggs	18	26	24	-7.7
Milk products	222	105	158	50.5
Oils and fats	58	49	37	-24.5
Sugar		110	90	-18.2

Sources: Mohammed Shahateet et al., *Nahu Muwazana Ghitha'iya lil-Haddi min al-Faqr* (Towards a food budget for limiting poverty) (Amman: Royal Scientific Society, 1992), pp. 67, 69 and 71; and Jordan, Department of Statistics, *Household Expenditure and Income Survey*, 1986-1987 and 1992.

Note: Two dots (..) indicate that data are not available.

In 1992 the urban population consumed more food of high quality such as meat, fish, dairy products, eggs and fruits than the rural population, while the rural population consumed more of the cheaper energy-producing foods such as cereals, sugar and oils. Owing to the higher cost of living in urban areas, the rural population of the same income groups show a higher food consumption in terms of calories.

The figures given in table 22 show a clear difference in the food consumption patterns of urban and rural areas. The rural agricultural producers in many areas are more consumption-oriented (that is, farmers produce to meet their own consumption requirements). The fact that a good percentage of rural producers still maintain subsistence agriculture to a certain degree, and that their income level is lower than that of the urban population, gave them incentive to direct their agricultural production towards their consumption, including keeping a small number of domestic animals such as goats, sheep, cows, etc., to improve their nutritional status.

In 1992 the energy intake and nutrients in urban and rural areas were to some extent similar. The urban population consumed 79.3 grams of protein, 66.4 grams of fat, 454.2 grams of carbohydrates and 2,749 calories/capita/day which were produced by 481 grams of cereal products, 107 grams of meat, 16 grams of fish, 159 grams of dairy products, 20 grams of eggs, 40 grams of oils, 150 grams of fruit, 300 grams of vegetables, 13 grams of legumes and 102 grams of sugar (table 24). The consumption in rural areas amounted to 72.5 grams of protein, 64.4 grams of fat, 453 grams of carbohydrates and 2,650 calories. The rural population consumed more bread, fish (mainly sardines and other processed fish) and legumes than the

urban population. However, their consumption of meat, oil, eggs, fruits and sugar was less than that in the urban areas.

TABLE 22. FOOD CONSUMPTION PATTERN OF INDIVIDUALS WITH AN ANNUAL INCOME OF JD 1,200-1,799/FAMILY IN URBAN AND RURAL AREAS, 1987 AND 1992

(Kg/capita/year)

	1987		1992	
Food group	Urban	Rural	Urban	Rural
Cereals	177	244	195	221
Red meats	14	12	10	7
Poultry	28	36	24	29
Fish	3	3	3	2
Dairy products	47	46	53	50
Eggs	7	8	9	8
Oils and fats	23	22	13	16
Fruits	62	61	48	41
Vegetables	110	116	105	115
Legumes	11	9	5	8
Sugar	45	58	34	54

Source: Jordan Department of Statistics, *Household Expenditure and Income Survey*, 1986-1987 and 1992.

C. THE FOOD BALANCE SHEET IN JORDAN

The critical points of Jordan's food security are the large shortages in the local supply of wheat and red meat. Table 25 shows that self-sufficiency in wheat and red meat is only 12.8 per cent and 26.7 per cent respectively. This situation symbolizes the dependency of Jordan on the international markets for the supply of these two basic food items. On the other hand, Jordan enjoys a satisfactory degree of self-sufficiency in poultry meat, and surpluses in table eggs, fruits and vegetables. Jordan does not produce sugar or rice.

In 1987 individuals with moderate annual income (JD 4,800-5,399/household) consumed about 2,690 calories/day in urban areas and 2,717 calories/day in rural areas as shown in table 2. The intake of nutrients was similar in both areas. Consumers of the same income group consumed in 1992 less energy and nutrients. The consumption of energy amounted to 2,675 calories in urban areas and 2,625 calories in rural areas.

In 1987 the population with annual income of less than JD 600/household consumed about 2,193 calories in urban areas and 2,223 calories in rural areas, while in 1992 they consumed 2,080 calories in urban areas and 2,050 calories in rural areas. The rural population consumes more carbohydrates, mainly bread (table 27).

TABLE 23. ANNUAL PER CAPITA CONSUMPTION OF FOOD ITEMS IN JORDAN AND IN THE URBAN, AND RURAL AREAS IN 1986-1987

(Kg)

Food categories	Urban	Rural	Jordan	Rural to urban difference
Cereal products	145	155	150	6.9 per cent
Rice	16	20	18	25 per cent
Red meat	20	14	18	-29 per cent
Poultry	31	39	33	25 per cent
Fish	7	8	7	20 per cent
Dairy products	36	40	38	11 per cent
Table eggs	10	8	9	-22 per cent
Oils	20	16	18	-20 per cent
Fruits	82	67	77	-20 per cent
Vegetables	114	118	116	4 per cent
Legumes	7	8	7	18 per cent
Sugar and confectioneries	48	64	56	33 per cent
Tea, coffee and cocoa	4	5	4	23 per cent
Beverages	10	6	9	-36 per cent
Others	9	6	7	-35 per cent

Source: Jordan, Department of Statistics, *Household Expenditure and Income Survey*, 1986-1987.

TABLE 24. THE FOOD CONSUMPTION PATTERN IN URBAN AND RURAL AREAS IN JORDAN, 1992

(Grams/capita/day)

Food group	Urban					Rural				
	Quantity	Protein	Fats	Carbohydrates	Energy (Calories)	Quantity (calories)	Protein	Fats	Carbohydrates	Energy (Calories)
Bread	401	37	4	253	1196	410	39	4.1	259	1192
Rice	80	5.6	0.5	63	279	70	4.9	0.7	58	252
Red meat	28	4.5	3.7	--	51	22	3.5	2.9	--	40
Poultry meat	79	13.4	6	--	118	61	9.8	10.3	--	131
Fish	16	3.0	1.3	--	24	18	3.4	1.4	--	25
Dairy products	159	5.6	4.8	9	109	157	5.5	4.7	8.6	98
Eggs	20	2.6	2.3	0.2	32	14	1.8	1.6	0.1	22
Oil and fats	40	--	40	--	360	34	--	34	--	306
Fruits	150	1.4	1.5	15	79	100	1.0	1.0	13.0	65
Vegetables	300	3.3	2.1	12	80	292	3.2	3.2	14	99
Legumes	13	2.9	0.2	--	13	18	4	0.5	10.3	60
Sugar	102	--	--	102	408	90	--	--	90	360
TOTAL		79.3	66.4	454.2	2749		72.5	64.4	453	2650

Source: Jordan, Department of Statistics. *Household Expenditure and Income Survey*, 1992.

Note: An em dash (--) indicates that the amount is nil.

TABLE 25. AVERAGE FOOD BALANCE SHEET IN JORDAN FOR SELECTED FOOD GROUPS DURING THE PERIOD 1981 TO 1991 AND DEGREE OF SELF-SUFFICIENCY

Food groups	Production (Thousands of tons)	Exports (Thousands of tons)	Imports (Thousands of tons)	Consumption total (Thousands of tons)	Consumption (Grams/person/day)	Self-sufficiency (Percentage)
Cereal products	67	--	454	521	496	12.8
Red meats	10	--	27	27	35	26.7
Poultry	48	--	7	54	52	87.6
Eggs (millions)	415	60	--	354	19	117.0
Dairy products[a]	68	--	70	138	129	49.3
Fish (tons)	308	--	4658	4966	4.7	6.2
Fruits	257	104	32	186	177	138.0
Vegetables	902	339	41	604	575	149.0
Oil and Fats[b]	21	--	13	34	33.9	62.0

Source: Mohammed Rafiq Hamdan et al., *Al-Amn al-Ghitha'i fil-Urdun* (Food security in Jordan) (Amman: Higher Council for Science and Technology, 1991), p. 9.

a Fresh milk equivalent.
b 1982 and 1989.

TABLE 26. DAILY PER CAPITA INTAKE OF NUTRIENTS AND ENERGY IN URBAN AND RURAL AREAS FOR MODERATE-INCOME GROUPS, WITH ANNUAL INCOME OF JD 4,800-5,399/HOUSEHOLD

	1987		*1992*	
Nutrients and energy	*Urban*	*Rural*	*Urban*	*Rural*
Protein (grams)	84	80	76	71
Fats (grams)	78	70	71	65
Carbohydrates (gms)	413	435	433	439
Energy (calories)	2 690	2 690	2 675	2 625

Source: Jordan, Department of Statistics, *Household Expenditure and Income Survey*, 1986-1987 and 1992.

TABLE 27. DAILY PER CAPITA INTAKE OF NUTRIENTS AND ENERGY IN URBAN AND RURAL AREAS FOR LOW-INCOME GROUPS, WITH ANNUAL INCOME OF LESS THAN JD 600/FAMILY

	1987		1992	
Nutrients and energy	Urban	Rural	Urban	Rural
Protein (grams)	64.3	65.7	58.2	59.3
Fats (grams)	57.8	49.6	50.4	40.4
Carbohydrates (grams)	366	376	339	341
Energy (calories)	2193	2223	2080	2050

Source: Jordan, Department of Statistics, *Household Expenditure and Income Survey*, 1986-1987 and 1992.

D. Factors affecting food consumption patterns

The main factors affecting food consumption include age, income, sex, household size, urban/rural distribution, occupation and physical characteristics.

In the case of Jordan, data on the distribution of income and on the distribution of the population over rural and urban areas and throughout the country's Governorates are available for 1992. Table 28 shows that the rural population consumes more of wheat products, vegetable oil, vegetables, legumes, and sugar than the urban population. The rural population also consumes less red meat, eggs, and fruits than the urban population.

The intake of energy and nutrients given in table 31 shows that the rural areas' intake is higher only in carbohydrates, due to higher consumption of bread, sugar and fat.

The fact that 91 per cent of the rural population own their own homes enables the rural people to spend a higher proportion of their income on food than the urban population. Furthermore, the price of food in rural areas should be relatively lower.

TABLE 28. FOOD CONSUMPTION PATTERN OF INDIVIDUALS FROM HOUSEHOLDS WITH AVERAGE ANNUAL INCOME OF JD 4,800-5,399 IN RURAL AND URBAN AREAS IN JORDAN, 1992

(Grams/capita/day)

Food group	Urban	Rural
Wheat products	410	440
Rice	75	73
Red meats	47	44
Poultry meat	82	70
Fish	11	13
Dairy products	100	90
Eggs	30	23
Oils	48	54
Fruits	173	167
Vegetables	347	369
Legumes	17	23
Sugar	90	100

Source: Jordan, Department of Statistics, *Household Expenditure and Income Survey*, 1992.

TABLE 29. INTAKE OF ENERGY AND NUTRIENTS IN URBAN AND RURAL AREAS IN JORDAN, 1992

(Grams/capita/day)

Energy/nutrient	Urban	Rural
Energy (calories)	2 712	2 689
Total protein	84	76
Animal protein	32	29
Fats	68	65
Carbohydrates	441	450

Source: Jordan, Department of Statistics, *Household Expenditure and Income Survey*, 1992.

V. THE IMPACT OF RURAL MIGRATION ON FOOD CONSUMPTION PATTERNS

About 13.7 per cent of the urban population in 1986 were rural migrants. The number of rural migrants in 1992 amounted to 406,770 persons. Table 30 indicates that rural-urban migration has a direct impact on the food consumption pattern of rural migrants. There is a decrease in the consumption of all types of flour, while consumption of bread increased to 81.5 kg/capita/year due to the change in consumption habits as well as to changes in the economic function of the household. The household no longer processes its bread and also no longer produces flour as it once did in the rural areas. Rather, the household obtains all of these products directly from the market. The consumption of cereal products such as macaroni, wheat groats, cookies and frozen food products increased, indicating a change in the food consumption pattern of rural migrants toward processed food.

With regard to meat consumption, the change should be considered not only in terms of quantity, but also in terms of type of meat consumed. In general the consumption of red meat increased about 14 grams/capita/day. However, owing to the high price of local fresh red meat, rural migrants increased their meat consumption by buying more imported fresh mutton and veal, frozen veal and canned meat as well as frozen chicken.

Rural migrants also increased their consumption of frozen fish and sardines. The low price and ready availability of these two items are the main reasons for this increase in consumption.

Owing to the change in the role of the household in the production and processing of milk, the annual per capita consumption of fresh milk and milk products such as yoghurt, laban makhid and sour milk decreased by 3 kg, 1.7 kg, 1 kg and 0.4 kg respectively. However, ready-made dairy products such as canned milk, canned yoghurt, labaneh, and packed and canned cheese as well as kashkawan increased.

Since eggs are considered a cheap, quick meal, egg consumption increased to 36 eggs/capita/year.

The consumption of locally produced olive oil and ghee decreased by 1.1 kg and 1 kg respectively, while consumption of imported olive oil and corn oil increased by 0.6 kg and 0.5 kg respectively, again owing to lower prices for the latter.

Total coffee consumption remained constant but the consumption pattern changed. The annual per capita consumption of ground coffee increased by 0.5 kg, while consumption of coffee beans decreased by 0.5 kg.

The emigrants developed new food habits. Their consumption of ready-made food, luncheon and canned meat, soup (bouillon cubes), chickpeas, beans and falafel—increased by 1.5 dishes, 0.5 cans, 1.3 pieces, 8.1 dishes, 0.5 dishes, and 57 pieces respectively. These items are also consumed in rural areas, but they became a major part of the new consumption pattern of migrants.

The consumption of jelly, mineral water, soft drinks and ice cream also increased. The change in the consumption of vegetables, legumes and oils was insignificant. The economic significance of the change in consumption involves Jordan's low self-sufficiency in most food items. The increase in consumption clearly means increases in imports and costs.

TABLE 30. CHANGE IN THE FOOD CONSUMPTION PATTERN OF RURAL MIGRANTS DURING THE PERIOD 1986 TO 1992

Food item	Change in consumption per capita	Total change for all migrants
Flour, zero No. 1	-3.1 kg	-1 261 t
Flour, European	-12.7 kg	-5 166 t
Flour, mixed	-36.8 kg	-14 969 t
Flour, local	-19.3 kg	-7 850 t
Bread (kg)	81.5 kg	32 950 t
Cookies	0.3 kg	122 t
Macaroni (No. of packages)	0.5 No.	81 t
Wheat groats (kg)	0.5 kg	203 t
Baby food products (No.)	0.2 No.	81 354 t
Imported fresh mutton	4.2 kg	1 708 t
Imported fresh veal	0.6 kg	244 t
Frozen veal	0.7 kg	248 t
Canned meat (No.)	0.1 No.	40 677 t
Frozen chicken	0.6 kg	244 t
Sugar	-3.3 kg	-1 342 t
Rice	-2.0 kg	-813 t
Frozen fish	1.1 kg	447 t
Sardines (No.)	1.2 No.	488 124
Fresh milk	-3 kg	-1 220 t
Canned milk (No.)	0.2 No.	81 354 t
Canned yoghurt (No.)	1.5 No.	-610155
Yoghurt	-1.7 kg	-692 t
Leban makhid	-1 kg	-407 t
Labaneh	0.7 kg	285 t
White cheese	1.7 kg	692 t
Packed cheese (No.)	0.4 No.	162 700
Canned cheese (No.)	0.5 No.	203 385
Kashkawan (No.)	0.2 No.	81 354
Sour milk	0.4 kg	-163 t
Eggs (No.)	36 No.	14.6 million
Local olive oil	-1.1 kg	447 t
Imported olive oil	0.6 kg	244 t
Corn oil (No.)	0.5 kg	203 385 t
Ghee (No.)	-1 kg	-406 770 t
Tea	-1.1 kg	-448 t
Coffee (ground)	0.5 kg	203 t
Coffee (whole beans)	-0.5 kg	-203 t
Food (prepared, No.)	1.5 No.	610 155 meals
Luncheon meat (No.)	0.5 No.	203 385
Soup (chicken stock cubes, No.)	1.3 No.	528 801
Walnuts	0.1 kg	41 t
Chickpeas (dish)	8.1	3 295 000
Beans (dish)	0.5	203 385
Falafel (No.)	57	23.2 million
Jelly (No.)	0.2 No.	81 354
Mineral water (No.)	0.2 No.	81 354
Carbonated beverages (No.)	0.4 No.	162 708
Ice cream (No.)	3.4 No.	1.4 million

Source: Compiled from Jordan, Department of Statistics, *Household Expenditure and Income Survey*, 1992.

Note: "t" indicates tons.

REFERENCES

Hamdan, Mohammed Rafiq et al. *Al-Amn al-Ghitha'i fil-Urdun* (Food security in Jordan). Amman: The Higher Council for Science and Technology, 1991. (Arabic only)

Jordan. Central Bank of Jordan. *Monthly Statistical Bulletin*, various issues.

_____. Department of Statistics. *Dirasat al-Hijrat il-Dakhiliyati wal-'A'ida wal-Quwa al-Bashariyah* (A study of internal migration, re-migration and labour force). Amman, 1986.

_____. Department of Statistics. *Household Expenditure and Income Survey*, 1986-1987 and 1992.

_____. Department of Statistics. *Statistical Yearbook*, 1986, 1992.

_____. Jordan Country Report to the United Nations Conference on Environment and Development, Brazil, June 1992.

_____. Ministry of Supply. Archives.

Shahateet, Mohammed et al. *Nahu Muwazana Ghitha'iya lil-Haddi min al-Faqr* (Towards a food budget for limiting poverty). Amman: Ministry of Social Development, 1989. (Arabic only)

Sqoor, Mohammed. *Dirasa Juyoob il-Faqr fil-Mamlakat il-Urduniyyat il-Hashemiyya* (A study of pockets of poverty in Jordan). Amman 1989. (Arabic only)

United Nations Economic and Social Commission for Western Asia (ESCWA). Agriculture and Development in Western Asia, Bulletin No. 16. 1994 (E/ESCWA/AGREB/XVI) Sales No. E. 95-II-L.3.

World Bank. The Middle East and North Africa: Issues in Development. 1993.

_____. Report and recommendation of the President of the International Bank for Reconstruction and Development to the Executive Directors on a proposed loan in an amount equivalent to US$ 80 million to the Hashemite Kingdom of Jordan for the Agriculture Sector Adjustment Operation, Rep. No. P-6382-JO, 15 November 1994. (English only)