

INTERIM REPORT

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Population and Education Prospects in the Western Mediterranean Region (Jordan, Lebanon, Syria, the West Bank and the Gaza Strip)

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Abstract

This report studies the demographic and educational futures of Jordan, Lebanon, Syria, the West Bank and the Gaza Strip. These are areas of existing or potential conflicts, where population growth has many political dimensions. The report, however, abstains from discussing these political issues and focuses on future demographic aspects. It is clear that this report could raise some questions on the sensitivity of the region to future population prospects. Assumptions for the population projections are based on the analysis of past and present trends in changes in population growth, age structure, fertility levels and trends, contraceptive use, marriage and childbearing patterns, mortality, migration, education, and enrollment levels. Based on this analysis, three population projection paths--low, central, and high--were designed and lead to three different population figures for each area in 2044. Educational levels of the population were judged determinant to the future level of population growth. In all scenarios, the levels of enrollment varied consistently with fertility and mortality assumptions to change the levels of education in the population. Results were then analyzed to provide a demographic picture of this region in 2044.

This study provides interesting insights into the demography of these countries, especially with regard to the momentum of population growth and education levels. Jordan and Syria have experienced high rates of population growth in the recent past. In Jordan, these rates have been reinforced by the migration of Palestinian refugees from the West Bank and the Gaza Strip into the country. The first signs (important fertility reductions and gains in life expectancy) of a demographic transition became visible in the late 1980s in the two countries. The population in Jordan and Syria will continue to grow rapidly in the future. The central scenario, which gives the most likely path under current conditions, implies a tripling of the population of Jordan and almost a tripling of the population of Syria. Still these two countries have a high potential for lesser population growth. Lebanon will remain a country of low population growth, with the annual growth rate ranging on average from 1.0 to 1.3 percent per year between 1994 and 2044. The most extreme results in terms of population growth are found in the case of the West Bank and the Gaza Strip. Even under the low scenario, which combines very rapid fertility and mortality declines and rapid educational improvements, the West Bank and the Gaza Strip more than quadruple in population size in the fifty years of the projection period due to the high momentum of past population growth. However, all scenarios show substantial declines in the proportion of people with a low education--less than a primary education--even under the most pessimistic assumptions.

Note and Acknowledgments

This study presents the continuation of earlier work on the six North African countries of Algeria, Egypt, Libya, Morocco, Sudan and Tunisia (IIASA RR-96-11 by Yousif et al., 1996). Both projects were financially supported by the European Commission (DG IB).

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Population and Education Prospects in the Western Mediterranean Region

(Jordan, Lebanon, Syria, the West Bank and the Gaza Strip)

Anne Goujon

1. Introduction

This report is a study of future population trends and the role of present and future education trends in shaping the future population of the three Western Mediterranean countries of Jordan, Lebanon, Syria, and the West Bank and the Gaza Strip.¹ Together with Iraq, they form the region of the Fertile Crescent (Issa, 1996).

The four areas are intrinsically important and relevant to the topic of population trends and education, but the choice of studying them together could be questioned. Actually, they were only one entity from the 16th century until the end of World War I, and were included under what was then known as Syria within the Turkish Ottoman Empire. Following the defeat of the Turkish forces in World War I, the region was occupied by allied troops. Palestine and Transjordan were formally placed under British administration by a League of Nations mandate, while Syria and Lebanon were awarded to France. Lebanon was the first to gain independence in 1944, followed by Transjordan and Syria in 1946, according to the Treaty of London. The West Bank (Jordan) and the Gaza Strip (Egypt) were occupied in June 1967 and became Israel's 'administered territories'. Since 1993, the Israel-PLO Declaration of Principles provides for a transitional period of Palestinian interim self-government in the West Bank and the Gaza Strip (CIA, 1995). Final status is still to be determined. It is not yet clear when, or if at all, autonomy will be achieved.

Although Jordan, Lebanon, Syria, the West Bank and the Gaza Strip now constitute separate entities, their interrelationships are determinative for the future of the whole region. This report will focus on demographic trends, not on political affairs, although it is sometimes difficult to keep the two separate. Population often means distribution of power to religious movements and sects and influential political lobbies. For instance, the fact that Lebanon, deliberately, has not conducted any census for more than two decades illustrates how information on demographic variables is seen as a

¹ For the purposes of this project, they are considered one area.

potentially upsetting factor. One remarkable example of the political character of population dynamics is the constant and even increasing high birth rate in the West Bank and the Gaza Strip, in spite of severe declines in almost all other Arab countries.² At the time of the Washington Agreement between the PLO and Israel in 1993, birth rates were 55.0 per thousand in the Gaza Strip and 46.0 per thousand in the West Bank (Courbage, 1996). In addition, fertility levels in Lebanon are much lower than in the rest of the Arab countries, partially as a result of the 15-year civil war that created a climate of insecurity and disrupted family formation and reproduction.

Each of the four areas studied has its own demographic specificity. The momentum built by many years of high fertility³ will give Jordan and Syria many more years of high population growth. This is even truer of the West Bank and the Gaza Strip. In Lebanon, it is not yet clear if fertility will remain at its low level--around 2.5 children per woman on average in 1995 (Ministry of Health, 1996)--or diminish even further as seems to be the case, or whether fertility will rise again. There are, therefore, some major uncertainties about future population size. All four areas have more (Lebanon, West Bank and Gaza) or less (Jordan and Syria) achieved their mortality transition. Two main uncertainties are related to migration and fertility. Because of the fluctuating and sudden nature of the flows, migration is extremely difficult to appraise. The most challenging uncertainty is the speed of the fertility decline. Will these areas reach replacement levels of fertility and below, and, if yes, when?

Special emphasis is put on education, because a major variable shaping future population composition and growth will be the implementation of education policies. Of all Arab countries, Jordan, Lebanon, Syria as well as the West Bank and the Gaza Strip have been leading in terms of levels of enrollment. Even in the 1970s, massive policies to increase school attendance were undertaken in Jordan and Syria. For a long time, Lebanon had the highest enrollment rates in the region. Together with Jordan, the West Bank and the Gaza Strip have the highest rate of enrollment in primary and secondary schools in the Arab region. However, schooling is uneven in the West Bank and the Gaza Strip; school attendance is very much related to whether there is unrest or peace.

The education level of the population of Jordan, Lebanon, Syria, the West Bank and the Gaza Strip will be one major issue for the future. This, in turn, could have many demographic implications. Jordan has traditionally emphasized the development of human capital in response to the lack of adequate resources (MOP, 1996). This strategy was very efficient until an economic recession affected the country in the 1980s. The present situation requires a major shift of the educational system from general university degrees towards more vocational training. The domestic labor market and the market in the Gulf countries to which many Jordanians emigrate are in need of skilled workers (Roy and Irelan, 1992). The situation is somehow similar in Syria. The economic crisis was even greater there, due to the decrease in oil prices in the 1980s. Education will become more and more important, especially for women. The female participation in the labor force has been increasing in the past few years because of the need for their participation in sustaining households financially (Courbage, 1994). In Lebanon, education is central to helping the country free itself from the war context. Although the

² Saudi Arabia and Yemen are two other exceptions to this global trend towards the achievement of the demographic transition (Courbage, 1996).

³ Total fertility rates remained between 7.0 and 8.0 children until approximately 1980 in both countries (UN, 1995).

war has been over for six years, the fifteen years of violence have marked the population. The quality of the educational system will be crucial to the transition towards sustained peace. Education will be even more of a determinant in the West Bank and the Gaza Strip as the new and numerous cohorts born during the 'Intifada' enter the labor market in 20 years. Their level of education and skills will be a determinant for the economic and political future of the territories.

Present education policies determine the skill levels of future working adult populations. Education also has an indirect influence on population growth, by reducing the fertility of women who have been educated. Even now, the fertility differentials between those with no education and those with some education have been very high. For example, in Jordan in 1990, women with no education had 40.0 percent more children than women with secondary education and higher (Department of Statistics, 1992). In Lebanon in 1996, the average number of children born to illiterate women aged 45-49 was more than twice the average born to women who had gone to university (Ministry of Health, 1996). In Syria in 1993, women who could read and write (but without complete primary education) had an average of 1.5 fewer children than illiterate women--the difference is 3.4 children between illiterate women and women with secondary education and above (Central Bureau of Statistics, 1995a). In the West Bank and the Gaza Strip in 1995, women with secondary and higher education had 30.0 percent less children than women with less than secondary education (PCBS, 1996). The potential increase in female school enrollment and the entry of more and more educated women to their fertile years could induce non-linear changes in fertility levels and could bring fertility levels down faster than is often predicted (Goujon and Wils, 1996).

It is, therefore, worthwhile to research possible alternative population and education trends. This will be done by projecting the population of Jordan, Lebanon, Syria, and the West Bank and the Gaza Strip according to three scenarios--different for each place. The first will be the central scenario, and could be interpreted as the most likely path for population growth under present circumstances. The high and low scenarios will provide two extreme possible paths of population growth (maximum and minimum). In all scenarios, the population will be differentiated by age and sex as well as by education.

We begin by reviewing past and present population trends, and analyzing changes in fertility, mortality, migration, education and related issues. This is then translated into assumptions of possible alternative future trends. These assumptions are then used for the definition of three alternative scenarios. All scenarios include the educational composition of the population. Later, the results of the projections are analyzed. This study on future population and education trends in Jordan, Lebanon, Syria, the West Bank and the Gaza Strip follows the approach of many other studies conducted at IIASA (see, e.g., a similar study on future population and education trends in the countries of North Africa by Yousif et al., 1996).

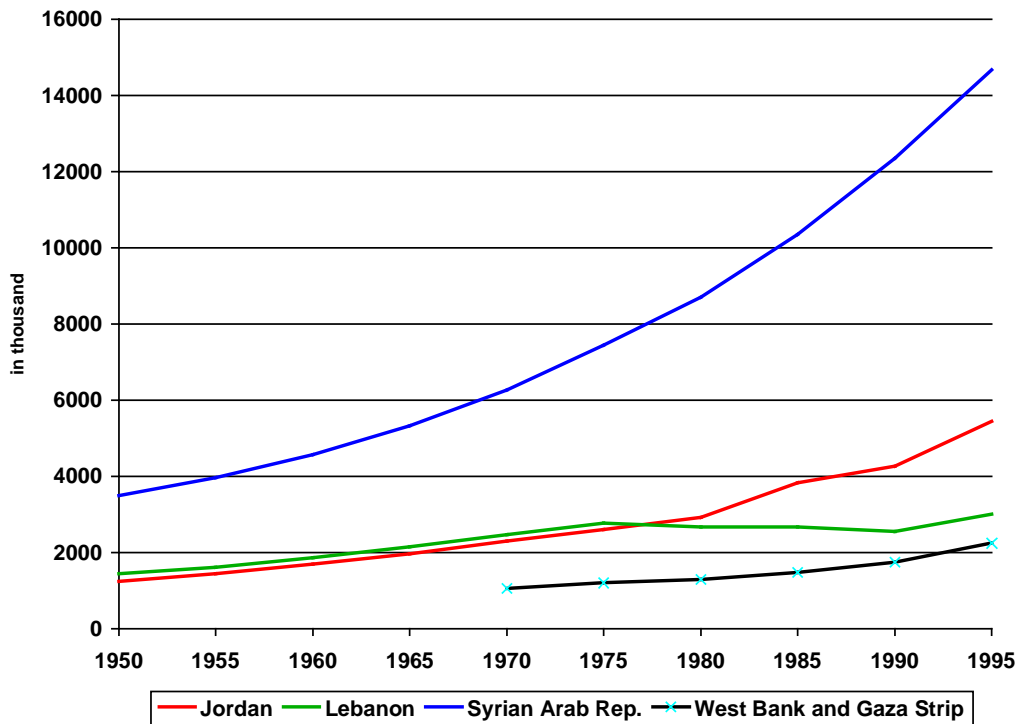
2. Past and Present Population Trends

2.1. Overview

Jordan

The provisional figures for the 1994 census give population figures of 4.1 million persons living in Jordan, growing at a rate of 3.5 percent per year. The 1994 population is almost double the 1979 official census figure of 2.1 million persons. This dramatic rise in population (Figure 1) stems from the continuing high fertility that was above the regional average for a long time as well as decreasing mortality. Especially recently, the population has increased because of returning Jordanian migrants from Kuwait after the Iraqi invasion in 1990 (Roy and Irelan, 1992). The level of population growth is due mostly to population momentum resulting from the large cohort of women in their fertile years. Although fertility levels remain high, they have been clearly declining steadily during the last ten years.

Figure 1. Total population, Jordan, Lebanon, Syria, and the West Bank and the Gaza Strip, 1950-1995 (Sources: UN, 1995; PBS, 1994; ESCWA, 1995).



About 80 percent of the Jordanian land area is desert. The sedentary population is concentrated in the northern and central highlands. Half of the population lives in the Amman-Zerqa-Wadi Sir urban area and other cities close by. Nowadays, less than 3.0 percent of the population is nomadic (EIU, 1996).

The vast majority of the population consists of Sunni Muslims. Only 4.0 percent of the population is Christian. There are a few ethnic minorities, such as Armenians, Circassians (non-Arab Sunni Muslims) and Chechens (also non-Arab Sunni Muslims) (EIU, 1996).

The main division in the Jordanian population is between East Bankers and those of Palestinian origin. Palestinians who arrived on the East Bank after the 1948 war have been easily assimilated into Jordanian society and have contributed to the prosperity of the country, but those who arrived after the onset of the Iraq-Kuwait war had more difficulty becoming integrated. Many still reside in crowded refugee camps (Brand, 1995).

Lebanon

The republic of Lebanon is bordered by Syria to the north and east and by Israel to the south. It has a coastline of about 220 kilometers on the Mediterranean Sea. Much of the country is mountainous. The official language is Arabic. About 10 percent of the population are Arab refugees from Palestine.

Sectarian rivalries in Lebanon have created an environment that is sensitive to any discussion of population issues (Warwick, 1982). Christians, Muslims (Sunnis and Shi'as) and Druzes share the country, living close together but with constant tension and outbursts of violence. The National Pact of 1943 divided parliamentary seats, cabinet positions, and civil service appointments at a ratio of six Christians to five Muslims, using data from the 1932 census. This agreement was undermined by the fertility differentials that gave the edge in population size to the Muslims, and the shift of socioeconomic benefits to the Christians. This led to the rupture of the political pact and to the civil war that lasted for 16 years (Warwick, 1982).

For the reasons mentioned above, no census has been conducted since 1932. Demographic data is very often based on sample surveys. ESCWA estimated the total population to be 3.5 million in 1994 (ESCWA, 1995); the CIA estimate for July 1995 was 3.7 million (CIA, 1995). The 1996 UN estimate for 1995 gives 3.0 million people living in Lebanon (UN, 1997).

The religious groups used to occupy certain well-defined geographic areas, e.g., Maronites and Druzes in Mount Lebanon, Shi'as in the south, and Sunnis in the north and in Beirut (Chamie, 1981). However, the civil war created major changes. For example, Shiites have migrated en masse to the Beka, whereas the percentage of Christians in this region dropped from about 76 percent in 1971 to 21 percent in 1988 (Faour, 1991).

Syria

Preliminary results of the 1994 census estimated the population of Syria to be 13.8 million, growing at a rate above 3.5 percent per year. One of Syria's main characteristics is that it has one of the highest rates of population growth per annum in the world. However, since the United Nations asks governments about their views on the demographic parameters in their countries, Syria has always asserted that population growth and levels of fertility were satisfactory (Courbage, 1994). The sudden drop in fertility levels that occurred from 1985-1990 did not reflect any population policy

intervention, but rather other measures, such as an increase in the school enrollment of women that was implemented in the early 1970s, as well as economic and social decline.

Human settlements are mainly concentrated on the narrow coastal strip. About one-third of the population lives in the cities in the region along the Mediterranean coast: Damascus and Aleppo (1.4 million inhabitants each in 1990), Homs (500,000 inhabitants), Latakia (300,000 inhabitants). The rate of urbanization is a worrying sign for Syrian authorities, who would like the trend to decelerate.

About 90.0 percent of the population is Arab. Most of the Arab population belongs to the Sunni Sect (74.0 percent). There are significant groups (16.0 percent) belonging to other Muslim sects, including Alawite and Druze. President Assad is an Alawite. Approximately 10.0 percent of the population are not Muslim; in this group, most are Christians. Israel occupies the Golan Heights, where about 17,000 Arabs and 15,000 Jews are settled.

West Bank and Gaza Strip

There has been no census in the West Bank and the Gaza Strip since 1967. As a result, existing demographic data on the occupied Palestinian territories remains incomplete and imprecise. The Israel Central Bureau of Statistics has published official estimates yearly for the Palestinian population of the occupied territories; their validity has often been discussed. In 1995, the Palestinian Central Bureau of Statistics undertook a Palestinian Demographic Survey to provide detailed data on population structure, fertility, infant, maternal and adult mortality, migration, marriage, education, household composition, and housing conditions (PCBS, 1996). Due to the lack of recent census taking that would provide reliable population controls, the results reported were not inflated to reflect national totals. As a matter of fact, available figures tend to vary markedly. For 1994, ESCWA estimated the population at 1.4 million in the West Bank (including East Jerusalem) and 850,000 in the Gaza Strip, resulting in 2.2 million⁴ if taken together (ESCWA, 1995). The population has increased at a rapid rate. The rate of natural increase is 4.0 percent in the Gaza Strip and 3.4 percent in the West Bank, as a result of increasing birth rates and stagnating or decreasing mortality rates. Each change in the status of the territories, such as in 1949 and 1967, was followed by migration flows.

The West Bank occupies a total area of 58,640 square kilometers. The Gaza Strip area is much smaller, with 360 square kilometers. As a result, the population density is ten times higher in the Gaza Strip (1,300-1,400 inhabitants per square kilometer) than the population density in the West Bank (140 persons per square kilometer). The vast majority (97.8 percent) of the population in the Gaza Strip is Muslim, predominantly Sunni. The remaining 1.3 percent is shared equally between Christians and Jews. In the West Bank, 87.0 percent of the population is of Palestinian Arab origin and the rest represents the Israeli population.

⁴ CIA (1995) population estimates are lower: 1.3 million people in the West Bank and 813,000 in the Gaza Strip (for July 1995). PRB (1995) population estimates for 1995 are higher: 1.5 million in the West Bank and 905,000 in the Gaza Strip.

The population of the two territories has three main specificities influencing their demographic patterns. First, a larger proportion of the population does not work in the territories. In 1986, 46.0 percent and 31.0 percent of the work force in the Gaza Strip and the West Bank, respectively, were employed in Israel (Benvenisti, 1986). Second, historically, there have been some important population movements. The 1948 war displaced approximately 900,000 Palestinians; 250,000 of these refugees fled to the Gaza Strip. Following the 1967 Israeli war, approximately 60,000-100,000 Palestinians emigrated from the Gaza Strip to Jordan and to the Gulf States and beyond (Roy, 1986). Sixty-four percent of the Palestinians in the Gaza Strip and 27 percent of the Palestinians in the West Bank were registered refugees, bringing the figure to 40 percent overall (PCBS, 1996).

2.2. Population growth

Jordan

According to the 1952 housing census results, the population of the East Bank of Jordan was 586,000 persons. The first population census carried out in 1961 found 900,776 persons living in the East Bank (Department of Statistics, 1979), which meant that the population had increased at an average rate of 4.8 percent per year during this period. This dramatic population increase was the result of the integration of the West Bank and the Gaza Strip with Jordan and flows of Palestinians to the West Bank when the Hashemite Kingdom of Jordan was established in 1949. The next official census was carried out in 1979 and counted 2.1 million people in the East Bank. Again, the average population growth was 4.8 percent per year between 1961 and 1979 (Department of Statistics, 1992). In addition to high fertility and declining mortality, the Israeli occupation of the West Bank and the Gaza Strip in 1967 resulted in the flight of hundreds of thousands of Palestinians to the East Bank. Again, the 1990 Iraq-Kuwait war displaced 300,000 Palestinians holding Jordanian passports back to the East Bank (EIU, 1996), and therefore, together with almost unabated fertility rates, the population increased dramatically to reach the actual figure of 4.1 million (Figure 1).

The high rate of population growth is ascribed to two main reasons: first, as mentioned above, the influx of Palestinian refugees coming from Israel and from the West Bank and the Gaza Strip. Second, there was a considerable widening of the gap between birth and death rates in the early 1970s, which was a period of high natural population increase. Death rates dropped because of marked progress in preventive and curative medicine and the expansion of health and sanitary services. The crude death rate declined from 21.0 per thousand population in 1950-1955 (UN, 1995) to 18.0 per thousand in 1961, and to only 12.0 per thousand in 1975 (Department of Statistics, 1979). During the 1980s and 1990s, the crude death rate was still declining, but at a slower rate. It was estimated to be 5.5 per thousand during the period 1990-1995 (UN, 1995). Life expectancy at birth now exceeds 67.0 years for both sexes. While death rates have been decreasing, birth rates remained very high and, in fact, increased continuously during the 1960s to levels above 50.0 per thousand population. There was a sharp decrease between 1975 and 1985 from 50.0 to 38.3 (UN, 1995). The current trend in the 1990s is towards a slow decline. It was estimated in 1994 to be 33.0 per thousand (ESCWA, 1995).

Lebanon

Of all available sources on population data, only two are widely recognized as reliable or the least biased. The oldest one is the last genuine census of the population. It was conducted in 1932 during the French mandate, and counted 785,543 people (Chamie, 1981). A few studies were conducted afterwards, but only provided the most general demographic information. In 1970, a survey of the economically active population (consisting of about 30,000 households) provided a variety of basic demographic information, with the exception of religious affiliation. The population was then estimated to be 2,126,325 persons. In 1988, in the framework of the Saudi Food Assistance Campaign, a survey was conducted and estimated at 3.5 million people. This survey, as well, provided clear support for the view that Muslims comprise the majority of the Lebanese population--about 65 percent (Faour, 1991). Unfortunately, the population estimates in 1988, that gave approximately the same population count as population estimates in the mid-1990s, cannot be accurate, since the population has undoubtedly increased.

Compared to Jordan, Syria, the West Bank, and the Gaza Strip, Lebanon always had lower rates of population growth (Figure 2). The crude birth rate was already 32 per thousand in 1970 and is now only 25 per thousand (Figure 3). The crude death rate is about 5 per thousand (UN, 1995).

Figure 2. Average annual rate of population growth, Jordan, Lebanon, Syria, and the West Bank and the Gaza Strip, 1950-1995 (Sources: UN, 1995; PBS, 1994).

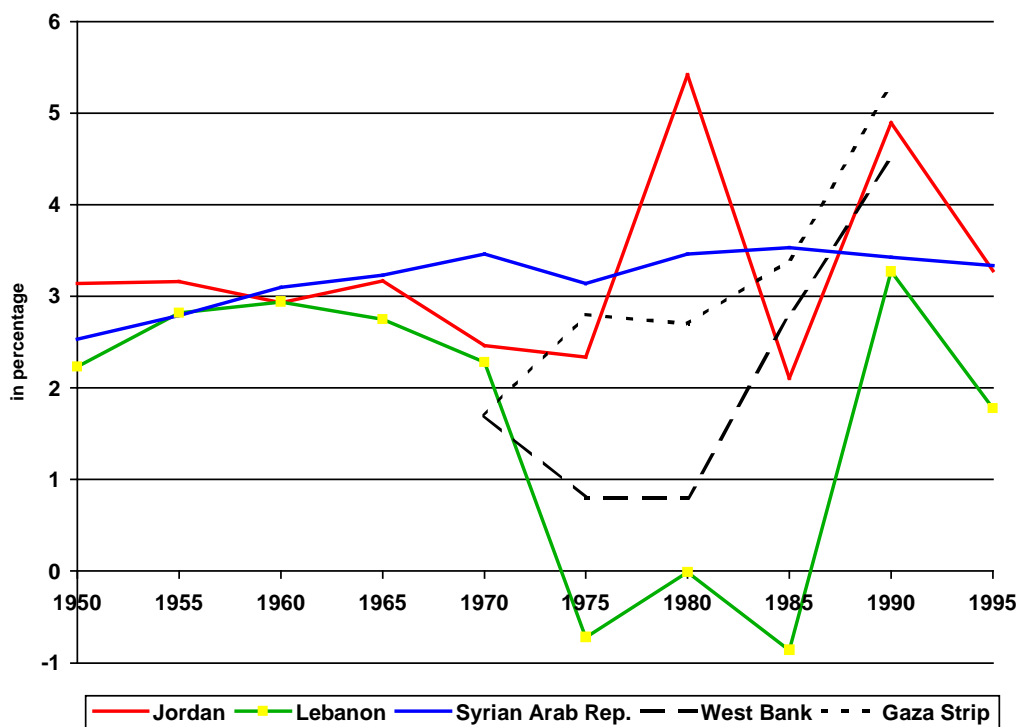
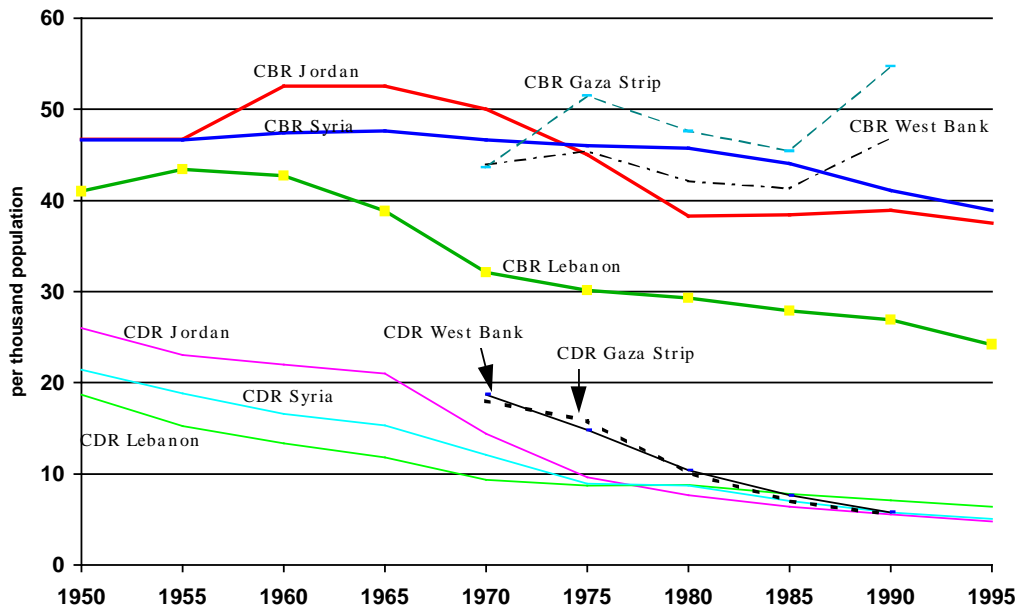


Figure 3. Crude birth rates (CBR) and crude death rates (CDR), Jordan, Lebanon, Syria, and the West Bank and the Gaza Strip, 1950-1995 (Sources: UN, 1995; PBS, 1994).



Syria

The first modern census⁵ conducted in 1960 gave a population of 4.6 million. The next census, in 1970, gave a population of 6.3 million (6,304,685), corresponding to an annual growth rate of 3.3 percent: 4.4 percent for urban population and 2.5 percent for rural population (CBS, 1982). In 1980, the population was estimated to be just above 9.0 million (9,052,628), displaying an equivalent (if not slightly higher) annual growth rate than in the preceding period (CBS, 1981). The latest census that was taken in 1994 showed that this rate had been very slowly declining (3.1 percent) but remained above 3.0 percent between 1980 and 1994 (Figure 2).

The high rate of growth is ascribed to the widening gap between birth and death rates (Figure 3). Death rates have been steadily decreasing since the 1960s, whereas birth rates have been almost constant at levels just below 50.0 per thousand until the mid-1980s.

West Bank and Gaza Strip

According to the census taken in 1967, the population in the West Bank amounted to 595,9000 people in the West Bank and 389,700 people in the Gaza Strip and 123,000 in East Jerusalem (UNCTAD, 1994). These numbers were criticized for underestimation of the population in the two territories. Other estimates ranged from 873,000 for the

⁵ Censuses were regularly conducted at the time of the Ottoman Empire (16th century to the end of World War I) every 30 or 40 years (Samman, 1976).

West Bank, and 442,000 for the Gaza Strip (UNCTAD, 1994). The figures are confused by the emigration of hundreds of thousands of Palestinians to the East Bank after the Israeli occupation of the West Bank, which occurred just at the time of the census. The population in May 1967 was estimated to be 850,500 people in the West Bank and 442,100 people in the Gaza Strip (UNCTAD, 1994). One month later emigration had reduced the population to 650,000 in the West Bank and 350,000 in the Gaza Strip. It seemed that migration flows continued afterwards, since it took until 1982 for the West Bank and until 1979 for the Gaza Strip to reach the same population levels as before the Israeli occupation of the two territories (UNCTAD, 1994). These emigration movements were balanced by high rates of natural increase (Figure 3) with a steady decline of crude death rates from 22 for the West Bank and 20 for the Gaza Strip in 1969 to less than 6 today in both areas (PBS, 1994). At the same time, birth rates have remained basically constant during the same period at very high levels in both areas: between 40 and 45 in the West Bank (40.6 in 1995) and between 45 and 53 in the Gaza Strip (52.1 in 1995) (PRB, 1995).

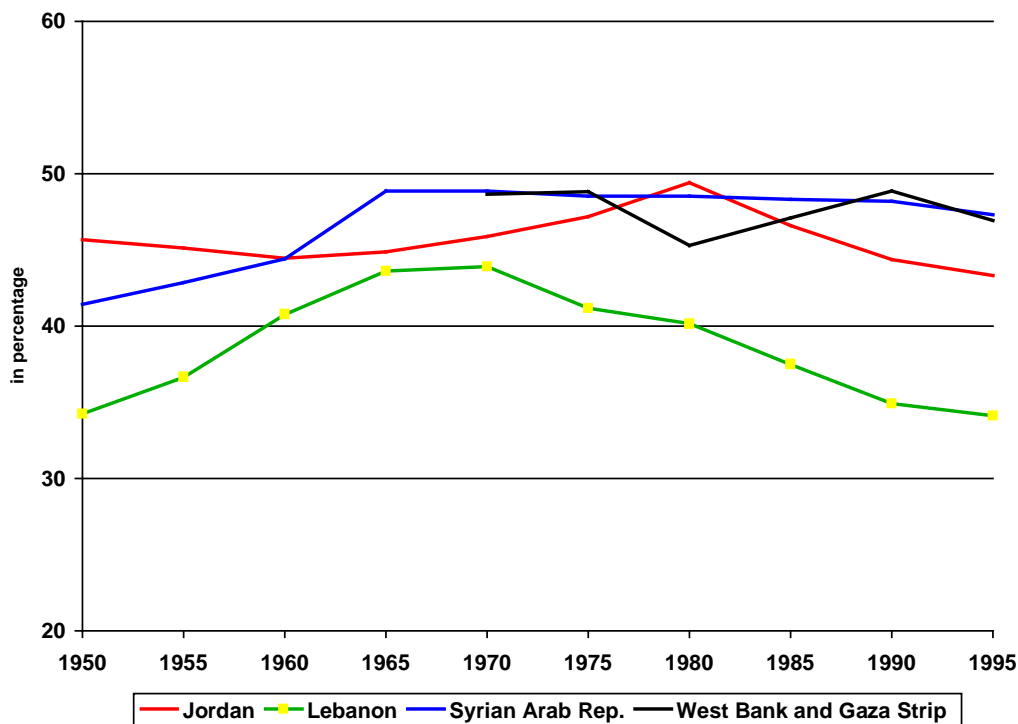
The annual rate of population growth was below 2.0 percent most of the time between 1967 and 1980 in the West Bank and below 3.0 percent during the same period for the Gaza Strip (UNCTAD, 1994). Recently as a result of a reduction in emigration flows and stagnation, if not increasing birth rates, growth rates have been increasing dramatically to the highest levels (Figure 2). They are estimated to be at 4.6 percent in the Gaza Strip and 3.5 percent in the West Bank (CIA, 1995; PRB, 1995).

2.3. Age composition

Jordan

As in many other developing countries, the population of Jordan is very young; over 44.0 percent of the population was under 15 years of age in 1990 (Department of Statistics, 1992) (Figure 4). This figure was still above 50.0 percent in 1983 (Department of Statistics, 1984). This substantial decline between 1983 and 1990 resulted in an increase in the proportion of the total population in the 15-59 age group. For the first time, there was a higher proportion of the population in the adult group (15-59) than in the young group (0-14). The elderly population had been decreasing as well during the 1980s. It is now increasing again. This young age composition of the population of Jordan is largely responsible for a very high ratio of child dependency. The ratio of dependents to 100 persons in the working age group (15-59) in Jordan was as high as 117 in 1976 (Department of Statistics, 1979). This meant that, on the average, each adult had to support at least one child. This exceptionally high ratio, compared to other developed or developing countries, placed a heavy burden on the adult population as well as on national resources. The child dependency ratio has diminished steadily since then, and was 80.0 percent in 1990-1995 (UN, 1995).

Figure 4. Proportion of population aged 15 and below in total population, Jordan, Lebanon, Syria, and the West Bank and the Gaza Strip, 1950-1995 (Sources: UN, 1995; PBS, 1994; PCBS, 1996).



The problem of the dependency ratio is aggravated by the fact that labor force participation among women in the working age groups is low in Jordan. The total participation of women (at age 15 years and above) in 1993 was 12.7 percent, with the highest participation, 25.9 percent, in the 25-29 age group. This may indicate that participation of women in economic activities is increasing in the younger generation. However, the total participation rate for both sexes in the population above 15 years of age in 1993 was 43.7 percent (ILO, 1995).

Lebanon

Although the population of Lebanon is quite young, the working age group is larger than the young age group. The proportion of the population below 15 years of age was above 40 percent from the 1960s until the early 1980s (Figure 4). Today, it is about 30 percent. Sixty-three percent of the population is in the working age group (15-64). The proportion of elderly people in the population has been increasing very slowly. It was 6.7 percent in 1995. The dependency ratio has been declining strongly: from above 95 in 1960 to 65.6 people below 15 or above 65 years of age for 100 people in the 15-64 age group in 1990 (UN, 1995).

Syria

The result of the unabated growth in the last three decades is an extremely young population (Figure 4). The proportion of the total population below age 15 has been constant at 48-49 percent since 1965, and has just started descending in the last few years. When compared to Jordan and Lebanon, Syria stands out by its stability with a high proportion of the 0-14 age group. This is reflected in the proportion of elderly in the population, which has been decreasing since 1970 to reach less than 3.0 percent of the population during 1990-1995 (UN, 1995).

West Bank and Gaza Strip

The population of the West Bank and the Gaza Strip is young, with 46.9 percent aged 15 or less. The 1995 Demographic Survey (PCBS, 1996) shows a slightly different age composition. In the West Bank, the majority of the population is less than 15 years old; in the Gaza Strip 45 percent are at this young age. The percentage below 20 years of age is even more striking, with 60.9 percent in the Gaza Strip and 56.9 percent in the West Bank. It seems that the gap between the two areas has widened in the past ten years with stagnating or even decreasing birth rates in the West Bank and increasing birth rates in the Gaza Strip. Israelis estimated the share of the population in the 0-14 age group to be 48.1 percent and 50.3 percent, respectively, for the West Bank and the Gaza Strip in 1967, and 47.2 and 48.8 percent, respectively, in 1987 (Israel Central Bureau of Statistics, 1968 and 1989). The proportion of elderly in the total population has been decreasing. In 1995, 5.2 percent of the population of both territories was more than 60 years of age: 4.5 percent in the Gaza Strip and 5.6 percent in the West Bank. Consequently, dependency ratios for both areas are very high. The young (0-14) and elderly (65+) population represents 113 percent of the adult working age population (15-64) in the Gaza Strip. This figure is 95 percent in the West Bank (PCBS, 1996).

2.4. Fertility

2.4.1. Fertility levels and trends

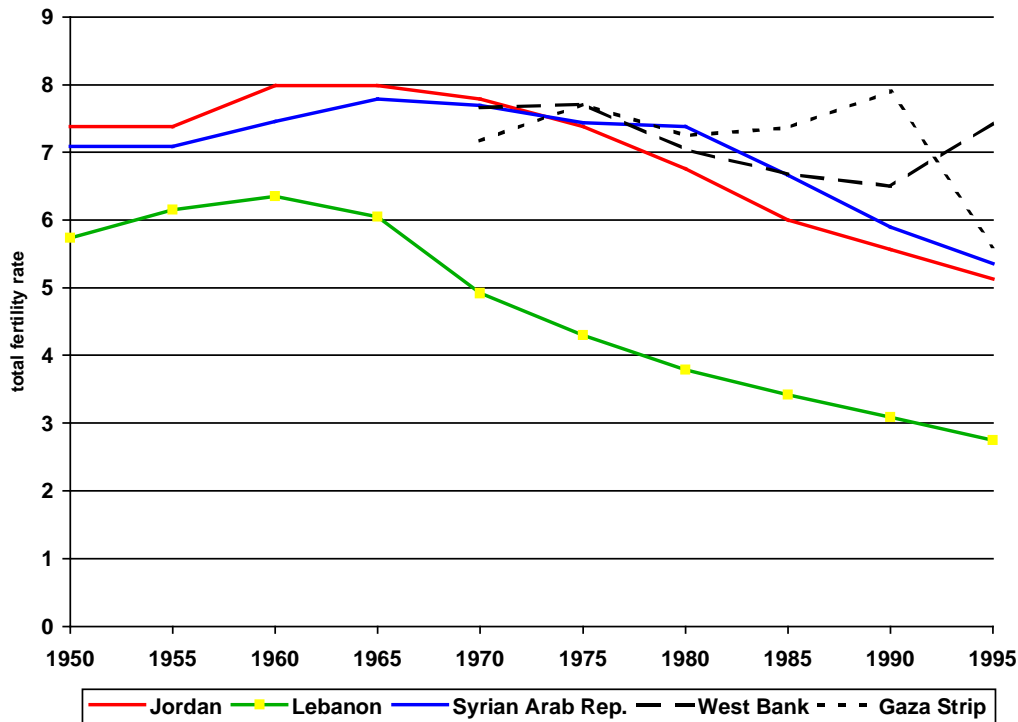
Jordan

Jordan has been the source for many fertility surveys: a world fertility survey in 1976 (JFS) (Department of Statistics, 1979), a fertility and family health survey in 1983 (JFFHS) (Department of Statistics, 1984), and a population and family health survey in 1990 (JPFHS) (Department of Statistics, 1992). These studies show that fertility levels have been slowly declining in Jordan since the mid-1970s (Figure 5). The total fertility rate (TFR) declined from 7.4 children per woman in 1976 to 6.6 in 1983 and 5.6 in 1990.

Age-specific fertility rate curves have kept the same shape since 1976. They start low in the youngest age group (15-19), increase rapidly and peak in the next group, after which they decline sharply in the 40-44 age group. During the two last decades fertility has declined in all age groups. The largest decline appears to have taken place among women 15-24 years of age between 1976 and 1983. This suggests that much of the decline between 1976 and 1983 can be attributed to an increase in age at marriage.

The largest decline between 1983 and 1990 equally affected women aged 25-39, which is probably due to a greater use of contraception (Department of Statistics, 1992).

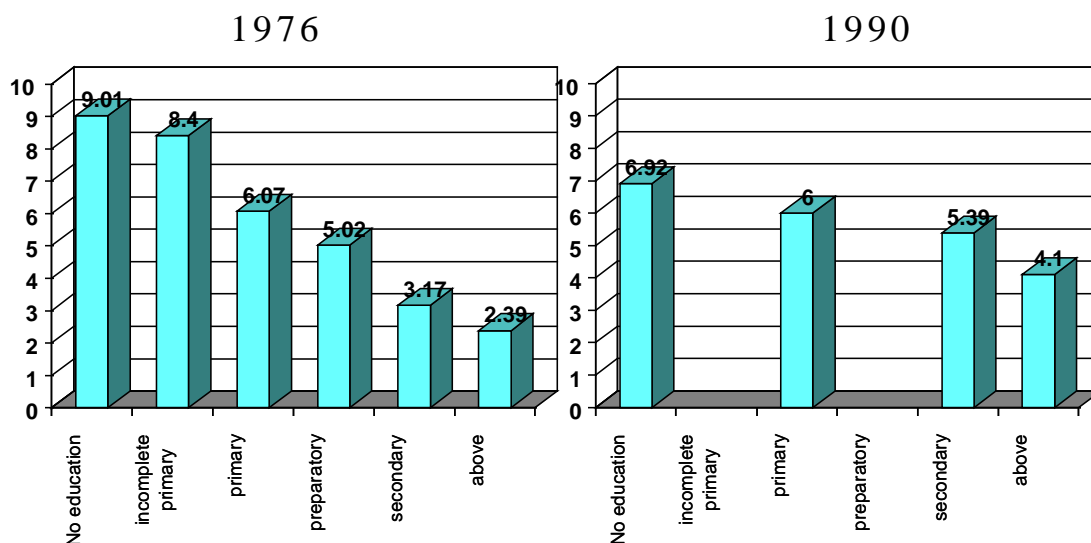
Figure 5. Total fertility rates, Jordan, Lebanon, Syria, and the West Bank and the Gaza Strip, 1950-1995 (Sources: UN, 1995; PBS, 1994; PCBS, 1996).



This trend is confirmed by the mean number of children ever born to all women aged 15-49 between the three dates of fertility surveys. In 1976, a woman had, on average, 3.6 children; in 1983, this had declined to 3.1, and in 1990, the average number of children ever born was 2.9.

Both the 1976 JFS and the 1990 JPFHS indicated that education was the strongest factor affecting fertility levels (Figure 6). The largest fertility differentials were registered by educational attainment. In 1990, women who had attended more than secondary school had the lowest level of fertility (a TFR of 4.1) while those with no education had the highest (a TFR of 6.9). The TFR was 6.0 for women with primary education and 5.4 for women with secondary education. The differential between the fertility of women with no education and the fertility of those with more than secondary schooling decreased from 6.6 children in 1976 to 2.8 children in 1990 (Department of Statistics, 1979 and 1992).

Figure 6. Total fertility rates for women aged 15-49 per educational level, Jordan, 1976 and 1990 (Sources: Department of Statistics, 1979 and 1992).



Source: World Fertility Survey, 1979

Source: Population and Family Health Survey, 1992

There are relatively long intervals between births of women in Jordan. In 1990, measurements showed that half of all children are born at least two years after their siblings and one in five is born after an interval of three years. The spacing of births seems to have extended since the two earlier fertility surveys of 1976 and 1983.

The study of the median age at first birth across cohorts suggests an increase of this indicator in the youngest cohorts. In 1990, it was 23.0 years of age for women in the 25-29 age group and 21.2 years of age for women in the 30-34 age group. The place of residence (rural-urban) and the region of residence seem to make little difference. Differentials by education were more marked and showed an unusual pattern. Women with secondary education had the highest median age at first birth (21.2 years) followed by women with no education. The lowest median age at first birth was for women who had attended primary school (19.6 years).

Lebanon

Fertility data is available from two surveys: the 1970 survey on the active population, as well as the preliminary results of the 1996 maternal and child health survey (Ministry of Health, 1996). The number of living children per 1000 married women aged 45-49 was 5.6 in 1970. It was still around five in 1996. However, the total fertility rate was 4.6 in 1970 and preliminary results for 1996 point to an important fertility decline in the 25 years between the two surveys to a TFR of 2.5 (Figure 5). The analysis of this decline is rendered difficult by the lack of data, e.g., on the mean age at first marriage.

The lack of reliable sources is combined with the uncertainty of the figures on education and religious beliefs. Chamie (1981) demonstrates that in 1970,

differences in religious affiliation lead to substantial fertility differentials; at high levels of education, differences in religious

affiliation lead to lesser fertility differentials. For example, for wives who had not completed primary school, the number of children ever-born per married women was 6.6 for Sunnis and 4.9 for non-Catholic Christians, for a difference of 1.7 children. The number of live births for Sunni and non-Catholic Christian wives of the same age but who had completed secondary or higher education were 2.6 and 3.0, respectively for a difference of 0.5 child.

In 1970, the fertility of Muslim Sunnis and Shi'as was much higher than that of Christians (Catholic and non-Catholic), especially at low levels of schooling. Unfortunately, the latest demographic survey (Ministry of Health, 1996) did not collect information on the religious composition of the population. However, the overall level of fertility points out to major decreases in the fertility of all women, and especially Muslim women.

Nuptiality patterns and fertility regulations were thought to be the main determinants responsible for fertility reduction in Lebanon (El-Khorazaty, 1996). The hypothesis could be made that the general increase in the education levels of the population has been one of the factors influencing the trend towards lower fertility rates. In 1970, the average number of years of schooling completed by women of active age was 3.6 years (from 5.2 years for non-Catholic Christians to 1.6 for Shi'a Muslims). Forty percent of the 1970 sample had had no schooling. In 1996, the educational backgrounds of women had improved substantially. Seventy-five percent of the women aged 15-49 have a primary education or more. There are even 24 percent with at least a secondary education. The percentage of illiterate is only 14.4 percent. If these groups of women have all adopted similar lower fertility patterns as the one existing in the 1970s, this could certainly explain the fertility decline.

Syria

Belief in a large population in Syria has always had historical background, and still in the 1960s, when Syria had a TFR above 7 children per woman, policy-makers were referring to the country as underpopulated, taking into consideration its mineral resources and cultivable lands (Courbage, 1994).

From 1960 to 1985, the crude birth rate remained, except for some fluctuation, at a very high level, between 44.0 and 50.0 per thousand (UN, 1995). In 1986, the trend was reversed, but until that time, early marriage and frequent births during married life led the TFR to these high records. In 1980-1985, before the 1986 turn, Syria had a TFR of 7.4. Only Yemen and five sub-Saharan countries (Niger, Rwanda, Malawi, Kenya, and Côte d'Ivoire) had higher fertility (UN, 1995).

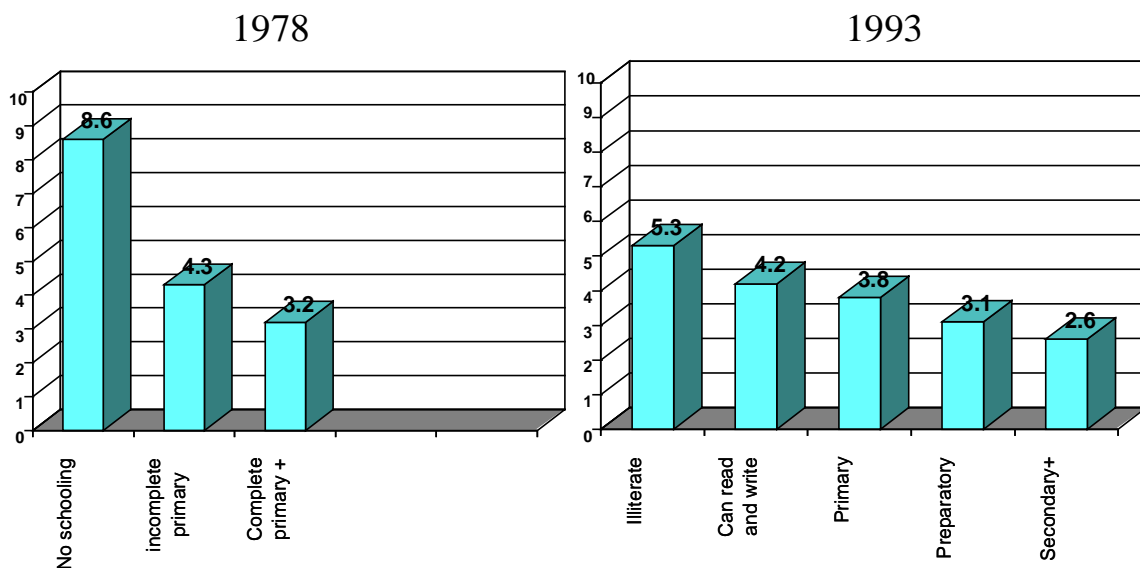
Even when the entrance into married life was delayed, it was compensated for by an increase in the number of births in marriage, so that the TFR remained practically constant between 1960 and 1980: 8.00 in 1960, 7.81 in 1970 and 7.83 in 1981 (Courbage, 1994). Paradoxically, this semblance of stability hides an increase. The national fertility rate stayed high while groups of women were replaced by other cohorts of women supposedly less fertile. In 1981, fertile-aged women were more urbanized than in 1960: 47.5 percent against 43.4 percent. Female illiteracy decreased from 75.7 to 56.4 percent of the population to the benefit of women with some primary education (10.9 percent to 14.6 percent), complete primary education (7.6 to 14.4 percent),

intermediate education (3.3 to 8.0 percent), secondary education (1.5 to 4.2 percent), and university (0.3 to 0.8 percent). Courbage (1994) has estimated that between 1970 and 1981 the fertility of women increased everywhere in rural and urban areas for all women, regardless of the level of education.

Since 1986, the TFR has shifted to lower levels. In 1993 (Central Bureau of Statistics, 1995a), the average number of children ever born to all ever married women was 4.2 (Figure 5). The average was 7.3 for women in the 45-49 age group. It seems that this happened spontaneously in the population without any government intervention. Without discrimination, it touched women in urban and rural areas. The most plausible reason is the economic crisis in the country at the beginning of the 1980s, the entry into their fertile years of the generations of newly educated, and the entry into the labor market of more and more women.

The TFR declines with the rise in female education. Women with no schooling have twice as many children as women who have completed secondary school (Figure 7). The difference is particularly marked between women with no schooling at all (with a TFR of 5.3) and women who can read and write but have never completed primary school (with a TFR of 4.2).

Figure 7. Total fertility rates for women age 15-49 per educational level, Syria, 1978 and 1993 (Sources: CBS, 1982; Central Bureau of Statistics, 1995a).



Source: World Fertility Survey, 1982

Source: Central Bureau of Statistics, 1995a

The 1993 data shows a rise in age at first marriage among younger cohorts (Central Bureau of Statistics, 1995a). The single mean age at marriage⁶ (SMAM) is highly correlated to the level of education of women. The SMAM of women who have more than a secondary level education is higher by five years than that of women with no schooling.

⁶ SMAM is the mean age at first marriage of women who marry by age 50, and is estimated by adding the proportion currently single at successive ages as though they referred to a single real cohort of women.

West Bank and Gaza Strip

Natality rates do not seem to have changed significantly in the past thirty years, with birth rates fluctuating between 46 and 52 percent in the Gaza Strip, compared to a somewhat lower average of 40,000-46,000 in the West Bank (UNCTAD, 1994). Fertility rates indicate that on average the number of children per woman has not varied greatly during the last three decades, especially in the Gaza Strip where it was estimated at 7.0 in 1968 (UNCTAD, 1994). The 1995 Demographic Survey (PCBS, 1996) reaches a TFR figure of 7.4. These results are unique in the sense that it has been very rare that countries maintained such high rates over such a long period. This trend of high fertility is expected to continue in the Gaza Strip through the end of the century, especially if fertility is linked to the political future of the area. In the case of the West Bank, it seems that the total fertility rate, although maintaining itself at a very high level, has been declining slowly but steadily. It was 7.6 in 1968, 7.1 in 1975, 6.9 in 1980 (UNCTAD, 1994), 6.1 in 1983; and the latest figure for 1995 shows a TFR of 5.6 (PCBS, 1996). The age structure of fertility shows that in 1968 women had their children rather late both in the West Bank and Gaza Strip, most births happening between the age of 25 and 39 years of age and fertility being quite low in the 15-24 and 40-49 age groups. In 1995, births occurred earlier in the life of women in the 20-29 age group where the age-specific fertility line makes a plateau. This plateau was much lower in 1995 than in 1968 for the West Bank (270 births per thousand women in 1995 for women in the 20-29 age group instead of 340 in 1968 per thousand women in the 25-39 age group). After age 30, fertility declines very slowly until the age of 39 and rapidly in the last 10 years of women's fertility. In Gaza, fertility peaks occur as well at the age of 20-29 but at the same level as in 1968. The difference seems to be that women have their births earlier in their 20s; fertility declines slowly until the age of 39, and rapidly thereafter. The decline in the West Bank could be attributed to greater contraceptive use after the age of 25, whereas in Gaza, the shape indicates a decrease in the age at first marriage for men and women. The mean number of children ever born to women was 5.1 in the West Bank and 5.3 in the Gaza Strip in 1995 (PCBS, 1996).

The 1995 Survey (PCBS, 1996) indicates that education affected fertility more than place of residence (city, village, or camp). On average for the two areas, the TFR for those with less than secondary education was 6.62, 5.57 for those with secondary education, and 4.72 for those with more than secondary education. The fertility differential by religion was found to be more significant than that by education. In 1995, Moslem women had an average fertility of 6.34, whereas Christian women had a TFR of 2.71.

2.4.2. Levels and trends in contraceptive use

Jordan

The government has no policy of intervention to affect the level of fertility, but acknowledges the right of parents to decide the number and spacing of their children (UN, 1989). However, family planning activities have increased substantially. Interest in family planning dates back to the 1950s, when attempts were undertaken to form a family planning association. The Ministry of Health finally supported the establishment of the Jordan Family Planning and Protection Association (FPPA) in 1963 (Warren et al., 1990). The FPPA provides information to women on family health, breast-feeding and child-spacing (Allman, 1978).

The 1990 JPFHS (Department of Statistics, 1992) gives some information on contraceptive use. The comparison to the 1976 JFS (Department of Statistics, 1979) allows the drawing of some careful conclusions about the trends. Sixty-four percent of ever-married women reported in the JPFHS that they used contraception. Among those reporting, a majority (52.0 percent) used modern methods: pills followed by intra-uterine devices (IUD). The level of ever-use among ever-married women has increased by 36.0 percent since the findings of the 1976 fertility survey, with a slightly lower increase for ever-use of modern methods (31.0 percent). Overall, the level of contraceptive use--measured by the percentage of currently married women who employ contraception--has increased substantially in recent years: from 23.0 percent in the 1976 JFS to 26.0 percent in the 1983 JFFHS, and 35.0 percent in the 1990 JPFHS (prolonged breast-feeding is not included in these figures). The relative increase was not as important for modern methods as it was for all methods. There was a major shift from the pill to IUD. Use of female sterilization also increased substantially.

In 1990, contraceptive use was highest among women living in urban areas and the percentage using modern methods was twice that of rural women (34.0 percent and 17.0 percent, respectively). With regard to education, current use of contraception varied primarily between women with no education and those who had received some education. The differences between the three educational levels was very small (Department of Statistics, 1992).

Lebanon

Until recently, there was no direct public support for family planning activities. Lebanon's penal code set both imprisonment and a fine for those who used, spread, stocked, or promoted contraceptive methods (Warwick, 1982). These laws were not enforced for a long time and since 1989, the government publicly and directly supports contraceptive use. In 1996, current contraceptive use among married women aged 15-49 was very high: 61 percent. However, only 37 percent were using a modern method and 24 percent a traditional method. The IUD is the most widely-employed form of contraception in Lebanon.

Syria

In 1978, levels of contraceptive use were low, with about two-thirds of women of reproductive age reporting no personal experience using contraception. There were large differentials between the levels of ever-use and current use of contraception by urban/rural residence, region of residence and education (CBS, 1982). The present fertility decline points to a sharp increase in contraceptive use. Around 40 percent of the married women in the 15-49 age group were using contraceptives in 1993, and 28 percent were using modern methods. Contraceptive prevalence was much related to education. Contraceptive prevalence was below 35 percent for illiterate women. It was already above 50 percent for literate women and 56 percent for women who had completed primary school (Central Bureau of Statistics, 1995a).

West Bank and Gaza

No data was found on levels of contraceptive use. It was not part of the questionnaire in 1995 (PCBS, 1996). It would be interesting to have more information since fertility preferences seem rather high. In the West Bank, among women between 15 and 34 years of age, 62-64 percent thought that the ideal number of children was four and above. Moreover, 18 to 22 percent reported an ideal of more than six children. In the Gaza Strip, for 70-74 percent of women in the 15-34 age group, the ideal number of children is above four and above six for 27-31 percent of the women. This trend in young age groups of women could suggest continued high fertility in the future.

2.4.3. Marriage patterns and time devoted to childbearing⁷

Jordan

Marriage is almost universal in Jordan. The Jordan Family Rights Law of 1976 sets the minimum age for marriage at 18 years of age for men and 16 years for women. Figures comparing data for ever-married women from the 1976 JFS, 1983 JFFHS and 1990 JPFHS (Department of Statistics, 1979, 1984, 1992) surveys indicate that women are marrying at older ages than in the past, and that most of the increases occurred between 1976 and 1983. In 1990, the median age at first marriage was 19.6 years for women in the 25-49 age group. It was 21.2 years for women in the 25-29 age group.

While there are only minor differences in median age at first marriage by place of residence and by region, education plays an important role in determining women's entry into marriage. The improvement of educational opportunities, particularly for girls, has resulted in their staying in school longer, and subsequently pushed the age at first marriage upward. Women who have had more than secondary education tend to marry almost 6 years later than those with no education or only primary education. Women with some primary education marry earlier than women who have no formal schooling; they seem to be more favored by potential husbands than illiterate women (Department of Statistics, 1992).

Syria

Marriage in Syria is nearly universal, and in 1978 less than 2.0 percent of the women were reported single by age 50 (CBS, 1982). The 1978 fertility survey shows that the single mean age at marriage of those persons who marry by age 50 was 22.1 for women and 26.4 for men. There were marked educational differentials in the timing of marriage but not in the propensity to marry. Educated women (with primary or more education) were characterized by a relatively late median age at marriage, over 24.0 years, against less than 20.0 years for uneducated women. According to the 1993 PAPCHILD survey (Central Bureau of Statistics, 1995a), ages at first marriage were relatively high; rural age at first marriage was almost one year higher than that for urban areas--25.0 years for rural women and 24.2 for urban women. The SMAM of women who have more than secondary education was 28 years, and was higher by five years than that of women with no schooling (23.1 years), and six years higher than that of women who can read and write (22 years).

⁷ No data could be found on marriage patterns and time devoted to childbearing in Lebanon.

The propensity to marry later has risen. A comparison between 1988 and 1993 shows that in 1988, 33 percent of 19 year-old women were already married, and only 14 percent in 1993. As well, 65 percent of all 24-year olds were already married in 1988 against 42 percent in 1993 (Central Bureau of Statistics, 1995a).

Marriages among relatives are quite common and comprise 38 percent of all marriages. Prevalence was higher in rural areas (45 percent) than in urban areas (32 percent). The proportion of polygamous marriage was 6 percent; 8 percent in rural areas and 4 percent in urban areas (Central Bureau of Statistics, 1995a).

West Bank and Gaza Strip

The median age at marriage was 23 years for males and 18 years for females for both areas in 1995. A review of the marital status between 1961 and 1995 shows that until 1987, people were marrying later. In the West Bank in 1981, there were only 10 percent of the married women in the 15-19 age group and 32 percent in the 20-24 age group. In 1995, more than 20 percent of the 15-19 year old women were married and 59 percent of the women in the next age group (UNCTAD, 1994). In the case of Gaza, the only comparison that can be made is between 1967 and 1995; figures show similar results, if a not more accentuated pattern than in the West Bank. In 1967, 14 percent of the women in the 15-19 age group were married, in 1995, 30 percent (UNCTAD, 1994). In 1995, the SMAM was 22.7 for women and 26.1 for men in the West Bank and 20.8 for women and 23.9 for men in Gaza. The place of residence seemed to make little difference, but there was a 7-year difference in the median age at marriage by years of schooling: 20 years on average for both areas between those with no education and those who completed more than 13 years of schooling. Similarly, the median age at first birth for 25-49 year old women was mostly influenced by education: on average, 20 years of age in the West Bank and 18 years in the Gaza Strip. Women with one to six years of education had a median age at first birth of 19 years,⁸ whereas women with 13 years or more of schooling married on average at 24 years of age (PCBS, 1996).

Of all unions in 1995, 3.2 percent were polygamous in the West Bank and 4.4 percent in the Gaza Strip. Marriages were stable. Across all age groups, 89 percent of males and 96 percent of females married only once. 31.6 percent and 27.2 percent of first marriages in the Gaza Strip and the West Bank were conducted between cousins. Looking across ages, it seems that the tendency towards marriage within the same clan (cousins or other relatives from the same 'Hamoula') has not changed over time: about 48 percent of all marriages in the West Bank and 52 percent in the Gaza Strip in all age groups (PCBS, 1996).

2.5. Mortality

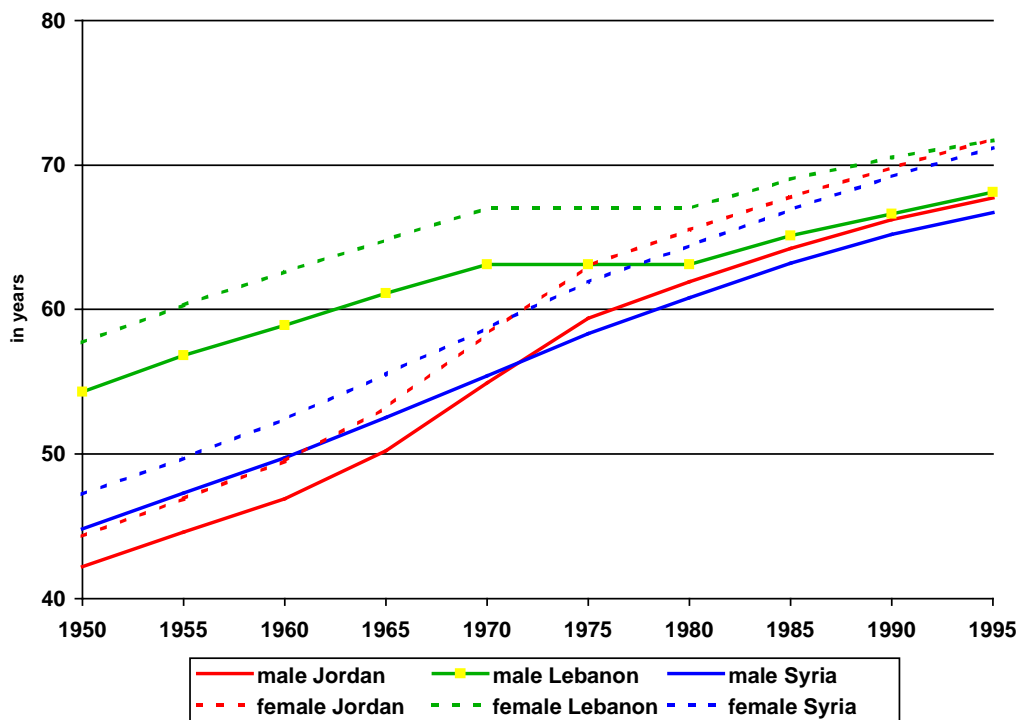
Jordan

Mortality was generally very high until the end of the 1960s, with a crude death rate above 20.0 per thousand (UN, 1995). Figure 3 shows a steep decline after 1965-1970 that continued until 1975-1980, when it stabilized at the level between 5.0 and 10.0 per thousand. This decline in mortality is shown as well in life expectancy trends (Figure 8).

⁸ With no schooling, the median age at first birth is 20 years of age.

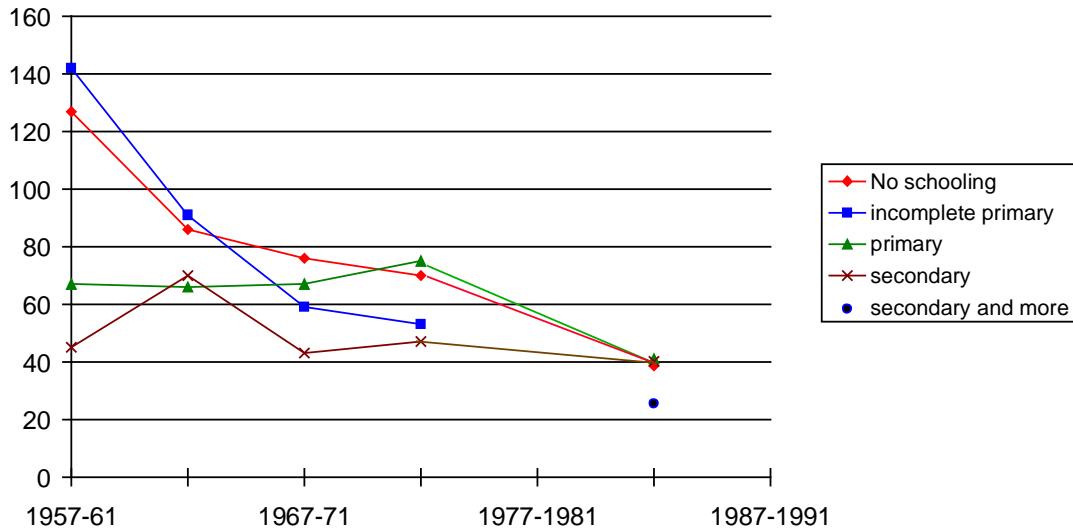
In 1950-1955, the life expectancy was 42.2 years for men and 44.3 years for women. Between 1965-1970 and 1975-1980, the life expectancy increased by 9.2 years for men and by 9.8 years for women. The rise in life expectancy has continued, but at a slower pace. Life expectancy in 1994 was estimated at 64.7 years for men and 70.5 years for women (ESCWA, 1995). The differential in life expectancy between males and females was a little above 2.0 in 1950-1955. It increased linearly until 1975 to a level of 3.6, when it became stable. Since the beginning of the 1990s, it seems to be increasing again (UN, 1995). The differential in 1994 was assessed at 5.8 years (ESCWA, 1995).

Figure 8. Male and female life expectancies at birth, Jordan, Lebanon, and Syria, 1950-1995 (Source: UN, 1995).



Infant mortality and child mortality are good indicators of mortality trends, and even more of health conditions (Figure 9). It was apparent from the 1990 JPFHS (Department of Statistics, 1992) that infant and child mortality had been declining for many years. Infant mortality was above 140.0 per thousand births in 1950-1960. It has declined to 34 deaths per thousand in 1990. However, under-five mortality (39 per thousand) approaches the level of infant mortality, suggesting that the factors affecting infant mortality are different from those affecting child mortality. In particular, infant health was more likely to be influenced by factors such as antenatal and post-natal care, as well as intervals between births (Department of Statistics, 1992).

Figure 9. Infant death probabilities (${}_1q_0$), 1957-1990, Jordan (Sources: Blacker et al., 1983; Department of Statistics, 1992).

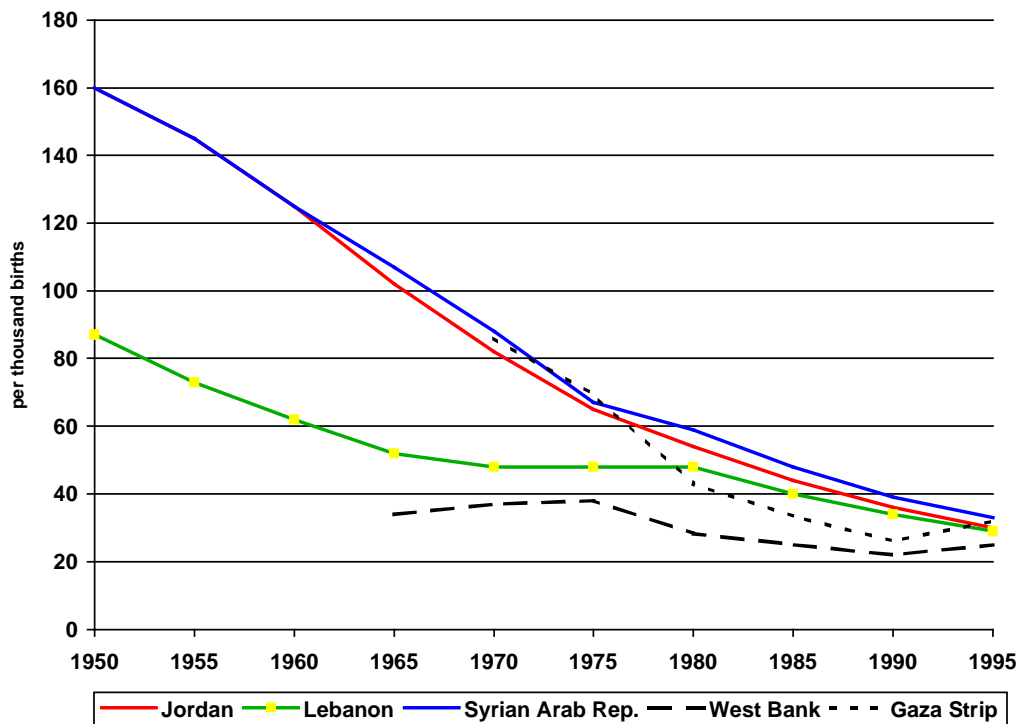


In 1990, there were no substantial differences in under-five mortality by type of residence. The mother's education was negatively associated with infant and child mortality. Children of mothers who attained more than secondary education were less likely to die in the first five years of life than children of mothers with less education. Mortality was the highest for children whose mothers only attended primary school or received no education.

Lebanon

Substantial reductions in mortality during infancy and childhood have occurred in the past two decades in Lebanon. In the 1980-84 period (10-14 years preceding the PAPCHILD Survey, Central Bureau of Statistics, 1996), the infant mortality rate (IMR) was 46.3 per thousand; in 1985-89, it was 36.9 and 24.4 in 1990-94 (Figure 10). Indirect estimates of the life expectancy in Lebanon give very different results. ESCWA (1995) estimated for 1994 the life expectancy at birth for females to be as high as 77.9 years and 72.5 years for males. The UN (1995) estimates 71.7 years for females and 68.1 years for males in 1995 (Figure 8).

Figure 10. Infant mortality rates, Jordan, Lebanon, Syria, and the West Bank and the Gaza Strip, 1950-1995 (Sources: UN, 1995; PBS, 1994; PCBS, 1996).



Syria

Crude death rates have declined steadily between 1950 and 1990 (Figure 3). The CDR was above 20.0 deaths per thousand persons in 1950-1955, and is now below 6.0. The IMR was above 100 per thousand until 1970 (Figure 10). The decline was strong and linear between 1950-1955 and 1975-1980 at an average annual rate of 1.4 percent per year. It was estimated to be 70-75 per thousand in 1978 by the fertility survey (CBS, 1982), and 36 per thousand in 1990 (Central Bureau of Statistics, 1995a). The fastest decline occurred from 1976 to 1985, with a recent stabilization of rates at a relatively low level. In 1978, a very strong inverse relationship was found between the education of mothers and child mortality. In the 10 years prior to the 1978 survey, out of every 100 live births, 21.0 more infants survived to age one year for women with incomplete primary education than for women with no schooling (CBS, 1982). The recent decline has benefited all segments of the infant and child population. The differential existing by area of residence as observed in 1993 was small. The IMR/CMR (children mortality rate) of children of mothers with no schooling was 37/44 per 1000 live births during the 10-year period preceding the 1993 survey; it was 23/32 per 1000 for women who had completed preparatory school (Central Bureau of Statistics, 1995a).

The life expectancy at birth of the male and female population increased from 42.2 and 43.3 for men and women, respectively, in 1950-1955 to 65.2 and 69.2 in 1990-1995 (UN, 1995) (Figure 8). The difference in life expectancy between males and females also increased from 2.4 years in 1950-1955 to 4.0 years in 1990-1995 (UN, 1995). Syria seems to have benefited from major health improvements over the last 40 years.

West Bank and Gaza Strip

Mortality rates in the Gaza Strip as well as in the West Bank have decreased steadily. Life expectancies show one of the highest levels for both sexes in the region. The life expectancy at birth was estimated to be 70.0 years for males and 73.5 years for females in 1995 (PCBS, 1996). Estimates indicate that the female life expectancy has been increasing steadily since 1983, whereas the pattern is more unstable for men with periods of increase and decrease. The infant mortality rates seem to point to the same decline over the last 15 years. The infant mortality in the West Bank was 25 and 32 per thousand in the Gaza Strip for the five years preceding the 1995 Demographic Survey. It was 60 per thousand (West Bank) and 67 (Gaza Strip) for 15 years preceding the same survey. Infant mortality rates are highly correlated with the educational levels of women. The infant mortality rate is 30 for children born to mothers with less than a secondary education and 18 for those born to women with more than a secondary education. The differential by place of residence is less significant. Education is a factor affecting post neonatal mortality (PNN) as well with PNN being three times higher for children born to mothers with less than a secondary education than for those born to mothers with more than a secondary education (PCBS, 1996).

2.6. Migration

Jordan

Jordan offers a rather unique case of a country with both extensive immigration and emigration flows. These flows have affected the growth, the distribution and the structure of the population.

In 1949, the population of Jordan tripled as a result of the annexation of the West Bank. The inflow of Palestinian refugees increased the population from 400,000 to about 1.3 million persons within a single year (ESCWA, 1993). Between 1952 and 1961 the refugee population, which had settled mostly in the West Bank after the 1948 events in Palestine, started to move to the East Bank as a result of demographic pressure in the West Bank and more economic investments in the East Bank.

The occupation of the West Bank by Israel in 1967 provoked another massive inflow of refugees (about 285,000 persons) from the West Bank and the Gaza Strip into the East Bank. The latest large flow of migrants to the East Bank occurred when 300,000 Palestinians bearing Jordanian passports returned to Jordan after the 1990-1991 Gulf war between Iraq and Kuwait (EIU, 1996).

Although the 1961 census reported 64,000 Jordanians living abroad, the early 1970s witnessed the beginning of heavy and rapid emigration of the Jordanian labor force to the Arab oil countries (especially Saudi Arabia and the Gulf states), so that by the early 1980s nearly 40.0 percent of the actively employed Jordanians worked outside Jordan. This created increasing labor shortages in the country. The large emigration was compensated to some extent during the late 1970s and early 1980s by a sizable inflow of foreign workers into Jordan, particularly Egyptians. By 1984, some 5.9 percent of the total population and 25.0 percent of the domestic labor force were foreigners (Samha, 1990).

Lebanon

The civil war proved to be a time of high flows of population. Populations were displaced from their original places of residence, e.g., massive movements of Christians from West Beirut and its southern suburb (Faour, 1991). In 1987, it was estimated that about 125,000 heads of households were migrants, which corresponds to approximately 568,000 displaced people (18.5 percent of the population) (Kasparian, 1996). It was also estimated that more than half a million people (from Lebanese or foreign origins) left the country. The non-Lebanese population is composed primarily of Palestinians and Syrians. There were approximately 200,000 Palestinians in Lebanon in the early 1980s (Soffer, 1986).

Syria

Contrary to Jordan, which is a country of extensive migration flows, Syria has never been affected by such waves of immigration. However, many Syrians work outside their nation in Arab oil countries. The annual net migration was estimated to be (-) 27,000 persons for the last ten years.

West Bank and Gaza Strip

Of the Palestinians in the Gaza Strip, 64 percent report themselves as registered refugees; they make up 27 percent in the West Bank.

Of the Palestinians living in the territories, 91 percent are born in territories, 3.9 percent in Israel and 5.1 percent in other countries. Sixty-one percent of the households in the remaining West Bank have close relatives living abroad, while 52.2 in the Gaza Strip have. Most of the relatives abroad live in Jordan (48.8 percent). Forty-three percent have an Israeli identity card. About 6 percent of those currently living in the occupied Palestinian territories have changed their residence since 1987. Of these 5.2 percent came from abroad, while about 0.8 percent changed their districts of residence. (PCBS, 1996)

2.7. Education*Jordan*

The high priority given to the educational system since 1950 has now matured, and provides the country with one of the most advanced and sophisticated educational systems in the Middle East. However, this situation could backfire, since the education system is now facing a radical change. In large, the economy depends on the export of its educated manpower to other Arab countries, particularly to the Gulf states and Saudi Arabia. Remittances have accounted for approximately one-third of the GNP of the country. The recent decline of the international oil economy has abruptly changed all this. Growth in employment opportunities abroad has essentially ceased and demand seems to have stabilized or is moderately declining. Moreover, the countries to which Jordanians move are nowadays more in need of highly qualified and skilled workers. The Gulf states and Saudi Arabia have found it much less costly to hire Egyptians,

Indians and Pakistanis for those positions requiring a general secondary education or college education (Roy and Irelan, 1992).

Internally, the supply of labor force with general secondary and higher education largely exceeds the demand for doctors, teachers, engineers and other professionals. Education authorities and government officials are attempting to redirect more Jordanian students away from the general secondary and higher education levels to the technical/vocational education streams. These attempts are meeting increasing resistance from the public, which sees education as a way to achieve social status that is not be provided by 'manual labor'.

Children of both sexes are well integrated into the educational system. Nearly all Jordanian youths are now enrolled in compulsory (basic) level schools. Primary education, which begins at six years of age and lasts for ten years,⁹ is compulsory. In 1991, there were 2.5 million pupils in primary schools, equivalent to 99.0 percent of children in the relevant age group. There were one million children enrolled in 1992 in the first level: half male, half female pupils (Table 1).

Table 1. Number of pupils enrolled and male and female enrollment ratios at all educational levels, Jordan, 1980-1992 (Sources: UNESCO, 1993, 1994, 1995).

	First level				Second level				Third level			
	Pupils enrolled (total in 1000)	% F ^a	Net enrollment rates		Pupils enrolled (total in 1000)	% F ^a	Net enrollment rates		Pupils enrolled (total in 1000)	% F ^a	Gross enrollment rates	
			M	F			M	F			M	F
1980	454	48	94	91	266	45	70	60	37	46	29	24
1985	531	48	NA	NA	336	48	NA	NA	54	45	NA	NA
1989	879	48	90	92	96	47	41	43	69	51	23	27
1992	1014	49	89	89	114	50	35	37	89	49	19	20

^a percentage of female pupils in total population enrolled

After 10 years of basic compulsory education, children can orient themselves to secondary schools that are for students aged 16 to 17, or to vocational training corporation centers that provide training to obtain skilled workers. The current share between the two forms of secondary education is 30/70 in favor of general education. The government aims at a share of 40/60. The selection is made through a secondary school admission test. Those who pass (60.0 percent of males and 70.0 percent of females) are allowed to continue in general secondary schools with the remainder entering vocational training. In 1992, 114,000 children were enrolled in secondary schools, representing 35.0 and 37.0 percent of male and female children in the relevant

⁹ In 1989 the duration of the first level of education was extended from six years to ten years, and the second level which previously consisted of three years of preparatory and three years of secondary education was reduced to only two years.

age group. About 20.0 percent continued on to higher education. Of the 89,000 students enrolled in third level education, approximately half were women (Roy and Irelan, 1992).

Lebanon

The Lebanese school system is similar to the French one, except that education is not compulsory. Primary school starts at six years of age and lasts for five years. It is followed by two cycles of secondary education. The first cycle is called 'moyen' and lasts four years from 11 to 14 years of age; the second cycle lasts for three years and is sanctioned by an exit exam at age 17 (UNESCO, 1995). The schools are state-run primary and secondary schools, but private institutions provide the main facilities. In total for 1993-1994, 69 percent of all enrolled pupils were in private schools. At pre-schooling and primary levels, teaching is provided by state subsidized private schools as well. Private schools provide the main facilities for higher education. It is interesting to note that at all levels, the percentage of girls enrolled in private institutions rather than public ones is 2 to 6 percentage-points lower than that of boys (Lebanese Statistics).

Table 2. Number of pupils enrolled and male and female enrollment ratios at all educational levels, Lebanon, 1980-1993 (Source: UNESCO 1995).

	First level				Second level				Third level			
	Pupils enrolled (total in 1000)	% F ^a	Gross enrollment rates		Pupils enrolled (total in 1000)	% F ^a	Net enrollment rates		Pupils enrolled (total in 1000)	% F ^a	Gross enrollment rates	
			M	F			M	F			M	F
1980	405	NA	111		287	45	59		79	36	41	21
1986	399	NA	128		NA	48	68		84	NA	29	
1991	346	48	120	116	NA	47	71	76	85	48	35	23
1993	361	49	117	114	261	53 ^b	73	78	NA	NA	NA	NA

^a percentage of female pupils in total population enrolled

^b for 1993-1994, Lebanese Statistics (exact source: unknown)

Lebanon has the lowest illiteracy rate among people aged 10 years and above in the Arab world. According to UNESCO (1993), the rate of illiteracy among people aged 10 years and over was 21.5 percent for males and 42.1 percent for females in 1970. In 1995, the rate of illiteracy dropped to 5.3 percent for males and 9.7 percent for females (Ministry of Health, 1996). Only gross enrollment figures are available for Lebanon (Table 2). The total enrollment in primary and secondary schools was equivalent to 82 percent of all school age children; it was 87 percent in 1988 and 93 percent in 1992 (92 percent of boys and 93 percent of girls). Gross enrollment in tertiary education was 34.7 for boys and 23 percent for girls in 1991 (UNESCO, 1995).

Syria

Primary education begins at six years of age and lasts for six years; it is compulsory. Secondary education begins at twelve years of age and lasts for an additional six years, comprising two cycles of three years each. Vocational schools provide agricultural and technical training. Higher education is possible at the universities of Damascus, Aleppo, Tishrim and Homs (Cameron and Hurst, 1983). In 1992, there were 2.6 million pupils in primary education, the equivalent of 99.0 percent of children in the relevant age group, and 917,000 pupils in secondary schools, the equivalent of 45.0 percent of children in the relevant age group (Table 3). In 1991, 183,000 students were enrolled in third-level education. There is a large and increasing number of additional technical and vocational institutes, sometimes called 'two-year post-baccalaureate institutes' or 'intermediate institutes', which provide post-secondary training for technicians (Cameron and Hurst, 1983). Female enrollment exploded between 1960 and 1990. It increased nine-fold during this period (4.4-fold for males). There is no gender gap in present enrollment levels in primary schools. In 1992, there were 10.0 percent less female pupils enrolled in secondary school than male pupils; at the highest level, the difference in enrollment is 5.0 percentage-points in favor of male students (UNESCO, 1995).

Table 3. Number of pupils enrolled and male and female enrollment ratios at all educational levels, Syria, 1980-1992 (Sources: UNESCO 1993, 1994, 1995).

	First level				Second level				Third level			
	Pupils enrolled (total in 1000)	% F ^a	Net enrollment rates		Pupils enrolled (total in 1000)	% F ^a	Net enrollment rates		Pupils enrolled (total in 1000)	% F ^a	Gross Enrollment rates	
			M	F			M	F			M	F
1980	1556	43	99	80	604	37	48	30	140	29	23	10
1985	2030	46	100	92	870	40	59	43	179	35	22	12
1989	2358	46	100	93	924	41	53*	39*	214	38	22	16
1992	2573	47	100	92	917	44	49	39	183**	37**	20	15

^a percentage of female pupils in total population enrolled

* data for 1990

** data for 1991

Illiteracy has considerably declined: 47.0 percent of the population above 15 years of age was illiterate at the end of the 1970s. It is about now 36.0 percent. More females are illiterate than males.

West Bank and Gaza Strip

Education is compulsory from age 6 to 14 in the Gaza Strip and to age 15 in the West Bank. In both territories, primary education lasts six years, beginning at the age of six. Secondary education, beginning at the age of 11, lasts for a further six years, comprising two consecutive cycles of three years each (UNESCO, 1995).

Literacy is widely spread: in 1995, 84.9 percent of the population in the Gaza Strip and 83.4 percent in the West Bank had the ability to read and write. If the literacy rate shows no difference by region, the results are different when considering gender. The literacy rate was 76 percent for women and 91 percent for men. The gender gap could be due more to past gender differentials in the older population. About 97 percent in the 15-19 age group (both sexes) were literate in 1995 (PCBS, 1996).

Past gender differentials may also be the basis when considering the highest level of education completed: 95 percent of women and 82 percent of men in the age group above 65 years of age had received no schooling. In the 15-19 age group, 10 percent of males and 7 percent of females had received no schooling in the Gaza Strip, and 7 percent of both sexes in the West Bank in 1995 (PCBS, 1996).

Contrary to what fertility rates could suggest, the West Bank and the Gaza Strip share with Jordan the highest rate of enrollment in elementary and secondary schools, followed by Syria, and Lebanon (Sabella, 1996). In 1995, the enrollment by age group was the following: 90 percent of the 6-11 age group were enrolled in school in both areas. The figures are pretty much the same for the next age group. There are slightly more girls than boys in schools, which could be a result of the involvement of male children in the 'Intifada'. At ages 15-17, 72 percent of males and 64 percent of females are still enrolled in the Gaza Strip, and 66 percent and 64 percent, respectively, in the West Bank. The rates fall sharply for people above 18 years of age; only 5 percent of females are enrolled, and 7-9 percent of males in both territories.

In 1995, the mean numbers of school years in the West Bank per woman in the 15-17 age group was 9.2 years, and 8.8 years for women in the 18-24 age group. Women were staying even longer in school in the Gaza Strip with 9.5 and 9.1 mean number of school years for women in the 15-17 and 18-24 age groups, respectively (PCBS, 1996).

3. Base-Year Data and Scenario Definition for the Next 50 Years

The analysis developed in the first part will help to define 'realistic' scenario assumptions for the projection in the future of present populations. The scenarios are made primarily to assess the future populations of these areas, given current and future changes in levels of fertility, mortality and, especially, levels of educational attainment.

A multi-state population projection tool was used to produce the projections that follow. This tool allows not only the projection of the population as a whole, but takes into consideration, as well, the heterogeneity of the population by dividing the population into a certain number of groups--in this case, levels of educational attainment. Specific sets of assumptions are applied to these educational groups regarding fertility and mortality patterns. The weight of each educational category can

be changed by increasing or decreasing rates of transition between educational categories.

The base year is 1994 for Jordan, Lebanon, Syria, and the West Bank and the Gaza Strip. Projections are carried out for a period of 50 years until 2044. The base-year population of each area was divided into four categories: people with low education, with medium education, with high education, and with advanced education. The definition of each education category is described in Table 4 below.

Table 4. Definition of the four educational categories.

Category	Definition
1. Low education	Those who have never attended school or have never completed the final grade at the first level of education.
2. Medium education	Those who have completed the final grade at the first level of education, and those who have entered the second level of education but have never completed the preparatory cycle.
3. High education	Those who have completed at the second level the final grade of the preparatory cycle or of the final cycle.
4. Advanced education	Those who have undertaken third-level studies regardless of whether they have completed the course.

3.1. Base-year data

In order to make population projections by educational level, the population needs to be divided by age group, sex and level of education attainment. Both Jordan and Syria conducted censuses in 1994; preliminary results are available, but final reports have not yet been published. Lebanon's last census was conducted in 1932! The population of the West Bank and the Gaza Strip have not been counted since 1967. Therefore, the population assessment of the four areas by ESCWA (United Nations Economic and Social Commission for Western Asia) for 1994 was used to provide the base-year age and sex structure (ESCWA, 1995).

In the case of Jordan, the information about the population by age, sex, and education was derived from the sample population survey of the population and housing census (Department of Statistics, 1994). The share of each educational group found in the sample was applied to the population by age group and sex as assessed by ESCWA for 1994.

The population by education for Lebanon was estimated from three sources. The 1970 household survey (published by the Planning Office of the Lebanon Department of Statistics in 1972) served as a reference point for constructing the population by education for ages 35 and over (approximately 25 years after the survey). Educational levels from ages 15 to 34 were constructed from the preliminary results of the

PAPCHILD Survey (Ministry of Health, 1996), which gives the share of the population above ten years of age in five educational categories, in combination with information on gross enrollment ratios in primary, secondary, and tertiary from 1980 to 1993 (UNESCO, 1995). These proportions of each educational category were then applied to the ESCWA (1995) age and sex structure.

For Syria, the information about the population by age, sex, and education was derived from three sources. The 1981 census provided detailed information on the educational attainment of the population divided by age group and by sex for age 15 years and above (CBS, 1981). The proportion of the population in each educational category was kept and applied to age groups 25 and above--approximately 10 years later--as estimated by ESCWA for 1994. The statistical abstract on enrollment in school from 1981 to 1993 provided information on the educational level of the population for people in the age groups up to 24 years of age (CBS, 1995b; Ministry of Education, 1991).

For the West Bank and Gaza Strip, the sample distribution of the population by educational levels was used to estimate the distribution of the 1994 population (PCBS, 1996).

The assumption has been made that children were born in the same educational categories as their mothers. Children are therefore affected differently by infant and child mortality rates, depending on the educational level of their mother. As developed in the analysis, surveys in Jordan, Lebanon, Syria, and the West Bank and the Gaza Strip have found large infant and under-five mortality differentials depending on the education of mothers. Children remain with their mothers' levels of education until they reach the age of five. They are then placed in the low level category of education where they remain until the age of 15, when first transitions occurred to higher levels of education--medium, high and advanced.¹⁰ More transitions occur in the 20-24 age group to the highest level of advanced education. Transition rates were based on most recent observed levels of school enrollments.

ESCWA's (1995) assessment of overall total and age-specific fertility rates was used for the base-year fertility for Jordan.¹¹ Differentials by women's education were based on the 1990 JPFHS (Department of Statistics, 1992). The observed differentials were applied to the national age-specific fertility rates, keeping the same shape of fertility age structure for all educational categories.

For Lebanon, preliminary results of the Maternal and Child Health Survey give figures on age-specific fertility rates. Provided, as well, are the average number of

¹⁰ It is logical that children in the age group 5-9 belong to the low-education group, because they have not yet completed the final grade of primary schooling (see definition in Table 4). However, they could already have reached some medium education and even higher education while in the age group 10-14. It was decided to classify the children of this age in the low education category to simplify the calculation of transitions. The definition of transition rates is rather problematic, because the five-year intervals usually do not correspond to schooling intervals. Grade repetition and school drop-outs complicate matters further. However, this approach does not affect projection results, since the population in the age group 0-14 is not affected in the assumptions by fertility or by mortality differentials according to levels of education.

¹¹ ESCWA's and the JPFHS's estimates of levels of TFR are quite far apart: 4.69 for 1994 and 5.67 for 1990, respectively. It was felt by the author, and in comparison with other Arab neighbor states, that the TFR had certainly diminished further and that the 1994 estimate by ESCWA was reasonable.

children born alive by education for women aged 45-49. These two figures can only give rough estimates of fertility differentials, especially considering changes in the age structure and levels of fertility in the last twenty years (Ministry of Health, 1996).

For Syria, fertility rates by age and sex were taken from the 1993 PAPCHILD survey (Central Bureau of Statistics, 1995a). Educational groups were arranged to fit the categories used in this research.

For the West Bank and the Gaza Strip, preliminary results for age-specific fertility rates and TFR from the Demographic Survey (PCBS, 1996) were used for the overall fertility levels and fertility age structure. The study provides as well the fertility levels by the highest grade completed; they serve in this research for the construction of fertility shapes for all educational categories.

The overall shapes of age-specific mortality rates were taken from ESCWA's assessment for the total male and female population of the four areas. As explained above, the only educational differential implemented was for children under the age of five, according to the mothers' educational levels. This was available from the JPFHS (Department of Statistics, 1992) for Jordan, from the PAPCHILD Survey (Central Bureau of Statistics, 1995a) for Syria, and from the Demographic Survey (PCBS, 1996) for the West Bank and the Gaza Strip. No data has been published for Lebanon, therefore the mortality and life expectancies by sex are kept identical in all educational categories.

The lack of accurate data on migration prompted the decision to have zero migration in all scenarios. The fertile crescent region has been experiencing considerable population movement internally as well as internationally. Most movements have happened suddenly, and have been concentrated within a few years. Although migration certainly influences the educational composition of the population, it was not included because so little information is available.

3.2. Assumptions

Three scenarios were defined that combine assumptions for all educational categories. Each scenario combines low, central and high assumptions on fertility, mortality, and education. Only three scenarios were selected for the analysis. The low scenario combines low fertility, low mortality, and high education assumptions; the central scenario combines central assumptions of fertility, mortality, and education; and the high scenario combines high fertility, high mortality, and low education assumptions.

The base-year parameters of each area remain the same in all three scenarios. The assumptions are summarized in Tables 5-8. Fertility and mortality educational differentials are kept at the same level throughout the projection periods with the exception of Lebanese fertility in the low and central scenario.¹²

¹² The fertility levels of the high and advanced group were maintained at the 1994 levels in the low and central scenario, whereas the fertility levels of the low and medium categories were reduced, hence reducing in these two cases the fertility differentials between low and medium education groups on the one hand, and high and advanced education groups on the other.

Table 5. Base-year parameters and scenario assumptions for Jordan, 1994-2044.

by year 2044				
	Base Year 1994	Low Scenario	Central Scenario	High Scenario
Fertility				
TFR:				
Total population	4.64	1.67	2.58	3.56
Low education	5.83	2.33	3.50	4.67
Medium education	5.06	2.02	3.04	4.05
High education	4.54	1.82	2.72	3.63
Advanced education	3.46	1.38	2.08	2.77
Mortality				
<i>Life expectancy (in years)</i>				
Male				
Total	64.6	79.8	74.7	69.6
Low education	64.3	79.3	74.3	69.3
Medium education	64.1	79.1	74.1	69.1
High education	64.6	79.6	74.6	69.6
Advanced education	65.6	80.6	75.6	70.6
Female				
Total	69.8	85.1	80.0	74.9
Low education	69.6	84.6	79.6	74.6
Medium education	69.3	84.3	79.3	74.3
High education	69.9	84.9	79.9	74.9
Advanced education	71.0	86.0	81.0	76.0
Educational attainment for age group 15-24 (in %)				
Low education				
Male	6.3	0.0	0.0	6.3
Female	11.0	0.0	0.0	11.0
Medium education				
Male	18.3	10.0	15.0	18.3
Female	15.9	10.0	15.0	15.9
High education				
Male	47.1	50.0	55.0	47.1
Female	43.8	50.0	55.0	43.8
Advanced education				
Male	28.3	40.0	30.0	28.3
Female	29.3	40.0	30.0	29.3

Low Scenario: low fertility/low mortality/high education

Central Scenario: central fertility/central mortality/central education

High Scenario: high fertility/high mortality/low education

Table 6. Base-year parameters and scenario assumptions for Lebanon, 1994-2044.

by year 2044				
	Base Year 1994	Low Scenario	Central Scenario	High Scenario
Fertility				
<i>TFR:</i>				
Total population	2.54	1.51	1.75	2.65
Low education	3.50	2.10	2.80	3.89
Medium education	2.80	1.68	2.20	3.11
High education	1.57	1.57	1.57	1.74
Advanced education	1.37	1.37	1.37	1.52
Mortality				
<i>Life expectancy (in years)</i>				
Male				
Total	72.54	87.54	82.54	77.54
Low education	-	-	-	-
Medium education	-	-	-	-
High education	-	-	-	-
Advanced education	-	-	-	-
Female				
Total	77.94	92.94	87.94	82.94
Low education	-	-	-	-
Medium education	-	-	-	-
High education	-	-	-	-
Advanced education	-	-	-	-
Educational attainment for age group 15-24 (in %)				
Low education				
Male	5.3	0.0	0.0	5.3
Female	5.4	0.0	0.0	5.4
Medium education				
Male	64.4	10.0	15.0	64.4
Female	58.9	10.0	15.0	58.9
High education				
Male	19.8	50.0	55.0	19.8
Female	27.5	50.0	55.0	27.5
Advanced education				
Male	10.5	40.0	30.0	10.5
Female	8.2	40.0	30.0	8.2

Low Scenario: low fertility/low mortality/high education

Central Scenario: central fertility/central mortality/central education

High Scenario: high fertility/high mortality/low education

Table 7. Base-year parameters and scenario assumptions for Syria, 1994-2044.

by year 2044				
	Base Year 1994	Low Scenario	Central Scenario	High Scenario
Fertility				
<i>TFR:</i>				
Total population	4.25	1.47	2.40	4.14
Low education	5.04	3.03	4.03	5.60
Medium education	3.60	2.16	2.88	4.01
High education	2.47	1.48	1.97	2.74
Advanced education	2.00	1.20	1.60	2.22
Mortality				
<i>Life expectancy (in years)</i>				
Male				
Total	67.7	83.1	78.0	72.9
Low education	67.4	82.4	77.4	72.4
Medium education	68.0	83.0	78.0	73.0
High education	68.3	83.3	78.3	73.3
Advanced education	68.3	83.3	78.3	73.3
Female				
Total	70.2	85.7	80.6	75.6
Low education	70.0	85.0	80.0	75.0
Medium education	70.7	85.7	80.7	75.7
High education	71.1	86.1	81.1	76.1
Advanced education	71.1	86.1	81.1	76.1
Educational attainment for age group 15-24 (in %)				
by 2014-19				
Low education				
Male	14.6	0.0	0.0	14.6
Female	32.0	0.0	5.0	32.0
Medium education				
Male	49.6	10.0	15.0	49.6
Female	40.1	10.0	15.0	40.1
High education				
Male	26.1	50.0	55.0	26.1
Female	20.8	50.0	50.0	20.8
Advanced education				
Male	9.7	40.0	30.0	9.7
Female	7.1	40.0	30.0	7.1

Low Scenario: low fertility/low mortality/high education

Central Scenario: central fertility/central mortality/central education

High Scenario: high fertility/high mortality/low education

Table 8. Base-year parameters and scenario assumptions for the West Bank and the Gaza Strip, 1994-2044.

	Base Year 1994	Low Scenario	Central Scenario	High Scenario
by year 2044				
Fertility				
<i>TFR:</i>				
Total population	6.24	2.24	2.88	3.74
Low education	7.00	2.80	3.50	4.20
Medium education	6.75	2.70	3.38	4.05
High education	6.00	2.40	3.00	3.60
Advanced education	4.72	1.90	2.36	2.83
Mortality				
<i>Life expectancy (in years)</i>				
Male				
Total	70.0	85.2	80.1	75.1
Low education	69.7	84.7	79.7	74.7
Medium education	69.7	84.7	79.7	74.7
High education	70.4	85.4	80.4	75.4
Advanced education	70.4	85.4	80.4	75.4
Female				
Total	73.5	88.7	83.6	78.6
Low education	73.3	88.3	83.3	78.3
Medium education	73.3	88.3	83.3	78.3
High education	73.9	88.9	83.9	78.9
Advanced education	73.9	88.9	83.9	78.9
Educational attainment for age group 15-24 (in %)		by 2014-19	by 2014-19	
Low education				
Male	8.0	0.0	0.0	8.0
Female	7.0	0.0	0.0	7.0
Medium education				
Male	24.0	10.0	15.0	24.0
Female	30.0	10.0	15.0	30.0
High education				
Male	60.0	50.0	55.0	60.0
Female	58.0	50.0	55.0	58.0
Advanced education				
Male	8.0	40.0	30.0	8.0
Female	5.0	40.0	30.0	5.0

Low Scenario: low fertility/low mortality/high education

Central Scenario: central fertility/central mortality/central education

High Scenario: high fertility/high mortality/low education

3.2.1. Low scenario

This scenario combines low fertility, low mortality, and high education. By 2014-19, Jordan, Lebanon, Syria, and the West Bank and the Gaza Strip all converge to the same levels of enrollment. Levels are then kept constant until 2044. All children of the areas concerned would at least reach a medium education by 2014-19. Fifty percent would achieve secondary education. There would be about 40.0 percent going into third-level studies. This high level of education stems from the relatively high levels of enrollment in all areas studied. Most governments have targeted the major issue to adjust the curricula and programs of community and vocational institutions to reflect market need. This increase could reflect the increase of students enrolling in vocational schools. This scenario foresees, as well, a total disappearance of the gender gap by 2014-19 at all levels of schooling.

Fertility and mortality levels are consistent with higher levels of education. All reach low levels by 2044. The fertility decrease in all educational categories is 1.0 percent annually for Lebanon and Syria (except for the high and advanced education categories in Lebanon, where fertility levels remain constant). The yearly decrease is 1.8 percent for Jordan and the West Bank and Gaza Strip. This brings the overall fertility level below replacement level--1.7 for Jordan, 1.5 for Lebanon, and 1.5 for Syria in 2044--and slightly above replacement level for the West Bank and the Gaza Strip (2.2). This assumption is realistic, considering the increase in levels of educational attainment that reach both urban and rural areas. In the analysis of the scenario results, it becomes clear that the overall fertility diminishes more than the fertility in all educational categories because of the changing weight of educational categories in the population. Because there is a higher proportion of the population in the group with high educational levels and low fertility levels, the overall TFR is closer to the fertility of this group.

Concerning mortality, it is assumed that all persons in all educational categories will gain three years of life expectancy per decade. The life expectancy at birth increases substantially and reaches 80-85 for males and 85-89 for females in 2044 for all areas. This assumption is consistent with the IIASA mortality assumption for the region of West and Central Asia (Lutz, 1996).

3.2.2. Central scenario

This scenario combines central assumptions of fertility, mortality, and education. This central path could be considered as the most likely, if current trends are prolonged over the next 50 years. School enrollment will increase substantially as in the low scenario. In a similar way, all children will achieve at least a medium education and 15 percent (10 percent in the low scenario) will remain at this level. Fifty-five percent (50 percent in the low scenario) will achieve a high education level and 30 percent (40 percent in the low scenario) an advanced education. For Syria, a 5 percentage-point enrollment gap was kept. Women still have 5 percent with low education (0 percent for men) and 50 percent have a high education (against 55 percent for men). This assumption was made because of the larger gender gap existing in the base year as compared to the other areas studied. The enrollment levels will be reached by 2014-19 for Jordan, Syria and the West Bank. For Lebanon, it will take the whole period, making the difference between the low and central scenarios larger in terms of total population results.

Fertility in all educational categories would decline yearly by a rate of 1.0 percent in Jordan, 0.5 percent in Syria and Lebanon, and 1.4 percent in the West Bank and the Gaza Strip between 1994 and 2044. Again, as in the low scenario, the overall fertility declines more than the fertility by educational categories. According to this scenario, only women with an advanced education achieve replacement fertility or below in all areas, as well in Lebanon and Syria for women with high education. The overall total fertility rate in 2044 is 1.8 in Lebanon, and between 2.4 and 2.9 in Jordan, Syria and in the West Bank and the Gaza Strip. This central variant assumes a two-year improvement per decade of the average life expectancy at birth during the period 1994-2044. Accordingly, life expectancy at birth in 2044 reaches 75 years for males and 80 years for females in Jordan, 82 and 88 in Lebanon, 78 and 81 in Syria, and 80 and 84 in the West Bank and the Gaza Strip for males and females, respectively.

3.2.3. High scenario

This scenario considers high assumptions for fertility, mortality and migration, and low assumptions for education. This would imply a deterioration of the present situation or stagnation at present levels in all fields. It was assumed that educational levels would remain constant at the 1994 levels. This means that Jordan and the West Bank and the Gaza Strip would maintain high levels of education. In Syria and Lebanon, the population would mostly achieve a medium education. The gender gap existing in the base year has been kept constant.

Consistent with low education assumptions, the premise is made that fertility is high but still lower than in the base year in all educational categories for Jordan and the West Bank (-0.4 annual rate), and slightly higher than in the base year for Lebanon and Syria (+0.2 annual rate). Mortality declines slightly; the life expectancy at birth increases by one year per decade. The resulting life expectancy at birth in 2044 is between 70 and 77 years for males and between 75 and 79 years for females in 2044.

4. Analyses of Projection Results

The projections for Jordan, Lebanon, Syria, and the West Bank and the Gaza Strip were carried out over a 50-year period from 1994 to 2044. Table 9 shows the base-year values and scenario results of population, mean age, percentages of the 0-14 and 60+ age groups in the total population. Tables 10-13 show the percentages of male, female, and total population by levels of education in each area. Figures 11 to 14 show the age pyramids of the selected areas in the base year and at the end of the projection period in all three scenarios.

Table 9. Base-year parameters in 1994 and scenario results in 2044 under high, central and low assumptions for fertility, mortality, migration, and education, Jordan, Lebanon, Syria, and the West Bank and the Gaza Strip.

Area	1994	Low Scenario	Central Scenario	High Scenario
Population in 1, 000				
Jordan	4,058	10,655	12,194	13,880
(AAGR)		(1.95)	(2.23)	(2.49)
Lebanon	3,481	5,756	6,007	6,767
(AAGR)		(1.01)	(1.10)	(1.34)
Syria	13,734	32,583	39,088	50,116
(AAGR)		(1.74)	(2.11)	(2.62)
West Bank	2,239	9,207	10,146	11,322
(AAGR)		(2.87)	(3.07)	(3.29)
Mean age in years				
Jordan	22.4	34.9	31.2	28.0
Lebanon	27.0	44.2	41.5	36.8
Syria	21.9	36.2	31.7	26.6
West Bank	21.2	30.2	28.0	25.7
Percentage of 0-14 age group in total population				
Jordan	41.4	21.5	28.1	34.1
Lebanon	33.2	14.5	17.2	23.9
Syria	49.1	19.4	27.0	37.2
West Bank	47.5	28.1	32.3	37.2
Percentage of 60+ age group in total population				
Jordan	4.2	15.3	12.1	9.4
Lebanon	7.8	29.4	25.9	20.7
Syria	6.4	15.4	11.7	8.2
West Bank	5.5	10.2	8.4	7.0

Low Scenario: low fertility/low mortality/high education

Central Scenario: central fertility/central mortality/central education

High Scenario: high fertility/high mortality/low education

AAGR: average annual growth rate

Table 10. Population by level of education in Jordan.

	1994	2044		
		Low Scenario	Central Scenario	High Scenario
<i>Male</i>				
Low education	40.7	17.3	20.6	28.0
Medium education	15.4	11.0	13.4	14.5
High education	30.1	43.7	44.8	38.4
Advanced education	13.8	28.0	21.2	19.0
<i>Female</i>				
Low education	47.8	18.2	21.2	31.1
Medium education	13.4	10.6	13.0	13.0
High education	27.4	43.1	44.3	35.9
Advanced education	11.4	28.2	21.4	19.9
<i>Total</i>				
Low education	44.1	17.8	20.9	29.6
Medium education	14.5	10.8	13.2	13.8
High education	28.8	43.4	44.5	37.2
Advanced education	12.6	28.1	21.3	19.5

Low Scenario: low fertility/low mortality/high education

Central Scenario: central fertility/central mortality/central education

High Scenario: high fertility/high mortality/low education

Table 11. Population by level of education in Lebanon.

	1994	2044		
		Low Scenario	Central Scenario	High Scenario
<i>Male</i>				
Low education	54.3	14.4	16.6	21.9
Medium education	29.1	26.7	36.3	52.1
High education	11.0	36.0	32.4	17.7
Advanced education	5.5	22.9	14.7	8.3
<i>Female</i>				
Low education	56.6	15.7	17.6	22.4
Medium education	27.7	25.9	34.5	48.3
High education	10.4	36.4	34.4	22.3
Advanced education	5.2	22.0	13.5	7.0
<i>Total</i>				
Low education	55.5	15.1	17.1	22.1
Medium education	28.4	26.3	35.4	50.1
High education	10.7	36.2	33.4	20.1
Advanced education	5.4	22.4	14.1	7.7

Low Scenario: low fertility/low mortality/high education

Central Scenario: central fertility/central mortality/central education

High Scenario: high fertility/high mortality/low education

Table 12. Population by level of education in Syria.

	1994	2044		
		Low Scenario	Central Scenario	High Scenario
<i>Male</i>				
Low education	63.5	18.4	26.2	39.1
Medium education	18.3	17.9	24.9	35.9
High education	13.8	39.7	36.0	21.2
Advanced education	4.4	24.0	12.9	3.8
<i>Female</i>				
Low education	75.8	23.9	35.0	50.4
Medium education	12.4	15.0	21.2	29.8
High education	9.6	37.9	32.0	17.2
Advanced education	2.3	23.1	11.8	2.6
<i>Total</i>				
Low education	69.5	21.2	30.6	44.8
Medium education	15.4	16.4	23.0	32.8
High education	11.7	38.8	34.0	19.2
Advanced education	3.4	23.6	12.4	3.2

Low Scenario: low fertility/low mortality/high education

Central Scenario: central fertility/central mortality/central education

High Scenario: high fertility/high mortality/low education

Table 13. Population by level of education in the West Bank and the Gaza Strip.

	1994	2044		
		Low Scenario	Central Scenario	High Scenario
<i>Male</i>				
Low education	43.1	21.3	23.3	30.9
Medium education	17.1	10.5	13.2	19.1
High education	31.9	43.7	45.1	45.2
Advanced education	7.9	24.5	18.4	4.9
<i>Female</i>				
Low education	48.9	21.5	23.4	30.4
Medium education	16.3	11.2	13.8	22.7
High education	29.5	43.4	44.7	43.5
Advanced education	5.3	23.9	18.0	3.5
<i>Total</i>				
Low education	46.0	21.4	23.4	30.6
Medium education	16.7	10.8	13.5	20.9
High education	30.7	43.6	44.9	44.3
Advanced education	6.6	24.2	18.2	4.2

Low Scenario: low fertility/low mortality/high education

Central Scenario: central fertility/central mortality/central education

High Scenario: high fertility/high mortality/low education

Figure 11.1. Population of Jordan, 1994.

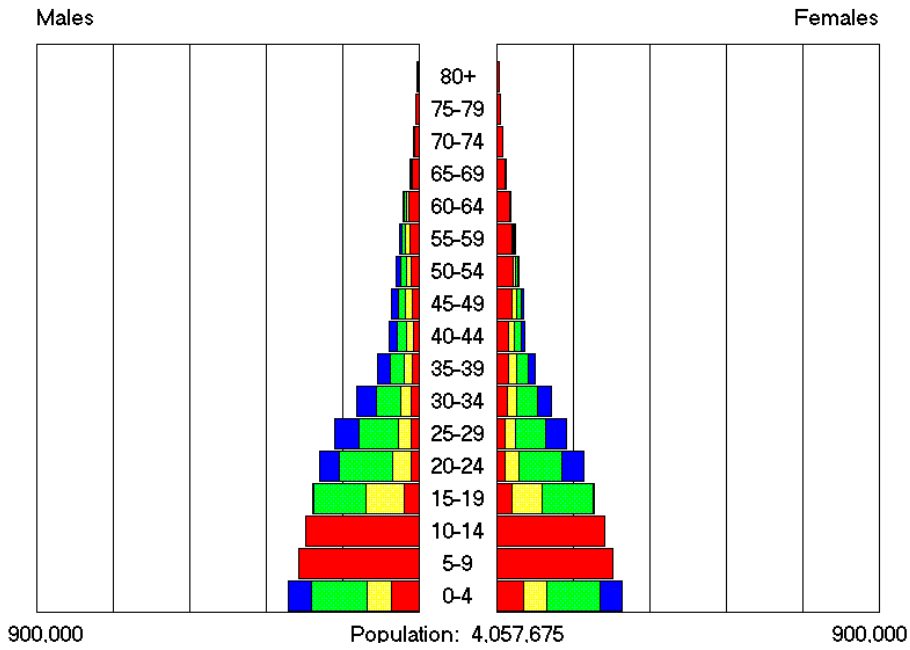


Figure 11.2. Population projection of Jordan, low scenario (low fertility, low mortality, and high education), 2044.

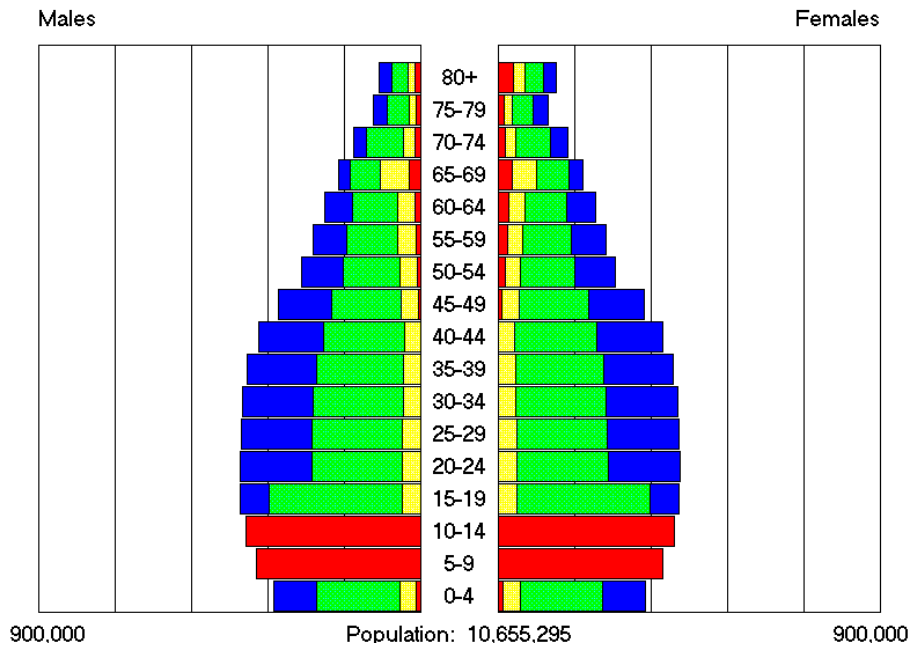


Figure 11.3. Population projection of Jordan, central scenario (central fertility, central mortality, and central education), 2044.

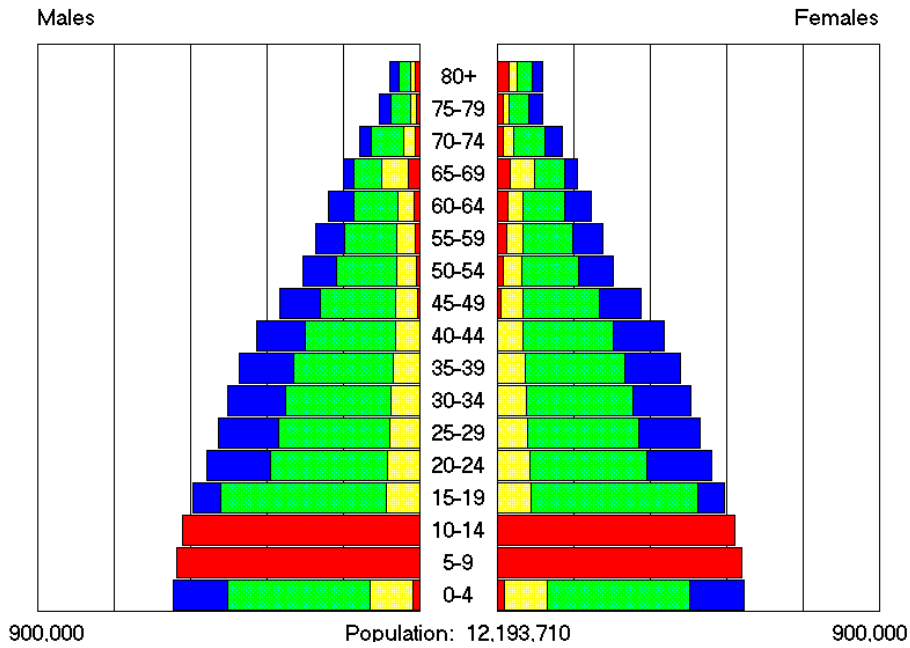


Figure 11.4. Population projection of Jordan, high scenario (high fertility, high mortality, and low education), 2044.

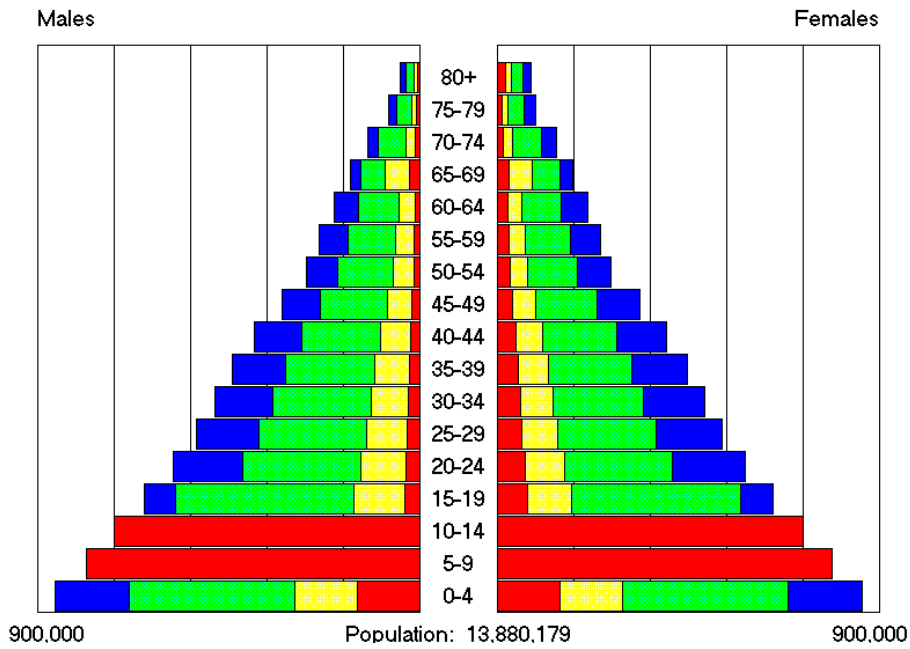


Figure 12.1. Population of Lebanon, 1994.

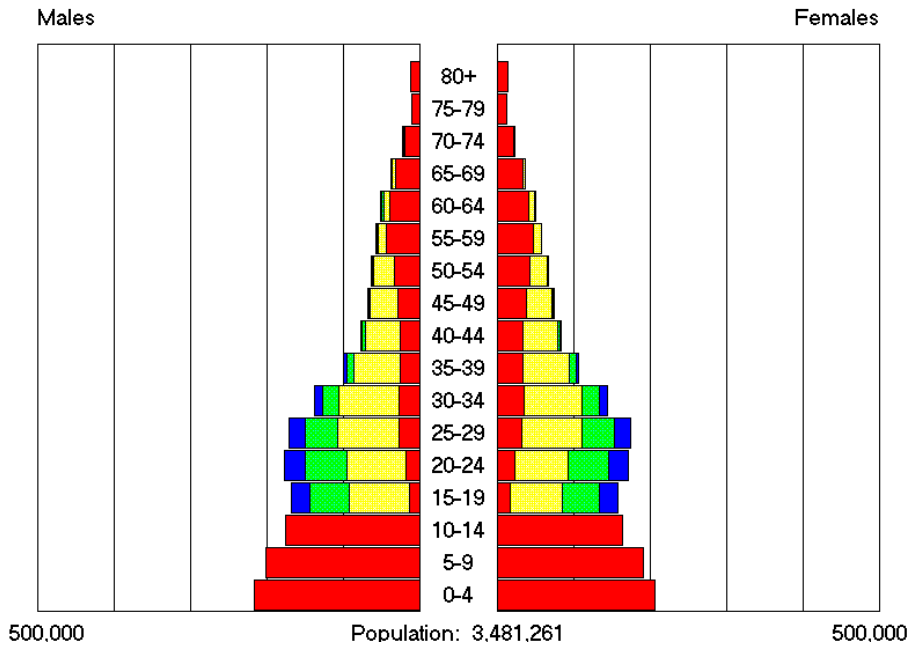


Figure 12.2. Population projection of Lebanon, low scenario (low fertility, low mortality, and high education), 2044.

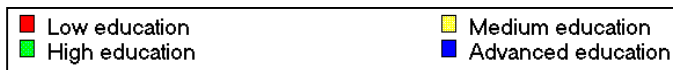
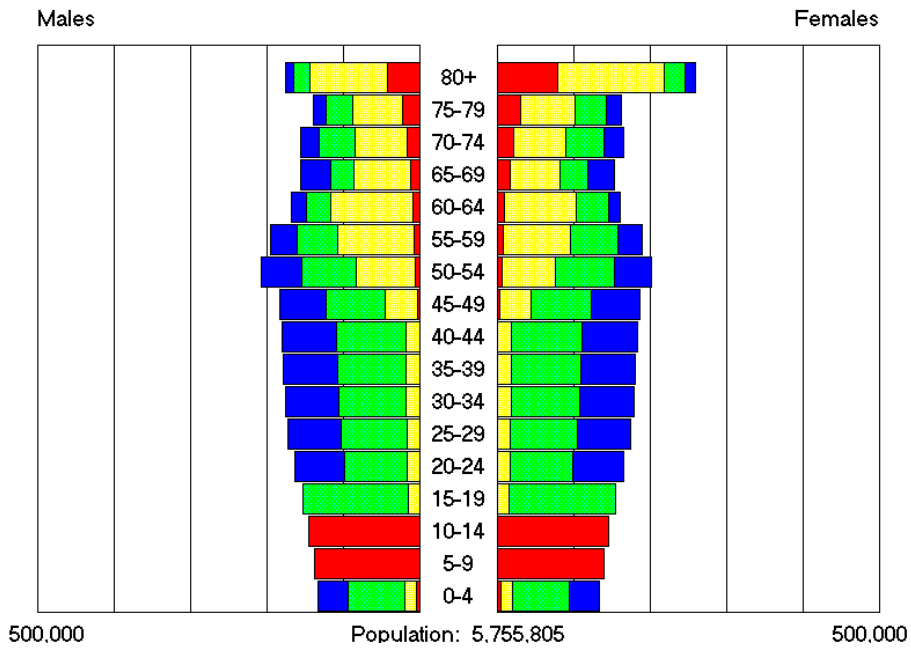


Figure 12.3. Population projection of Lebanon, central scenario (central fertility, central mortality, and central education), 2044.

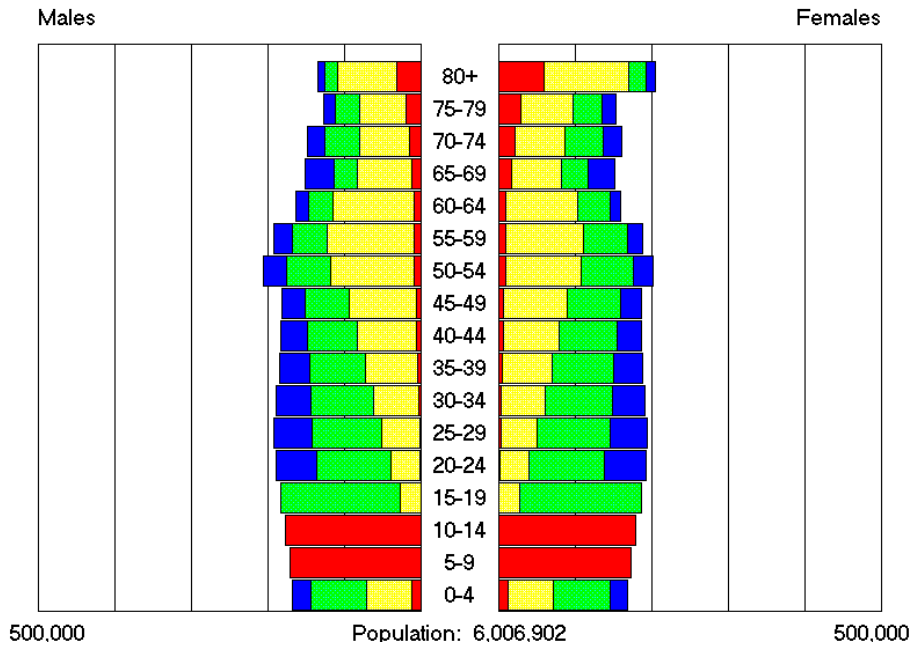


Figure 12.4. Population projection of Lebanon, high scenario (high fertility, high mortality, and low education), 2044.

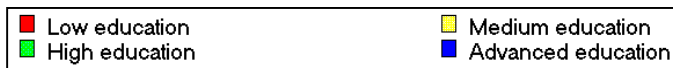
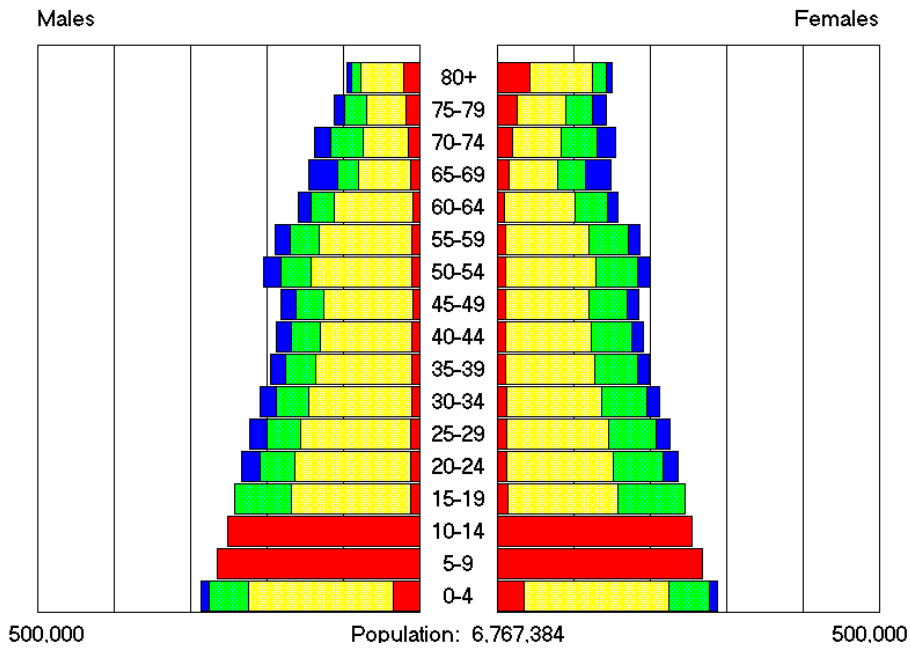


Figure 13.1. Population of Syria, 1994.

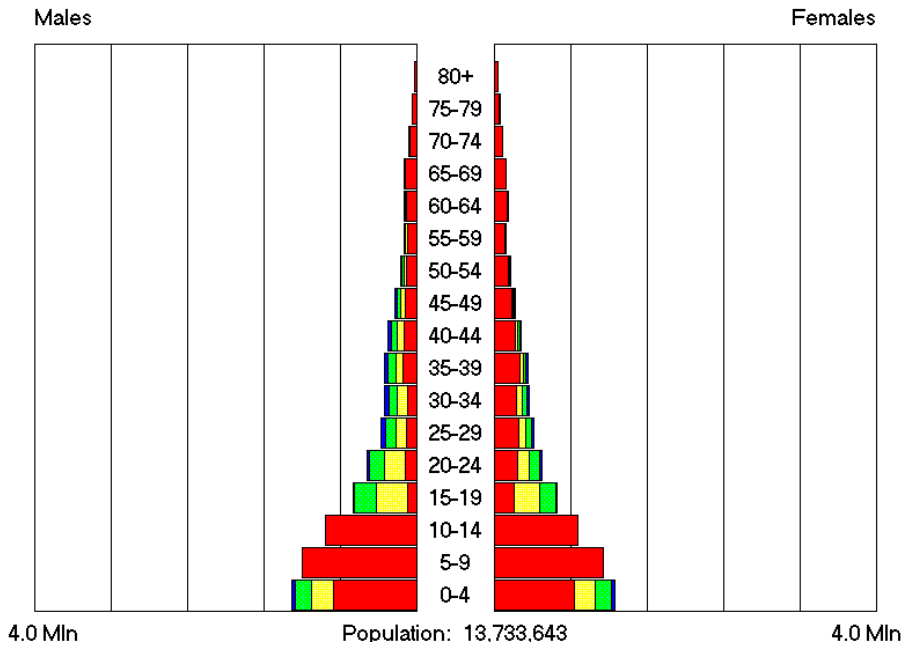


Figure 13.2. Population projection of Syria, low scenario (low fertility, low mortality, and high education), 2044.

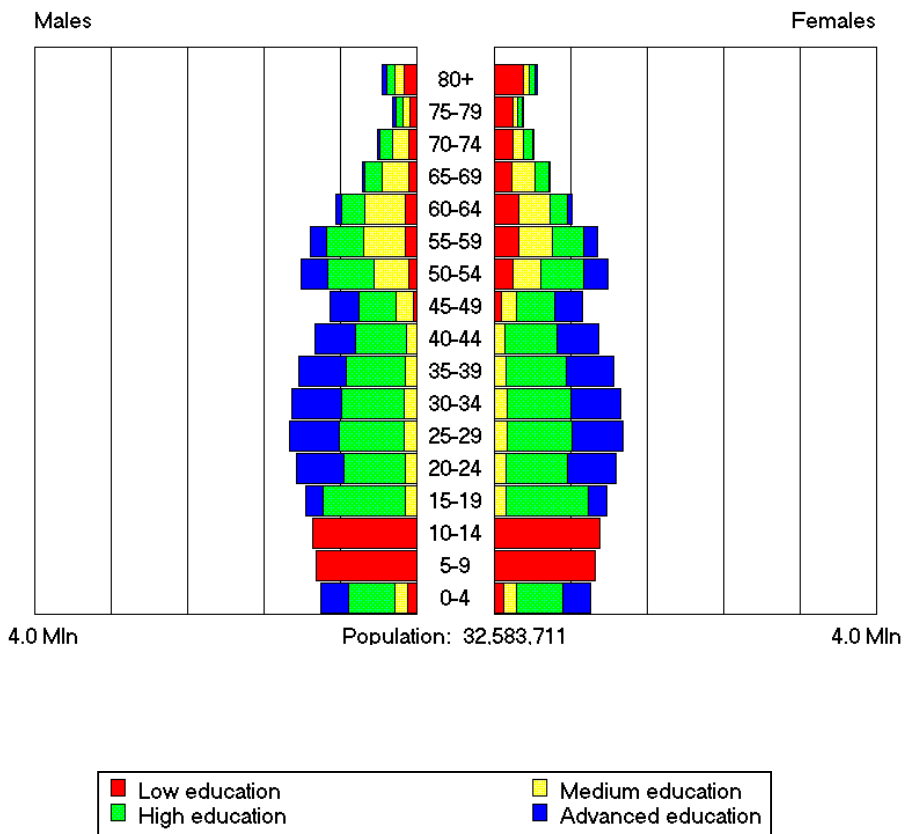


Figure 13.3. Population projection of Syria, central scenario (central fertility, central mortality, and central education), 2044.

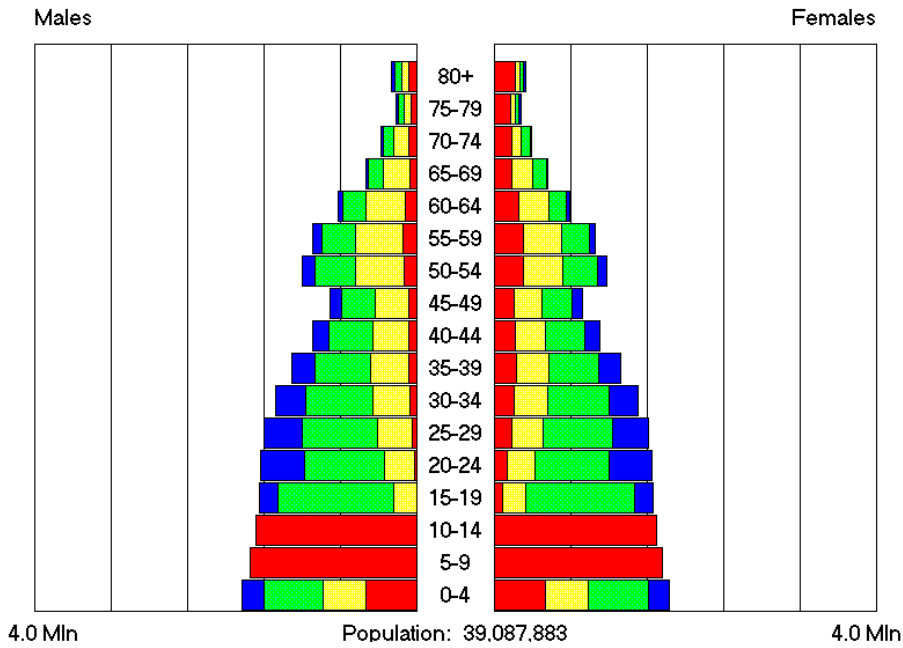


Figure 13.4. Population projection of Syria, high scenario (high fertility, high mortality, and low education), 2044.

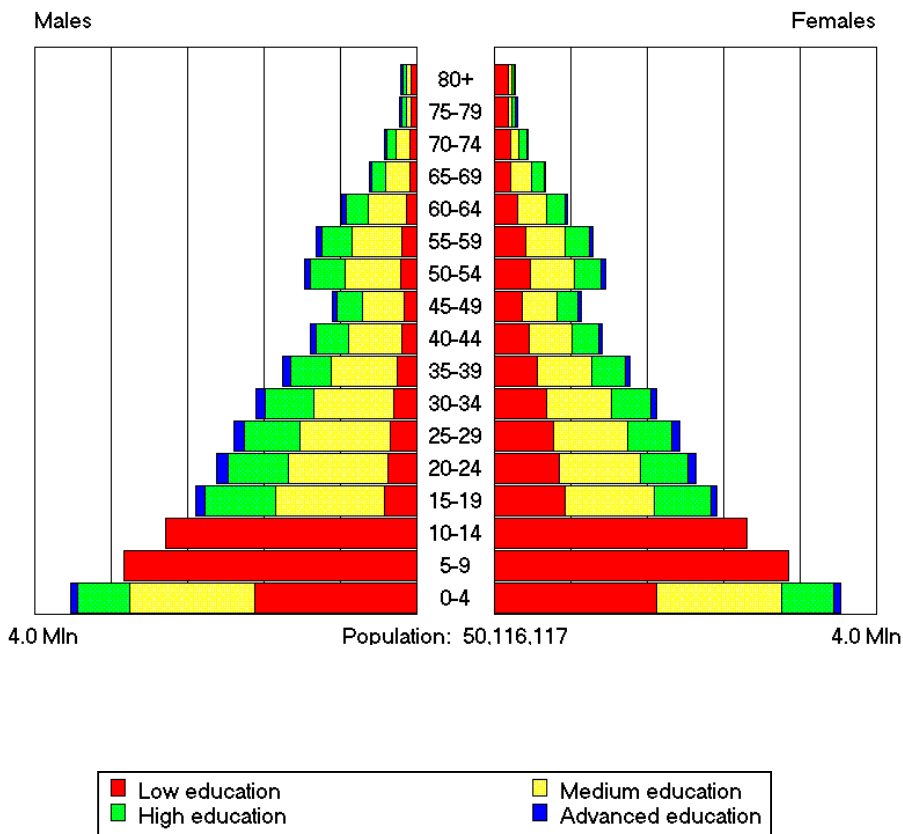


Figure 14.1. Population of the West Bank and the Gaza Strip, 1994.

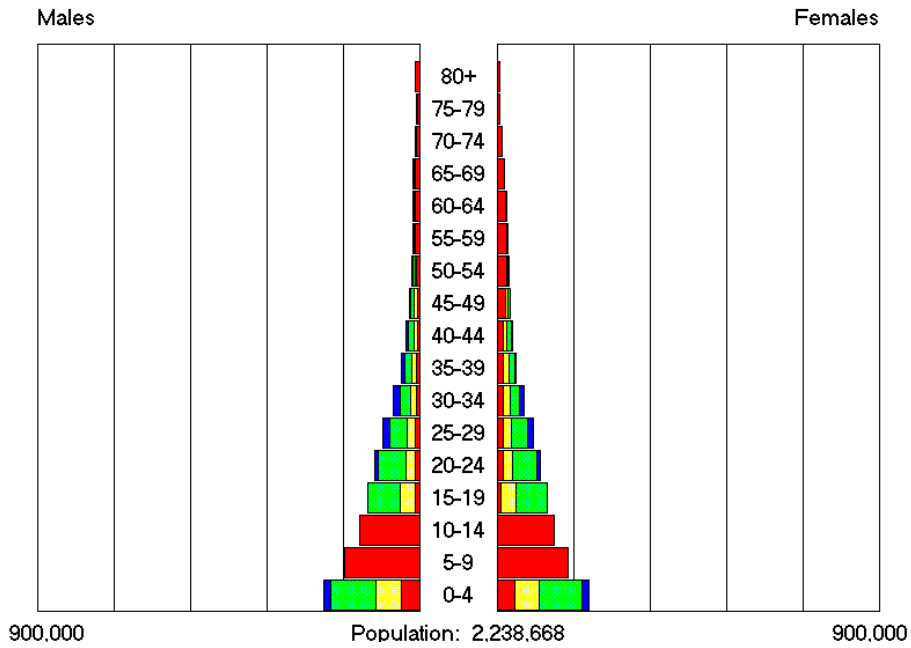


Figure 14.2. Population projection of the West Bank and the Gaza Strip, low scenario (low fertility, low mortality, and high education), 2044.

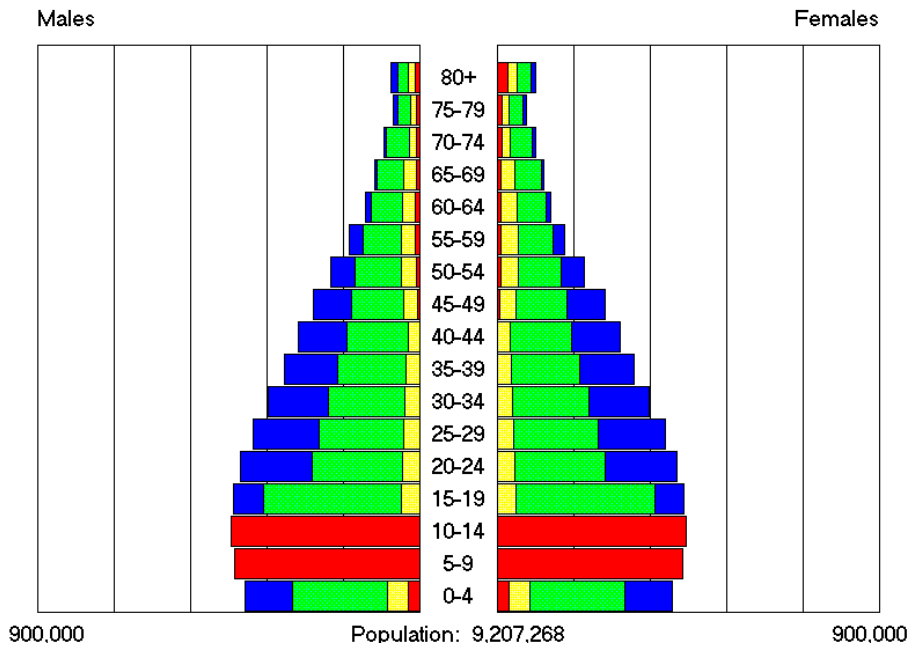


Figure 14.3. Population projection of the West Bank and the Gaza Strip, central scenario (central fertility, central mortality, and central education), 2044.

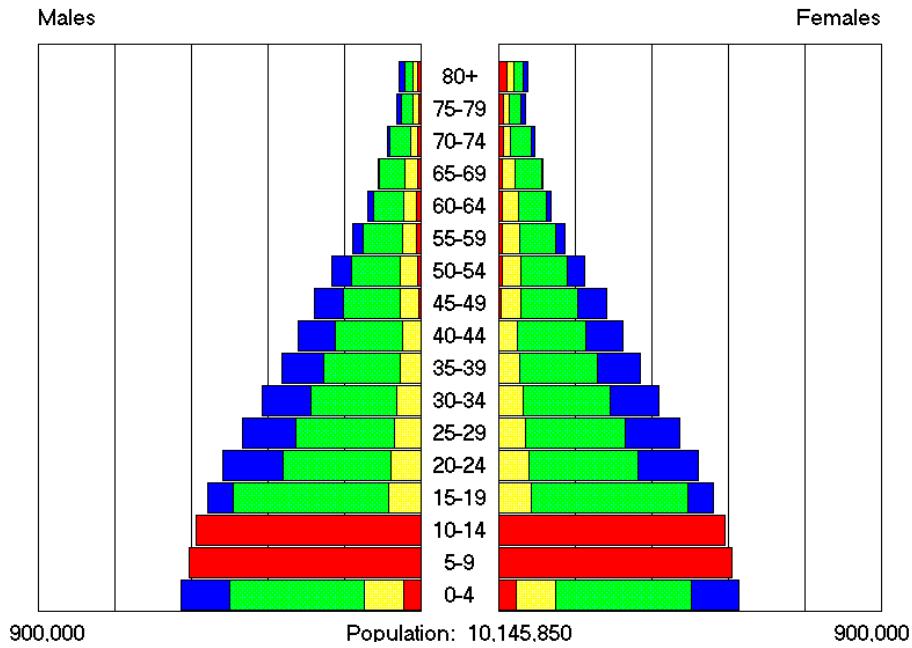
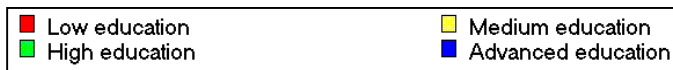
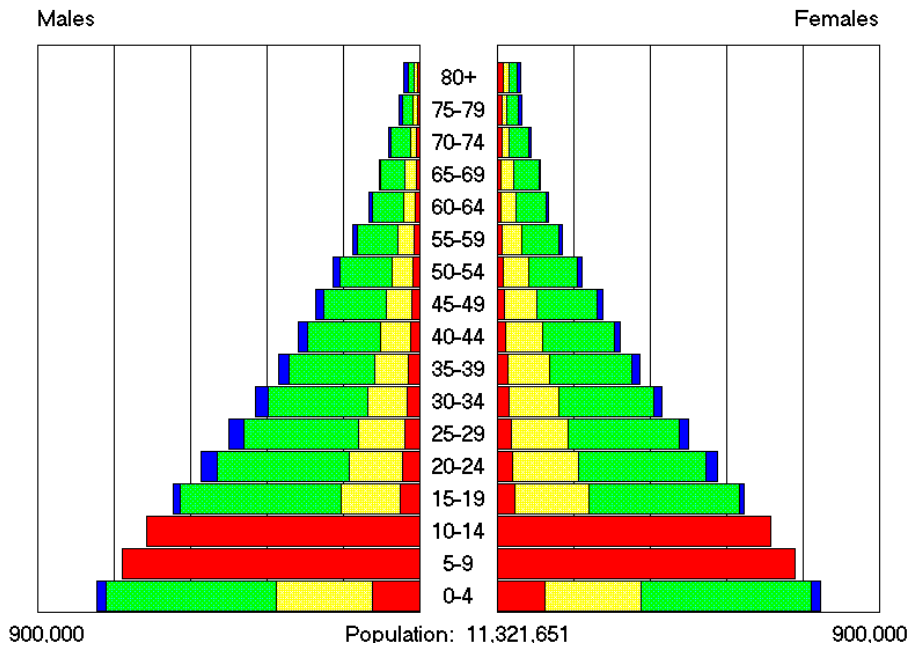


Figure 14.4. Population projection of the West Bank and the Gaza Strip, high scenario (high fertility, high mortality, and low education), 2044.



4.1. Population size

The population will continue to grow rapidly in Jordan, Syria and the West Bank and the Gaza Strip for a long time. The low, central and high scenarios for Jordan show a total population of 10.7, 12.2, and 13.9 million persons, respectively, by 2044 compared with a total population of 4.1 million in 1994. For Syria, the population would grow from 13.7 in 1994 to 32.6, 39.1, and 50.1 according to the low, central and high scenarios, respectively. The West Bank and the Gaza Strip will witness some even more extreme growth: from 2.2 million in the base year to 9.2 million in the low scenario, 10.1 million in the central scenario, and 11.3 million in the high scenario in 2044. In comparison with the three examples before, Lebanon would experience a lower rise of its population size: from 3.5 million in 1994 to 5.8 in the low scenario, 6.0 in the central scenario, and 6.8 in the high scenario in 2044.

Even under the low scenario, which combines very rapid fertility declines and rapid educational improvements, the West Bank and the Gaza Strip more than quadruple in population size in the fifty years of the projection period. The implications of the 'certainty' of this increase in population growth could have tremendous economic, social, and environmental implications for these two areas. It is also of importance for the neighboring countries, especially Israel and Jordan, as well as Lebanon, with potential migration associated with such population growth. Under less favorable conditions (central and high scenarios), the rate of growth is, of course, even more important. It would grow at an average annual growth rate of 3.1 percent under the central scenario, and 3.3 percent under the high scenario, which would mean that the population would be multiplied by five within the next 50 years. In the base year, the West Bank and the Gaza Strip count 1.1 million less than Lebanon. It would be 4.5 million more than Lebanon in 2044 under the high scenario, 4 million under the central scenario, and 3.5 million under the low scenario.

Jordan and Syria constitute an intermediate case between Lebanon and the West Bank and Gaza. The two countries grow to 2.5 times their present size under the low scenario. The central scenario, which gives the most likely path under current conditions, implies a tripling of the population of Jordan and almost a tripling of the population of Syria. The largest growth gap between the two countries is due to the fertility assumptions. The high scenarios give extremely high population growth. Jordan would grow at an average annual rate of more than 2.5 percent per year, again, due partly to high levels of fertility with stagnating levels of educational attainment. With almost 13.9 million in 2044, the population would more than triple during the next 50 years. Syria would grow substantially as well and would almost quadruple its size by 2044. The average annual rate of growth would be 2.6 percent, slightly higher than Jordan, due to increasing fertility and constant enrollment rates at lower levels than Jordan.

Lebanon will remain a country of low population growth. Even under the assumptions of increasing fertility and stagnating enrollment levels, the population increases at an average annual growth rate of only 1.3 percent. This would mean almost a doubling of the present population during the projection period. Under the central scenario, the rate of growth is 1.1 percent and only 1.0 percent under the low scenario.

The difference in population size between the scenarios is relatively small. It is 4 to 12 percent between the low and central scenarios, and 5 to 14 percent between the

central and high scenarios for Jordan, Lebanon, and the West Bank and the Gaza Strip. The difference is much larger in the case of Syria: 17 percent smaller population in the low scenario as compared to the central scenario; and 28 percent larger in the high scenario as compared to the central scenario. This result can be explained by the large differentials in fertility levels that were assumed in the case of Syria, as was found in the 1993 PAPCHILD Survey. When large groups of women move to higher levels of education and adopt lower fertility patterns, it will have a ‘snowball effect’ and induce greater fertility and population decline to that which could have been assumed. The contrary happens as well, when large groups of women achieve only low educational attainment levels, in combination with fertility rise in these groups (as is the case in the high scenario). The so-called ‘snowball effect’ will have the inverse effect and induce larger population increase.

4.2. Age structure

Under all three scenarios, the proportion of the population in the young age group would fall considerably (Table 14 and Figures 11 to 14). It would be, at the most, 37 percent for Syria and the West Bank under the high scenario, from levels of 49 and 48 percent in 1994. For Jordan, the 0-15 age group would fall from 41 percent in 1994 to 34 percent in 2044 under the low scenario. The large reproduction rate in the West Bank and the Gaza Strip would maintain a large young age group in the two other scenarios as well: 28 percent and 32 percent, respectively, in the low and central scenarios in 2044. For Jordan and Syria, the low and central scenario show about 20 percent and 28 percent for both countries in 2044. In Lebanon, population aging would be more obvious under all three scenarios. The proportion of the population in the 0-14 age group would decline from 33 percent in 1994 to 15, 17, and 24 percent, respectively, under the low, central, and high scenarios.

Table 14. Comparison between the assumptions of annual rate of fertility decline in each education categories (E TFR) and the resulting rate of decline of the overall fertility level (O TFR), Jordan, Lebanon, Syria, the West Bank and the Gaza Strip, 1994-2044.

	Low scenario		Central scenario		High scenario	
	OTFR	ETFR	OTFR	ETFR	OTFR	ETFR
Jordan	-2.02	-1.80	-1.17	-1.01	-0.60	-0.44
Lebanon	-1.03	-1.00	-0.74	-0.50	+0.08	+0.2
Syria	-2.10	-1.00	-1.14	-0.45	-0.05	+0.20
West Bank and Gaza Strip	-2.03	-1.80	-1.53	-1.40	-1.02	-1.00

It is most likely that rapid aging of the population will not be a problem for Jordan, Syria, and the West Bank and the Gaza Strip, at least within the next 50 years. Even under the low fertility scenario, the proportion above age 60 is only 10-15 percent for these areas. It is below 10.0 percent under the high scenario, and between 8 and 12 percent in the central scenario.

Present mortality rates and possible further improvements in life expectancies at birth for both sexes make rapid aging almost certain in Lebanon for the next fifty years. Whereas the proportion of elderly in the population was only 8 percent in 1994, it reaches 29 percent under the low scenario, 26 percent under the central scenario and 21 percent under the high scenario.

The mean age reflects the trends observed in the proportion of the population in the younger and elderly age group. In the West Bank and the Gaza Strip, it would increase slightly from 21 years in 1994 to 26-30 years (all three scenarios considered). The mean would rise from 22 years in 1994 to 28-35 years in 2044 in Jordan, and from 22 years in 1994 to 27-36 years in Syria. Because of rapid aging, the mean age would increase from 27 years in 1994 to 37-44 years in 2044 in Lebanon.

4.3. Educational composition

Tables 10-13 summarize the levels of education attained by the population of Jordan, Lebanon, Syria, and the West Bank and the Gaza Strip in the base year and in 2044 according to the three scenarios. Visualization of the educational composition of the population is made easier by the age pyramids in Figures 11 to 14.

All scenarios for all areas show a substantial decline in the percentage of the population with a low education (no schooling or primary school not completed--see Table 1). Under the low scenario, the percentage of the population with no schooling is not more than half the percentage in the base year in Jordan and the West Bank and the Gaza Strip. It is even reduced more than three times in the case of Lebanon (almost four times) and Syria. Under the central scenario, the proportion of the population with a low education is much reduced as well, by half in the case of Jordan, Syria, the West Bank and the Gaza Strip, by three in the case of Lebanon.

Under the high scenario, which envisages a stagnation of enrollment rates at base year levels, the proportion of the population with less than primary education is reduced considerably: from 44-70 percent in 1994 to 22-45 percent in 2044. No enrollment increase is foreseen in this scenario. The educational improvements reflected under this scenario demonstrate the efforts realized in the last decades by all areas: the future education distribution of the population is a translation of present enrollment rates with a certain time lag. This is an important result that is linked to the fact that education has a long momentum; this can have a positive and a negative effect. The positive effect is that the level of education of any population cannot be taken away. If enrollment decreases, the generations that were educated before this decrease was implemented will keep their educational level all their life time, so that the level of education of the labor force, for instance, will not suffer immediately from this backlash, as can be seen from the high scenario. Unfortunately, the contrary is also true. When levels of enrollment increase, it will take a lifetime until these changes are reflected in the whole population, and about 40 years until they affect the complete labor force.

This last point can be seen from the percentage of the population with a low education. The scenario assumes that all children will receive at least a medium education (more than primary) by 2014-19 in the low scenario. However, it can be seen from the age pyramids that although this improvement has reached the younger part of the population, there are still 14-21 percent of the men and 16-24 percent of the women

with low education. These same figures also show that the momentum applies to the gender gap as well in enrollment rates that have disappeared since 2014-19 but has not yet been translated in the educational level of the total population.

The population of Jordan and the West Bank and the Gaza Strip under all scenarios keep high educational levels as a result of past efforts. The proportion with a high education would be between 38 and 45 percent for males, and 36-45 percent for females in 2044 for both areas. In Jordan, moreover, 20 percent or more would have an advanced education in the low, central and high scenarios; 24 and 18 percent, respectively, under the low and central scenarios for the West Bank and the Gaza Strip in 2044; but only 3.2 percent in the high scenario as a result of low levels of enrollment in tertiary education in the base year. The gender gap is not significant at any level in all scenarios for both areas.

The situation is more of a contrast in Lebanon and Syria. Under the low and central scenarios, the majority of the population would have a secondary education and above, with still 26 (low) and 35 (central) percent with only a medium education in Lebanon and 15 and 21 percent in Syria. Under the high scenario, more than 50 percent of the total population would achieve medium education in Lebanon and 33 percent in Syria. Lebanon did not have a substantial gender gap in the base year and, therefore, it is kept very small during the projection exercise. The gender gap is insignificant under the low scenario in Syria. It is quite important under the central and the high scenarios: 26 percent of the male population with a low education against 35 percent of females under the central scenario.

Another interesting point is the impact of changes in enrollment levels on the overall level of fertility. As explained in Section 3.2, a certain rate of annual decrease/increase was applied to fertility in each education group. It is interesting to compare this rate to the rate by which the overall fertility declines.

In all scenarios and for all areas, the overall fertility rate declines at a higher rate than the fertility in each education category. The difference is striking, especially in the case of Syria, where, in the low scenario, an annual rate of 1.0 percent is applied to each education category and overall fertility declines at a rate of 2.1 percent per year. As well in the central scenario, there is a 0.7 percentage-point difference between the ETFR and the OTFR. This difference stems from the significant increase in female school enrollment between 1994 and 2014-19 in the low and central scenarios. In 1994, 76 percent of the female population had low education and 12 percent a medium education. In 2044, according to the low scenario (high education) women with a medium education or below will only represent 39 percent of the population, and 61 percent will have achieved a high education or advanced education. The fertility rates of these two educational groups is 1.82 and 1.38. The transition of more and more women to these highly educated groups will influence the relative weight of each educational category and trigger lower national fertility rates than were expected.

This fertility decline will take place anyway, as can be seen from the results of the high scenario. This scenario assumes that enrollment stabilizes at the 1994 levels. In the case of Jordan and Syria, it was assumed that the fertility in all education categories would increase, and for the other two areas, the fertility is assumed to decline slightly. The result of this scenario on the overall fertility is still a higher decline of the overall fertility rate as compared to the rate of decline in the educational categories. As shown

earlier, this result is consistent with the past educational efforts of the areas studied, which are kept as an asset during the projection period.

5. Conclusion

This study demonstrates the importance of studying the relationships between population and education. In the first part of the study, through the recent surveys of demographic and education trends, it was shown that education seemed to condition many variables related to population, e.g., the number of children born to women, the age at first birth, the space between births, the age at marriage for men and women, and the mortality of infants and children. Even in the case of the West Bank and the Gaza Strip, where the overall fertility is very high, the presence of high fertility differentials could be observed: a difference of more than three children born to women with the lowest level of education as compared to those born to women with the highest level of education.

On the basis of the analysis presented in the first part, some assumptions were derived for the projection of the population of Jordan, Lebanon, Syria, the West Bank and the Gaza Strip. The second part of the study revealed that education could influence the rate of population growth by changing the weights of the educational categories. Population growth is almost certain in Jordan, Syria, the West Bank and the Gaza Strip. However, changes in levels of enrollment could trigger lower population results as were projected for instance by the United Nations.

This study, as well as the research done by Yousif et al. (1996) on Algeria, Egypt, Libya, Morocco, Sudan, and Tunisia shows the benefits of including the educational dimension when doing population projections. These two studies have shown, as well, the feasibility of doing population projection with explicit consideration of levels of enrollment and educational attainment. The data is available for many countries and the methodology is established.

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