

DEMOGRAPHY OF THE WORLD'S REGIONS: SITUATION AND TRENDS

A new Chronicle in *Population*

Last year, Population presented the first edition of a new chronicle on the demography of the world's regions. The purpose of this chronicle is to provide readers with a broad overview of demographic trends and to present a comprehensive set of reliable, documented statistical series. Drawing largely on social, geographical, economic and epidemiological data, the chronicle aims to identify the specific features of demographic change in each of the world's regions.

After presenting the demography of sub-Saharan Africa in 2004, Dominique TABUTIN and Bruno SCHOUMAKER (Université catholique de Louvain) focus this year on the Arab world and the Middle East. With reports on Latin America and the Caribbean, South and East Asia, Europe and North America over the coming years, Population will circle the world. The first chronicles include a historical overview and a detailed discussion of sources.

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The Demography of the Arab World and the Middle East from the 1950s to the 2000s

A Survey of Changes and a Statistical Assessment

Dominique TABUTIN* and Bruno SCHOUMAKER*

This second *Population* chronicle on the demography of the world's regions⁽¹⁾ is devoted to a vast area spreading from Morocco to Turkey, and including Iran and Iraq. The twenty countries covered, many of which are in the political and economic spotlight⁽²⁾, occupy almost 12 million square kilometres and had around 421 million inhabitants in 2005. These countries are linked by their past and by their present. For this reason, we preferred to group them together rather than focus exclusively on the Arab world (excluding Israel, Iran and Turkey) or on the Mediterranean basin (excluding the seven countries of the Arabian Peninsula, Jordan, Iran and Iraq). Though Islam is the dominant religion⁽³⁾ throughout the region, with the exception of Israel of course, the different countries present highly contrasting economic and social situations: they include some of the world's richest countries (the oil and gas producers), but also some of the poorest (Yemen and Palestine). The region is also culturally diverse, with numerous religious and ethnic minorities (Berbers in North Africa, Nubians in Egypt, Kurds, Armenians and Turkmens in Syria, Iraq and Turkey).

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(1) Following the chronicle by the same authors on sub-Saharan Africa, *Population-E*, 2004, no. 3-4, pp. 457-556. Latin America and the Caribbean will be covered in 2006.

(2) We cannot dwell upon the often complex political history of these countries, or upon the recent tensions and conflicts affecting the region. For further information, see the books by Balencie and de La Grange (1996 and 2005) for example.

(3) With two major branches: Sunni Islam (the majority of Muslims in the region) and Shia Islam, along with several other smaller branches (Zaidi, Alawite, Druze, etc.). The eight to nine million Christians (13 different rites) live mainly in Lebanon, Egypt, Syria and Jordan. The Jewish communities of the past have practically disappeared from the Arab countries. For a historical overview, see the books by Boustani and Fargues (1990) or Courbage and Fargues (1992) for example.

Translated by Godfrey Rogers, Jonathan Mandelbaum, Catriona Dutreuilh.

For many years, population growth in this Arab and Muslim world was very rapid, due to early and intense nuptiality and very high marital fertility. But globally speaking, the last twenty years have seen the onset of fertility transition in the region which, though beginning later than elsewhere, has generally advanced at a faster pace⁽⁴⁾. This being said, much like in other regions of the world, the speed of change varies from one country or sub-region to another, reflecting the many differences in political regimes, in social and demographic priorities and in economic systems, and the effects of the many "crises" that have hit the region over the last fifty years⁽⁵⁾. In many countries, large segments of the population still face insecurity and poverty.

This chronicle has two objectives. The first is to present readers (demographers or otherwise) with the most reliable, comparable and recent data on changes since 1950 and on the current characteristics of the population of each country. They are summarized in the statistical appendix, in 15 large tables corresponding to each of the topics covered in the text. The second objective is to establish a broad overview and pinpoint key trends in the region. Information is often summarized in small tables and graphs.

The map gives the geographical location of the 20 countries and their grouping into three sub-regions: North Africa (5 countries), the Arabian Peninsula (7 countries) and the Middle East (8 countries)⁽⁶⁾. This is the grouping used in the statistical appendix and in the text.

We will begin with a brief overview of the socioeconomic situation in the region compared with other areas of the world, with a review of the progress achieved in information systems and an outline of population change in North Africa over the last two millennia. We will then consider successively: population growth since 1950; the patterns of demographic transition; nuptiality (age at marriage, celibacy, polygyny and union dissolution); fertility levels and trends; proximate determinants of fertility (contraception, breastfeeding, etc); overall mortality and maternal mortality; child mortality and health from age 0 to 5 (conditions of delivery, vaccination, malnutrition); age structure; urbanization; international migration and displaced populations; and lastly gender inequalities in access to education.

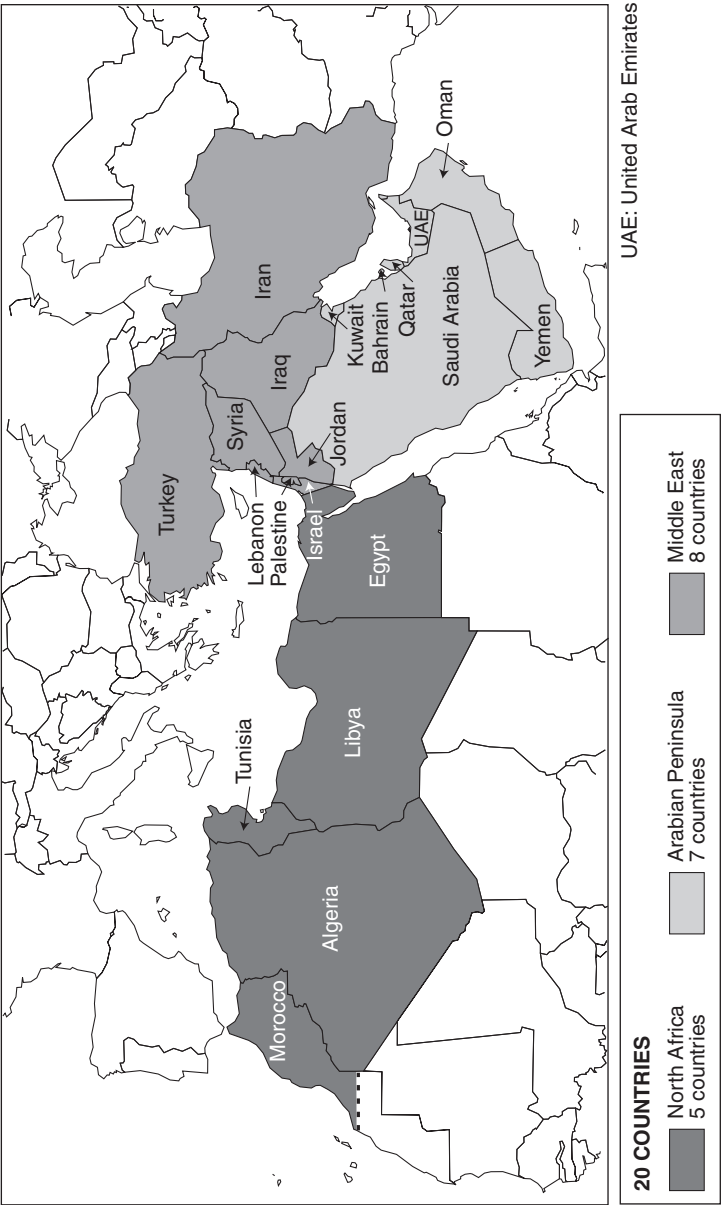
Our approach is essentially *descriptive* and involves the study of levels and trends in all countries, the discussion of inequality (in terms of education and residential environment) in countries at different stages in

⁽⁴⁾ Though this does not rule out hold-ups or signs of slowdown that will be discussed later in this article.

⁽⁵⁾ The most serious include the long-standing Israel-Palestine conflict, several civil wars (Lebanon from 1975 to 1990, Algeria in the 1990s), and wars between countries (Israel-Egypt in 1973, Iran-Iraq from 1980 to 1988, the Gulf War of 1990-91, the war in Iraq since 2003).

⁽⁶⁾ The definition of the Middle East varies from one source to another. Ours is a broad definition which includes Turkey and Iran. The MENA (Middle East and North Africa) region of the World Bank includes 18 of our 20 countries and excludes Israel and Turkey. The United Nations Population Division (2003) places Iran in South-central Asia and our 15 countries of the Arabian Peninsula and the Middle East in Western Asia.

Map. – Location of the 20 countries of the region and of the three sub-regions



the transition or development process. In certain cases we will study the relation between the demographic indices of the countries and their indicators of social, economic, human and health development, which are grouped by country in Appendix Tables A.14 and A.15. It would have been over-ambitious to set our sights any higher.

Our main data sources are the databases of the various United Nations agencies (Population Division, UNDP, WHO, UNESCO, etc.), which provide crucial records of the major changes since 1950 and key specific indicators, and second, the various demographic and health surveys conducted in these countries over the last 15 to 20 years. We also make use of recent studies relating to the region or to a particular sub-region or country.

I. The region in the world: the general context in 2003

Overall, *population growth* in the region of North Africa, the Arabian Peninsula and the Middle East (20 countries) is still high: almost 2% per year. Though this growth rate is below that of sub-Saharan Africa (2.3%), it is substantially higher than that of other developing regions, where annual growth is between 0.7 and 1.6% (Table 1). Fertility still stands at 3.4 children per woman on average, compared with 2.0 in East Asia, 2.5 in Latin America and a world average of 2.7. Life expectancy (69 years) on the other hand is close to that of Latin America (71 years) and East Asia (70 years), well ahead of South Asia (63 years)⁽⁷⁾ and above the world average (Table 1). In demographic terms, the most similar region is South Asia, where fertility is practically equivalent, but where mortality is much higher and growth is less rapid (1.6% versus 1.9%). In 2002, the region (as defined by us) totalled 405 million inhabitants, representing 6.5% of the world population, and 8.3% of the population of developing countries. The Arab countries alone, excluding Turkey, Iran and Israel, represent 4.1% and 5.2% respectively.

On average, once again, the region is not the most disadvantaged in *economic* terms: thanks notably to the high oil and gas revenues of certain countries⁽⁸⁾, the per capita gross national income (USD 5,800 in 2002) is double that of South Asia, higher than that of East Asia (USD 4,800), but still below that of Latin America (USD 7,200). This average masks enormous differences between countries in the region (Appendix Table A.14). For example, the per capita GNI is USD 770 in Yemen (one of the world's lowest), around USD 3,700 in Morocco and Egypt, and around USD 19,000 in Kuwait and Israel. Apart from Yemen, the six other countries of the Arabian Peninsula are very rich.

⁽⁷⁾ Sub-Saharan Africa, by far the most disadvantaged region from all points of view, is excluded from our comparisons.

⁽⁸⁾ Saudi Arabia, Iran, Iraq, Libya, Algeria, Gulf States.

TABLE 1.— SOME ECONOMIC, DEMOGRAPHIC AND SOCIAL CHARACTERISTICS OF THE REGION
COMPARED WITH OTHER MAJOR WORLD REGIONS C. 2002

Regions	Population (millions)	Total fertility rate (children per woman)	Life expectancy (years)	Annual population growth (%)	Human development index ^(b)	Per capita GNI USD PPP ^(b)	Adult illiteracy rate (%)
Sub-Saharan Africa	641	5.4	46	2.3	0.465	1,790	37
North Africa, Arabian Peninsula and Middle East ^(a)	405	3.4	69	1.9	0.686	5,800	32
Latin America and Caribbean	530	2.5	71	1.4	0.777	7,223	13
South Asia	1,480	3.3	63	1.6	0.584	2,658	42
East Asia and Pacific	1,918	2.0	70	0.7	0.740	4,768	10
High-income OECD countries	911	1.7	78	0.3	0.935	29,000	ε
World	6,225	2.7	67	1.2	0.729	7,840	—

^(a) Authors' calculations, adding data on Turkey, Iran and Israel (weighted averages) to the UNDP data (2004) concerning Arab countries only.^(b) See definition of indicators in Appendix Table A.14.

Source: UNDP (2004).

The overall situation with regard to *education* in the region is quite poor however (Table 1), with an adult illiteracy rate of 32% in 2002. Excluding Iran (24%), Turkey (15%) and Israel (5%), the 17 Arab countries have an illiteracy rate of 37%, below that of South Asia, but identical to that of sub-Saharan Africa. Here too, large disparities are observed between countries: adult illiteracy ranges from 5% in Israel to more than 60% in Iraq; it is below 15% in five countries (Bahrain, Israel, Jordan, Lebanon and Turkey), and above 40% in four others (Egypt, Morocco, Yemen and Iraq). We will return to this important question of education later on.

Finally, in terms of *human development* (composite index including income, education and life expectancy), the region is well ahead of South Asia or sub-Saharan Africa, but lags far behind Latin America and East Asia (Table 1). In the UNDP world ranking of 177 countries for 2002 (Appendix Table A.14), Israel is in 22nd place, the oil-producing countries of the Arabian Peninsula are clustered around the 45th place, North Africa is between the 58th (Libya) and 125th place (Morocco) and Yemen is 149th. *The region is characterized by a broad diversity of economic, social and health situations.*

II. Countries with contrasting geographical features

The 20 countries of the region have extremely contrasting surface areas, population sizes and population densities (Appendix Table A.2).

Their *land areas* (Map) range from just 700 sq. km in Bahrain to almost 2.4 million sq. km in Algeria. Four countries (Bahrain, Qatar, Lebanon and Palestine) cover less than 11,000 sq. km, three (Morocco, Yemen and Iraq) total around 500,000 sq. km, and five occupy more than a million sq. km (Algeria, Libya, Egypt, Saudi Arabia and Iran). But in many of these countries, vast regions are covered by deserts and steppes. Historically, populations have settled mainly in the coastal zones (Mediterranean, Red Sea, Persian Gulf) or along rivers (Nile, Tigrus, Euphrates, etc.), in the most fertile or least arid regions. As pointed out by Boustani and Fargues (1990, p. 40), "The Arab world has an exceptional feature: it is inhabited solely around its edges, and the centre of the settlement map is empty. Densely populated areas are separated by vast expanses of practically unoccupied land".

Population densities vary substantially from one country to another. In 2000, *crude densities* (Appendix Table A.2) ranged from 3, 11 and 13 inhabitants per sq. km in Libya, Oman and Algeria, to 340 in Lebanon, 525 in Palestine and 960 in the tiny Gulf state of Bahrain (one of the highest densities in the world). Most countries have between 30 and 90 inhabitants per sq. km, though these national densities conceal enormous disparities within countries. For example, the coastal regions with their

many large cities commonly exceed 3,000 inhabitants per sq. km, the Nile Valley delta has one of the world's highest rural population densities, and the Gaza strip counts 3,600 inhabitants per sq. km.

But these crude densities, calculated as the number of inhabitants divided by the total surface area of a country, are always, for this region especially, poor indicators of the relationship between agricultural resources and population pressure (Mathieu and Tabutin, 1996). If, for example, densities are recalculated on the basis of arable and permanent crop land areas, then a very different picture emerges (Appendix Table A.2). Apart from the countries of the Arabian Peninsula which all have predictably high values, density in Algeria for example rises from 13 inhabitants per sq. km to 372, Turkey from 88 to 266, Iran and Iraq from around 50 to more than 400. But in some countries the change is even more radical, notably in Jordan and Egypt, which respectively exceed 1,200 and 2,000 inhabitants per sq. km of arable and permanent crop land⁽⁹⁾.

The *demographic weight* of these 20 countries also varies substantially (Figure 1). The region includes two small countries (Bahrain and Qatar, with around 700,000 inhabitants), eight countries with between 2 and 7 million inhabitants, and six countries with between 20 and 32 million (including Algeria, Morocco and Iraq). The three countries with the largest populations, Turkey, Egypt and Iran, each with more than 70 million inhabitants, alone account for 52% of the region's total population. The 17 Arab

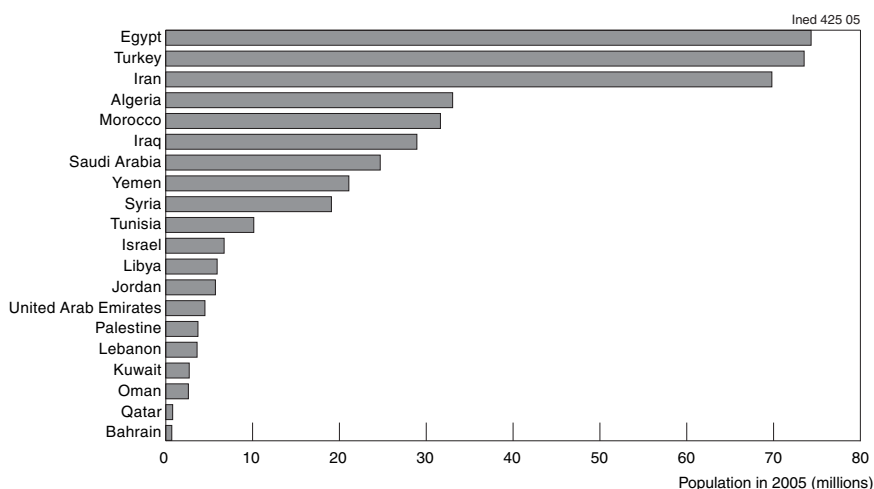


Figure 1.— Ranking of countries by population in 2005 (millions)

Source: United Nations (2005).

⁽⁹⁾ In the 2004 chronicle on the 50 countries of sub-Saharan Africa (Tabutin and Schoumaker, 2004), only islands such as Cape Verde, Mauritius or Reunion had comparable values.

countries make up 65% of the total. By sub-region, North Africa represents 36%, the Arabian Peninsula 14% and the Middle East 50%.

III. Major progress in data collection

As was the case for most other developing regions, little reliable socio-demographic data on North Africa, the Arabian Peninsula and the Middle East became available until the late 1960s. Much progress has been made, though the pace has varied from country to country, depending on their history over the twentieth century, their priorities in terms of population and social policy and their degree of involvement in international survey programmes. Vital registration, censuses and fertility or health surveys are presented briefly below.

Overall, substantial progress has been achieved over the last 40 years in *vital registration*. The system exists everywhere⁽¹⁰⁾, though its effectiveness varies, notably for the declaration of deaths and marriages. According to the United Nations, coverage of mortality in 2001 exceeded 90% in only eight of the region's 20 countries (Libya, Algeria, Tunisia, Egypt, Israel, Kuwait, Qatar and the United Arab Emirates). The situation in Yemen and Morocco is especially poor. Moreover, there is a scarcity of clear and detailed annual publications which means that excepting a few countries, vital records do not yet provide a reliable tool for monitoring the levels and tempo of demographic phenomena.

For *censuses*, the situation is better, with a total of 84 censuses since 1960 (Table 2). Most states have conducted four or five, at intervals of between 10 and 12 years (Appendix Table A.1). The United Arab Emirates, Kuwait and Turkey have done even better, totalling between six and eight thanks to the adoption of a five-year periodicity in the 1960s, 1970s and 1980s. Three countries have conducted only two censuses however: Oman⁽¹¹⁾, Palestine (in 1967 and 1997) and Yemen (the country was unified in 1990). Lebanon, for its part, is an exceptional case, with just one census dating back to 1970⁽¹²⁾.

With regard to *national surveys on fertility, the family and child health*, the situation is much more varied (Appendix Table A.1). Most of the surveys⁽¹³⁾ since the early 1970s have been conducted under five major international or regional programmes:

⁽¹⁰⁾ And in some countries they have existed for many years: since 1840 in Egypt, 1882 in Algeria, 1908 in Tunisia, 1923 in Syria and 1925 in Morocco.

⁽¹¹⁾ The country lagging furthest behind in statistical terms up to the late 1980s. The first census was conducted in 1993.

⁽¹²⁾ The previous census was in 1932.

⁽¹³⁾ Excluding Algeria which, prior to its participation in the Arab League surveys, produced all its own data independently (multi-round household survey of 1970-71, fertility surveys in 1971 and 1986).

- the *World Fertility Survey* (WFS) programme of the 1970s which concerned nine countries in the region including Iran, Syria and Israel⁽¹⁴⁾;
- The American *Demographic and Health Surveys* (DHS), which continued up to the mid 1980s: 17 surveys in six countries, covering Morocco, Egypt and Jordan in particular;
- two successive programmes coordinated by the League of Arab States: the *Pan Arab Project for Child Development* (PAPCHILD) conducted in ten countries between 1989 and 1996, and the *Pan Arab Project for Family Health* (PAPFAM) conducted since 2001 in seven countries of the region;
- two successive programmes specific to the six Gulf States: the *Gulf Child Health Survey* (GCHS) from 1987 to 1989, and the *Gulf Family Health Survey* (GFHS) from 1995 to 1998;
- last, the UNICEF *Multiple Indicator Cluster Surveys* (MICS2), conducted in nine countries of the region in 2000.

Overall, a relatively large number of national surveys have been conducted across the region: a total of 63 since 1970, and 41 since 1990, though there are marked differences between countries. Three countries – Morocco (8 surveys), Egypt (6) and Jordan (8) – are particularly well covered by the different programmes. Many have between three and five surveys, and the least well covered, with one or two surveys only, are the six Gulf States, Palestine, Iraq and Israel.

TABLE 2.—NUMBER OF CENSUSES AND NATIONAL DEMOGRAPHIC SURVEYS
SINCE 1960 IN ALL 20 COUNTRIES OF THE REGION

Type of operation	1960-1969	1970-1979	1980-1989	1990-1999	2000-2004	Total
Censuses	19	19	17	20	9	84
WFS ^(a) and DHS ^(b) surveys or equivalent	—	10	6	9	3	28
Arab League ^(c) or Gulf States surveys ^(d)	—	—	6	14	6	26
UNICEF MICS2 ^(e) surveys	—	—	—	—	9	9
Total	19	29	29	43	27	147

a) World Fertility Survey (1975 to 1982).

b) Demographic and Health Survey (since 1985).

c) Pan Arab Project for Child Development (PAPCHILD, 1989 to 1996) and Pan Arab Project for Family Health (PAPFAM, 2001 to 2003).

d) Gulf Child Health Survey (GCHS, 1987 to 1989) and Gulf Family Health Survey (GFHS, 1995 to 1998).

e) Multiple Indicator Cluster Surveys in 2000, a UNICEF programme.

Source: Appendix Table A.1.

⁽¹⁴⁾ To our knowledge, the 1973 survey is the only survey of its kind conducted in Israel to date.

For our study of fertility, nuptiality, child mortality and child health, we will use the available results⁽¹⁵⁾ of these surveys, the most recent ones in particular. We will proceed with all necessary caution when comparing the various indicators, since although the main goals of these different survey programmes were quite similar, the questionnaires are not always strictly identical and data is doubtless of variable quality.

IV. A largely uncharted demographic history

Little is known about the history of the region's populations over the last ten centuries, and the historical demography of the Arab or Muslim world is still a largely unexplored field. Admittedly, the task is difficult, since the native civilizations never organized any form of census (except in Egypt at the time of the Pharaohs) or vital registration⁽¹⁶⁾. The Ottoman empire which dominated a large part of North Africa and the Middle East for several centuries (notably from the fifteenth to the eighteenth) never took a real interest in counting the populations under its rule. Just one census campaign was organized between 1570 and 1590. "A thousand years after the Hegira, this was the first quantification of Islam" (Courbage and Fargues, 1992, p.145). The few figures available on certain countries up to the nineteenth century come mainly from contemporary observers (local chroniclers, explorers, travellers and geographers). Their figures were based on local observation, often crudely extrapolated to a country or a region, and are generally acknowledged by historians to be exaggerated or inconsistent. It was not until the first colonial censuses that a clearer picture emerged⁽¹⁷⁾.

General studies of the history of the world populations are also highly discreet and circumspect about the region. To give a general idea of population trends, the results of a recent overview of changes in the population of North Africa since the year 1000 (Tabutin, Vilquin and Biraben, 2002) are summarized in Table 3. These orders of magnitude were established using data from the most "serious" historical studies based on rigorous scrutiny of sources and information matching, and from recent research by J.-N. Biraben⁽¹⁸⁾.

⁽¹⁵⁾ The results of certain surveys, the PAPFAM surveys for example, are currently being analysed. In addition, the dissemination of reports and results varies from one programme to another. At one extreme, the DHS reports are widely disseminated and individual data can be accessed directly via the Internet, while at the other, the Gulf States survey results are not easily accessible and very little data is available on the Internet.

⁽¹⁶⁾ The old documents that have survived the turmoils of history and which might in certain cases be useful for estimating the population and its dynamics are generally tax records, though they are still poorly documented.

⁽¹⁷⁾ Although, as pointed out by Fargues (1986), the results of these first censuses must be regarded with extreme caution.

⁽¹⁸⁾ Biraben has updated the estimates made in the 1970s (Biraben, 1979) by including the most recent historical knowledge of the political, economic and health situations prevailing in the region at different times in its history.

TABLE 3.— ORDERS OF MAGNITUDE
OF THE TOTAL POPULATION
OF NORTH AFRICA (MOROCCO,
ALGERIA, TUNISIA, LIBYA, EGYPT)
FROM 1000 TO 1950

Date	Population (millions of inhabitants)
1000	11.5
1100	10.0
1200	9.8
1300	9.5
1400	7.2
1500	7.7
1600	8.4
1700	8.7
1800	9.1
1850	13.0
1900	21.0
1950	43.0
<i>Source:</i> Tabutin, Vilquin and Biraben (2002).	

The population of North Africa declined substantially between the eleventh and thirteenth centuries following the Hilalian invasions from southern Egypt and the agricultural and political disruption that ensued. This is universally agreed, by both contemporaries and historians of the period (Reinhard et al., 1968, p. 83): "After the eleventh century, the situation worsened, in the countryside especially. With the destruction of plantations and irrigation systems, agriculture was reduced or wiped out, to be replaced by nomadism. There is clear evidence that this transformation drastically reduced the population, for example in North Africa, Egypt and Morocco". Population de-

cline accelerated in the fourteenth century, this time due to the Black Death of 1348-49 which swept across the entire Mediterranean basin and which, throughout the century, returned to the region every 10 to 15 years. Between 1300 and 1400 (Table 3), North Africa lost around one quarter of its population, which fell from 9.5 to 7.2 million inhabitants⁽¹⁹⁾. Between the fifteenth and eighteenth centuries, it started rising again, though frequent epidemics, famine and war slowed down the rate of increase⁽²⁰⁾. As is the case in other developing regions, the population started increasing more quickly towards the late nineteenth century, from 1870 onwards, when the "colonial" administration introduced the first major measures to promote health, urban hygiene and transport. But it was not until the late 1940s that the major killer diseases such as cholera, typhus and malaria were practically eradicated. The population of North Africa grew by around 60% from 1850 to 1900 (Table 3) and almost doubled between 1900 and 1950⁽²¹⁾. The pace of growth continued to increase thereafter.

⁽¹⁹⁾ Though the plague disappeared from Europe in the early eighteenth century, it remained endemic in the southern Mediterranean until the mid nineteenth century. In Morocco, the last plague outbreak occurred in the south of the country in 1941-42. For a general history of the plague and its impact on the region, see Biraben (1975).

⁽²⁰⁾ Of course, the demographic impact of this series of catastrophes varied from one sub-region, country or community to another. It is still not adequately documented.

⁽²¹⁾ For more information on the demographic history of North Africa since the first censuses of the nineteenth or twentieth centuries, see Fargues (1986) or Tabutin et al. (2002).

V. Populations and growth rates from 1950 to 2040: spectacular increase and gradual divergence

After 1940, the region's population grew rapidly, with rates of growth that continued to increase up to the 1980s. At the same time, the variable patterns of fertility decline led to increasingly divergent situations in the different countries. We will return to this point below. We will begin by presenting population growth from 1950 to 2005 before examining the prospects up to 2040.

1. Among the world's fastest growth rates since 1950

Like other regions, the rate of population growth in the geopolitical entity comprising North Africa, the Arabian Peninsula and the Middle East increased slightly from the early 1950s (2.6% per year) until around 1980-84 (2.9%)⁽²²⁾ as the result of declining mortality and a consistently high birth rate. Though the growth rate equalled that of sub-Saharan Africa from 1975 to 1985 (almost 3%, Figure 2), it then began to drop sharply due to declining fertility in many countries. The growth rate thus fell from 2.9% in 1980-84 to 2.3% in 1990-94 and to 1.9% in the early 2000s (Appendix Table A.3). *Population growth in the region is still very high however, and well above that of other developing regions, except for sub-Saharan Africa.*

The rate at which population growth is slowing down varies from one country to another. Figure 3, based on the most recent United Nations data (2005), compares pre-transition growth rates of 1970-74 with those of 2000-04 for each of the 20 countries. At one extreme we find two countries, Yemen and Palestine, whose very high population growth rates (3.2 and 3.5% per year respectively), have even increased slightly since the 1970s. At the other extreme, in six or seven countries – Kuwait (which began very high), Algeria, Iran, Bahrain, Lebanon and Tunisia – the growth rate has decreased by almost 50%. Between these two extremes, the growth rates in Iraq⁽²³⁾, Saudi Arabia, Syria and Egypt are declining more slowly. The same applies to Qatar and Israel, which began from much lower growth rates in 1970-74. *All in all, there is no clear relationship between the rates of decline and the starting level in 1970-74.*

In sum, *disparities in the rate of population growth in the region are much larger today than in the past*: thirty years ago, most countries had annual growth rates of between 2.4 and 3.5%, while today they range between around 1.2% (Tunisia, Lebanon, Iran) and more than 3.2% (Yemen,

⁽²²⁾ These are the growth rates given in the 2004 revision of the World Population Prospects published by the United Nations Population Division (United Nations, 2005).

⁽²³⁾ Data for Iraq should be treated with caution since statistical sources for this country are scarce.

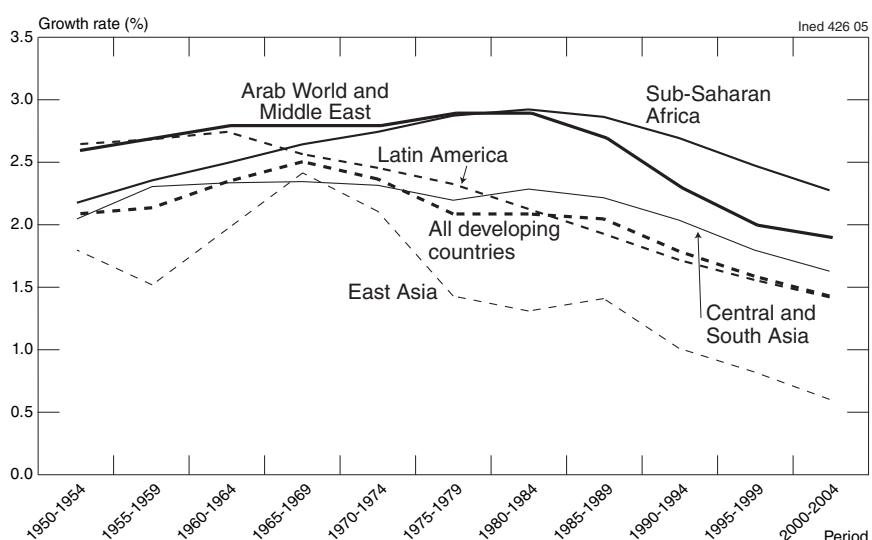


Figure 2.– Population growth rates from 1950 to 2005 in five major regions and in all developing countries (%)
Source: United Nations (2005).

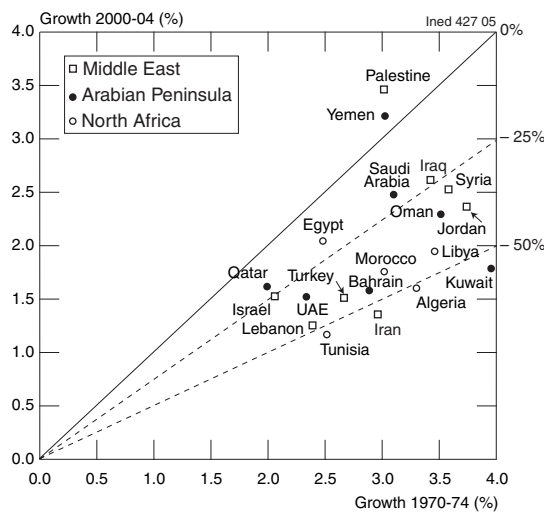


Figure 3.– Change in population growth rates from 1970-74 to 2000-04 in the 20 countries of the region (%)
Note: The various lines correspond to the indicated rates of decline.
Source: United Nations (2005).

Palestine). Out of the twenty countries, twelve have fallen below the 2% threshold, while only three are below 1.5%.

Though the growth rate is indeed slowing down, absolute population growth, and hence demographic pressure on essential goods and services (education, housing, food, employment, etc.) is still very strong. The region's population has quadrupled since 1950 (see Appendix Table A.2), more than doubled since 1970 and increased by 35% since 1990. The multiplier coefficients⁽²⁴⁾ of the population in certain countries since 1970, over a period of 35 years, are as follows:

Saudi Arabia: 4.3	Iran: 2.4
Jordan: 3.5	Israel: 2.3
Palestine: 3.4	Morocco: 2.1
Yemen: 3.3	Egypt: 2.1
Bahrain: 3.3	Turkey: 2.0
Syria: 3.0	Tunisia: 2.0
Algeria: 2.4	Lebanon: 1.5

These very high figures are the consequence of recent fertility history, but also, in certain cases, of international migration (refugees, workers). And this population growth is set to continue over the coming decades.

2. Prospects up to 2040

The population projections established by national statistical institutes cover different periods and are obtained using different methods, so they are not easy to use for comparative purposes. For this reason, we have based our analysis on the United Nations projections⁽²⁵⁾, which are more consistent in methodological terms, though they no doubt gloss over certain national particularities. Revised every two years, the 2004 projections incorporate the most recent changes, in fertility especially, whose future trends are a key component of all prospective studies.

Though recent and updated, the 2004 projections must be seen as one possible future among many, liable to be revised upward or downward over the coming years in line with changing patterns of fertility and, in certain cases, migration. A simple comparison of the two sets of United Nations projections for seven major countries of the region, spaced just

⁽²⁴⁾ Ratio of the population in 2005 to the population in 1970.

⁽²⁵⁾ Other similar exercises have been conducted in the past on the countries of the region. They include work conducted under the Plan Bleu programme (Gregon and Batisse, 1988; Benoit and Comeau, 2005) on around twenty countries in the Mediterranean Basin; that of the IIASA on North Africa published in Yousif et al. (1996) then extended to other countries; research by Courbage (1999) on the Arab countries, Israel, Turkey and Iran; work by Attané and Courbage (2001) on the 22 countries of the Mediterranean Basin under the Plan Bleu programme (revision of initial projections).

four years apart (in 2000 and 2004), illustrates the degree of uncertainty of projections at national level for the horizons 2025 and 2040 (Table 4). For three countries – Turkey, but above all Egypt and Iraq – the projected populations in 2025 and 2040 have been revised substantially upwards, while for four others, including Iran and Saudi Arabia, the opposite is the case. But the diverging trends tend to balance each other out and the total population of these seven countries remains practically unchanged (almost 446 million in 2025, around 510 million in 2040).

Appendix Table A.2 shows the population change since 1950 by country and sub-region and the prospects for 2010, 2025 and 2040. Though growth is expected to slow down, it will remain high in most countries (between 1.5% and 2.5% per year), leading to *rapid population growth over the next 35 years*. Under the United Nations medium scenario (2005), the population of the whole region (Figure 4) will increase from 421 million inhabitants in 2005 to 575 million by 2025 (+37%), then to 667 million in 2040 (+58%). All in all, the region is set to reach 800 to 900 million inhabitants by the end of the twenty-first century, with a doubling of its population over a period of 80 to 90 years. By 2040, the Arab world (17 countries) will have population growth (69%) which is double that of Turkey, Iran and Israel taken together (38%) (Table 5). In 35 years, the region will very probably have a population twice as large that of the 17 major countries of southern and western Europe (Figure 4).

TABLE 4.— COMPARISON OF POPULATION PROJECTIONS (IN MILLIONS)
FOR 2025 AND 2040 ESTABLISHED BY THE UNITED NATIONS
IN 2000 AND 2004 FOR 7 MAJOR COUNTRIES

Country	Population in 2005	Population in 2025			Population in 2040		
		2000 projection	2004 projection	Difference (%)	2000 projection	2004 projection	Difference (%)
Algeria	32.8	42.7	42.9	+ 0.5	48.5	47.5	– 2.1
Egypt	74.0	94.8	101.0	+ 6.5	107.4	117.8	+ 9.7
Morocco	31.5	42.0	40.3	– 4.1	47.8	44.8	– 6.3
Saudi Arabia	24.6	40.5	37.2	– 8.2	52.7	45.3	– 14.0
Iran	69.5	99.3	89.0	– 10.4	113.5	98.0	– 13.7
Iraq	28.8	40.3	44.7	+ 11.0	48.4	56.7	+ 17.2
Turkey	73.2	86.6	90.6	+ 4.6	95.1	98.7	+ 3.8
Total	334.4	446.2	445.7	– 0.1	513.4	508.8	– 0.9

Sources: United Nations (2001); United Nations (2005); medium scenario.

At sub-regional level (Table 5, Figure 4), the populations of North Africa and the Middle East will grow at a similar pace up to 2040 (by around 50%), but at only half the speed of the Arabian Peninsula (104%) which, driven by Saudi Arabia and Yemen, will double its population in just 35 years due to a slower decline in fertility than elsewhere.

The populations of all the countries will rise over the next 35 years. The overall increase will be large, though the situation will vary from one country to another. According to the United Nations prospects by country,

growth rates will be very rapid in certain countries, such as Yemen, Saudi Arabia, Iraq⁽²⁶⁾ and especially Palestine, leading to a doubling of population size in 35 years, and much more contained in others (Algeria, Morocco, Lebanon, Israel). By 2040, three countries will have close to 100 million inhabitants (Egypt, Iran and Turkey), four will verge on 45 million (Algeria, Morocco, Saudi Arabia and Yemen), and five will have 8 to 10 million (Libya, United Arab Emirates, Israel, Jordan and Palestine).

TABLE 5.— POPULATION (MILLIONS) AND GROWTH (%)
IN THE SUB-REGIONS FROM 2005 TO 2040

Sub-regions	Population				Growth (%) from 2005 to 2040
	1990	2005	2025	2040	
North Africa (5)	118.2	154.3	204.2	231.9	+ 50.3
Arabian Peninsula (7)	35.3	56.8	90.8	115.8	+ 103.9
Middle East (8)	158.0	210.3	279.9	319.4	+ 51.9
Arab countries (17)	193.0	272.0	386.6	460.5	+ 69.3
Non-Arab countries (3)	118.5	149.4	188.3	206.6	+ 38.3
Total (20)	311.5	421.4	574.9	667.1	+ 58.3

N.B.: Figures in brackets indicate the number of countries per sub-region.
Source: Appendix Table A.2.

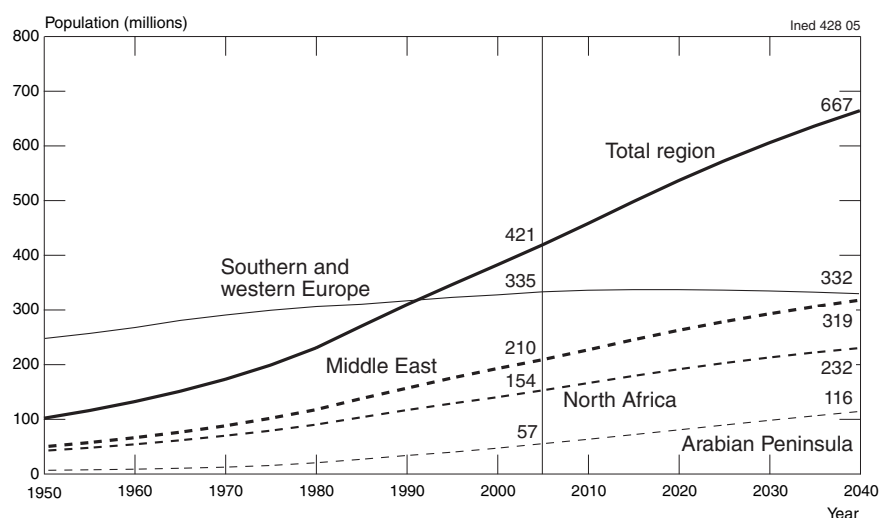


Figure 4.— Population change since 1950 and projections up to 2040
for the whole region, the three sub-regions and southern
and western Europe

Source: United Nations (2005), medium scenario for projections.

⁽²⁶⁾ Though one wonders what recent, reliable information was used to establish the population prospects for this country.

Under these scenarios, which are practically inevitable despite a certain margin of error, it is not difficult to imagine the scale of human pressure – already posing severe problems in the region today – on ecosystems (oceans, coastal regions and in some cases forests), on land and on a resource as fundamental as water.

We will now examine the two components which, excluding migration, underlie population growth in all geographical entities, namely the birth and death rates⁽²⁷⁾, whose respective variations over time determine what is commonly known as the transition model.

VI. The different demographic transition models

Generally speaking, the entire region (Figure 5, diagram D) began its demographic transition in the 1950s and 1960s and followed the standard pattern. Mortality, initially very high (the crude death rate is close to 25‰, and life expectancy around 40 years), fell quite sharply, while the birth rate, also very high (close to 50‰, corresponding to 7 or 8 children per woman), fell much more slowly until the early 1980s. The birth rate then started to fall more quickly while mortality “levelled off”, taking the region into a period of slower growth. Today, with a birth rate of 25‰ and a death rate of 6‰, the region has annual growth of close to 2‰⁽²⁸⁾.

Overall, the transitional histories of North Africa (5 countries) and the Middle East (8 countries) have followed a similar pattern over the last 50 years, with practically identical initial and final levels (Figure 5, diagrams A and C). The Arabian Peninsula is very different however, with a later and sharper decline in the birth rate (31‰ today), but earlier progress in mortality reduction. As already mentioned, the population grew more rapidly in this sub-region as a result, and continues to do so today.

But the histories of the individual countries comprising the three sub-regions are much more varied. The country data are given in Appendix Table A.3. As an illustration, Figure 6 gives the transition diagrams from 1950 to 2005 for eight countries representative of the region. There are five main models or transitional situations:

- The *traditional model*, illustrated by Palestine (Figure 6) and also applicable to Yemen: birth rates are still above 40‰ and growth is very rapid (above 3.2% per year).
- The *early but slow and hesitant model*, illustrated by Egypt (Figure 6) and also applicable to Iraq: birth rates are still around 30‰ and growth is above 2%.

⁽²⁷⁾ The rate of natural increase of a population (excluding migration) is the difference between its birth rate and its death rate. The population growth rate varies according to changes in each of these two components.

⁽²⁸⁾ By comparison, the birth rates in 2000-04 were 22‰ in Latin America, 21‰ in South-east Asia, 13‰ in East Asia and 40‰ in sub-Saharan Africa. The death rates are around 7‰ in the first three regions and 17‰ in sub-Saharan Africa (United Nations, 2005).

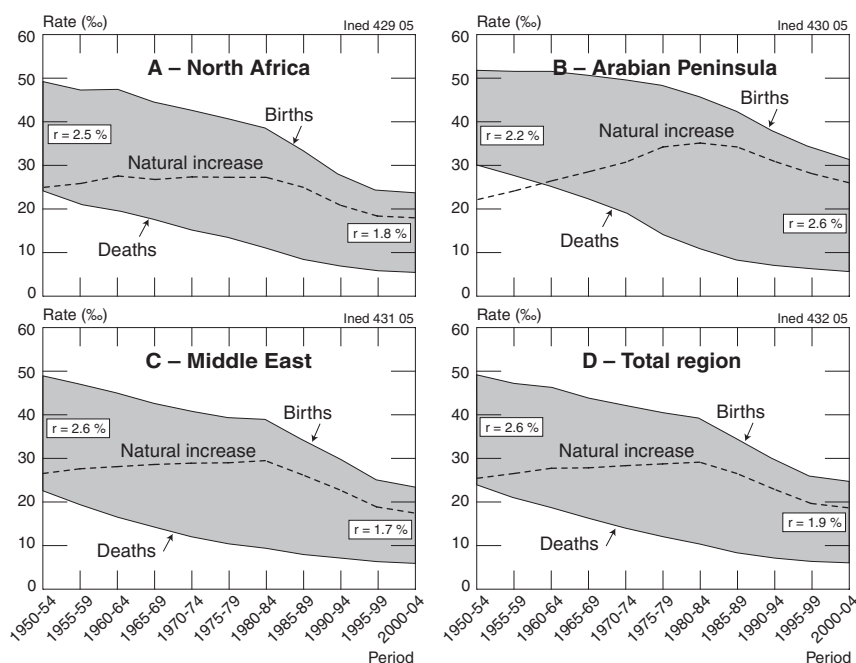


Figure 5. – Demographic transitions in the whole region and the three sub-regions from 1950 to 2005

Source: from United Nations data (2005).

- The *classic model* of ongoing transition in the region, with a birth rate that has been declining steadily and no doubt irreversibly for the last 25 years: it concerns Morocco (Figure 6), Algeria, Libya, Oman, Syria and Jordan. It is characterized today by birth rates of around 24‰ and growth rates of around 2%.
- A *late and very rapid model*, that of Iran (Figure 6) where fertility plummeted between 1985 and 1990. Alongside Lebanon, it is the country with the slowest growth in the region (1.3%).
- Lastly the *very advanced model* which includes countries as varied as Tunisia, Lebanon, Turkey and Israel (Figure 6) and some Gulf States (Bahrain, United Arab Emirates, Kuwait and Qatar). Birth rates in these countries are now below 20‰, though annual growth is still above 1%.

Over the next two to three decades, the final transition paths taken by each society, doubtless many and varied, will be determined by their economic, educational and cultural development, their demographic and social policies and their political stability.

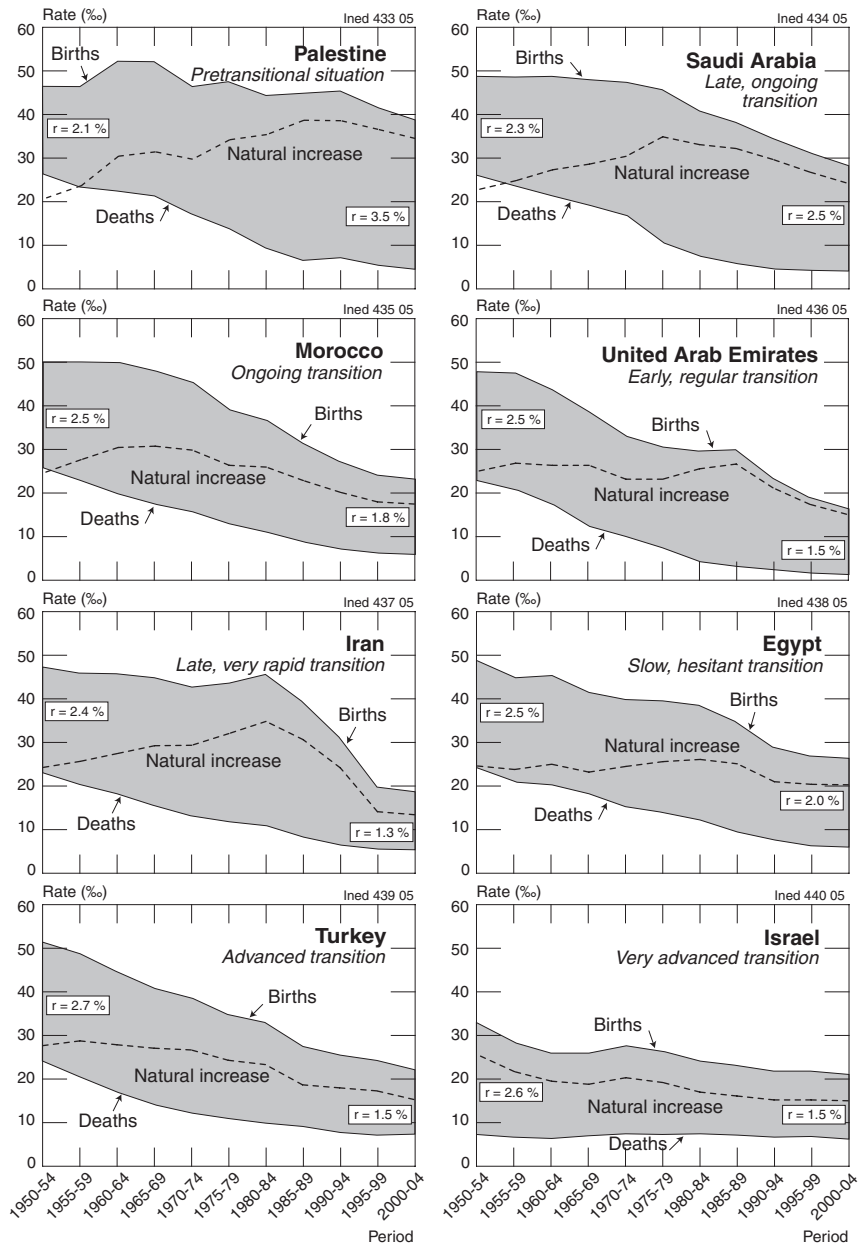


Figure 6.– Some examples of types of demographic transition from 1950 to 2005

Source: from United Nations data (2005).

We will now look more closely at the major nuptiality, fertility, mortality and migration trends upon which these past, present and future demographic processes so directly depend.

VII. Nuptiality: enormous changes

The traditional nuptiality regime of the Arab and Muslim countries of the region was generally characterized by early marriage for women, later marriage for men and universal marriage for both sexes, as well as by large age differences between spouses, high levels of endogamy (particularly marriages between maternal and paternal cousins), the presence of polygyny, and by the fragility of marital unions (via repudiation, divorce and widowhood)⁽²⁹⁾. The general situation has changed greatly in many respects over the last thirty years. Indeed, certain countries have undergone a real *marriage revolution*.

Appendix Table A.4 presents the mean ages at first marriage for men and women by country around 1975 and 1996, the age differences between spouses at these two dates, and the recent situation for polygyny and for the proportion of women never married. For the three Maghreb countries plus Iran, more detailed information on the changes between 1960 and 2000 in age at first marriage and the proportions never married at ages 20-29 is shown in Appendix Table A.5.

1. Age at marriage has increased, sometimes dramatically

Only thirty years ago, the age at first marriage of *women* in the region was still young (Appendix Table A.4), ranging between 18 and 21 years in most countries. Only in Lebanon, Israel and Tunisia was it around 23. Very often, half of all women were already married by age 17 or 18. The situation at the end of the 1990s was altogether different. Excepting Yemen, mean ages at first marriage ranged from 22 (Oman, Palestine, Saudi Arabia, Iraq and Turkey) to around 27 or over (Algeria, Tunisia, Egypt, Libya and Qatar). In many countries they have increased by between 4 and 6 years over a period of 20-25 years. Only in Palestine, where this age was already higher in 1975, has there been no marked change.

⁽²⁹⁾ For more details on the norms of Islam and the Arab world in the fields of nuptiality and the family, see Kouaouci (1983) and Fargues (1989); for Tunisia, see Ben Salem and Locoh (2001); for Iran, see Ladier-Fouladi (2003); and for Morocco, see Ajbilou (1998).

These changes in the timing of women's marriages have been very rapid in the three Maghreb countries (Figure 7). The increase in women's age at marriage began in Tunisia in the 1960s, and ten years later in Algeria and Morocco. Today, mean age at first marriage among women in Algeria and Tunisia currently stands close to 30 years at the national level, one of the highest in the world. A slower pattern of change is observed for Iran (Figure 7), which in broad outline is also that for Iraq, Jordan and Turkey and probably also for Saudi Arabia and Oman.

Ages at first marriage among *men*, which were already relatively late in the 1970s (commonly around 25), have also risen, though on the whole more slowly. They now stand at around 27 or 28 in a majority of countries (Appendix Table A.4). As is the case for women, these ages are highest (30 or above) in Algeria, Libya and Tunisia. They are lowest (around 25) in Turkey, Saudi Arabia, Iran and Palestine.

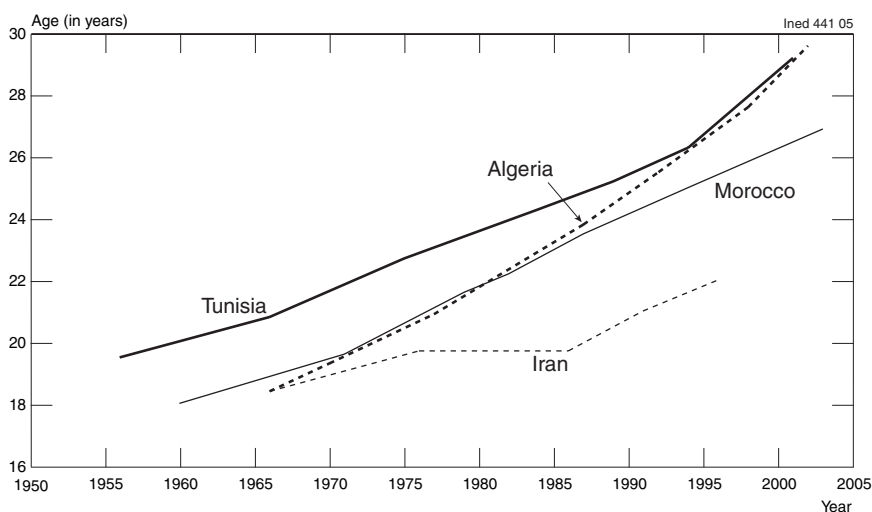


Figure 7.— Mean age at first marriage of women in the three Maghreb countries and Iran, 1960-2000

Source: Appendix Table A.5.

2. A much narrower age difference between spouses

The faster increase in the age at marriage of women has led to a clear reduction in the differences in mean ages between spouses, particularly since the 1980s. From traditionally high levels – 5 to 7 years depending on the country – they have fallen to around 3 years in a majority of cases (Appendix Table A.4). Egypt and Yemen are the only countries where the age difference between spouses is still over 5.5 years.

Figure 8 clearly illustrates the large differences between countries in age at marriage, for both women and men, which contrasts with the relative uniformity that prevailed in the 1950s and 1960s. It also shows that at the aggregate level the age difference between spouses is not, or only loosely, related to women’s age at marriage⁽³⁰⁾.

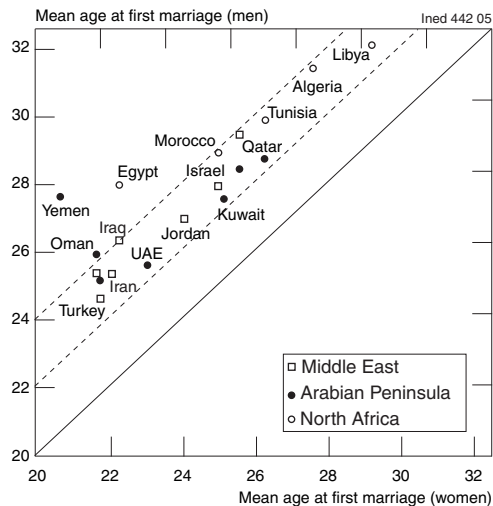


Figure 8.— Mean ages at first marriage of men and women, c.1998 (18 countries)

Note: The broken lines correspond to age differences between men and women of 2 and 4 years.

Source: Appendix Table A.4.

3. The extension of single life:
an end to universal marriage?

This represents a major and novel change for women in particular. The general shift is away from a female life cycle dedicated to marriage and childbearing from the end of adolescence, to a cycle that begins with a more or less extended period of single life, as was already partly the case for men. Though this extended period of single living for men and women has become general throughout the region (except in Yemen), it is particularly the case in North Africa (Appendix Table A.5). At ages 20-24, for example, 60% of women in Morocco and 80% in Tunisia are still single. In Algeria, which is an extreme example in this respect, the proportions of never-married women are currently 83% at ages 20-24, 58% at 25-29, 34% at 30-34, and 17% at 35-39.

⁽³⁰⁾ This is not usually the case at the individual level: the younger a woman marries, the greater the likely age difference with her spouse.

This constitutes an unprecedented change in the marriage regime, and is probably related to the longer time spent in education and to cultural changes, but also to the economic crisis (unemployment among young people) and to the housing shortage. This extended single life is often lived out within the family sphere, in contexts characterized sometimes by low economic activity among women, as is the case in Algeria, but always by a strong social control over the lives and sexuality of young people, particularly women.

Getting married remains the predominant social norm throughout the region, for women as well as for men. In the 1970s, as in the 1990s, permanent celibacy⁽³¹⁾ affected barely 1% to 5% of the female population of the countries⁽³²⁾ (Appendix Table A.4.). In other words, practically all the women in these oldest cohorts (aged 40-49) have been married, in many cases at an early age, as mentioned earlier. In all probability, however, the near future will see the end of universal marriage and the appearance, as in other continents, of a “structural” never-married population. On the basis of the current proportions of women (and men) still single at ages 30-39 – ages at which getting married becomes more difficult – it is reasonable to predict a substantial increase in the proportion never marrying in the years 2000-10, particularly in the Maghreb countries.

4. Polygyny in decline

Polygyny is authorized under Muslim marriage law⁽³³⁾. Historically it has been practised in all Islamic societies⁽³⁴⁾, and it remains authorized by all the states in the region, with the exception of Tunisia since 1956 and Turkey since 1926⁽³⁵⁾. But polygyny has never been nearly as common here as in West or Central Africa, where it may concern up to 40% of women (Tabutin and Schoumaker, 2004). It has never been a dominant marriage system in the region, and is showing clear signs of decline. The proportion of women in polygynous unions now stands at only 3-5% in North Africa (Tunisia excluded), Palestine, Iran and Syria (Appendix Table A.4); substantially higher levels (around 9%) are confined to the countries of the Arabian Peninsula.

(31) Measured by the proportion of never-married persons over age 40 or 45.

(32) Excluding Kuwait, where it is 6% at age 40-49, Israel (6.4%) and Palestine (8.2%).

(33) The Koran allows men to take up to four wives, providing he can treat them all equally.

(34) Polygyny existed throughout the region before its Islamization.

(35) The Turkish Civil Code introduced in 1926 prohibited polygyny and guaranteed equal rights to men and women in the areas of divorce and inheritance. But the practice still exists, notably in the east of the country (Ilkkaracan, 1998). Under traditional Muslim law (elements of which subsist locally), the husband alone could request divorce; in inheritance, if the deceased had sons and daughters, they inherit jointly, though the share of a son is double that of a daughter. (For more details, see Bosworth et al., 1993, p. 108-115).

5. *Family endogamy persists*

Kin marriage (between blood relations), and in particular cousin preference marriage (between maternal or paternal first cousins), has long been a distinctive feature of the alliance system in the Arab and Islamic world. In traditional society, endogamous marriage provided a guarantee for securing assets, notably land and family structures⁽³⁶⁾. It was practised widely (Fargues, 1989).

Contrary to what might be expected in a region that has experienced urbanization and become exposed to external influences, and where education is on the increase, kin marriage remains valued and widespread. In a majority of the ten countries included in Table 6⁽³⁷⁾, around 40% of all marriages are between kin members, with Turkey (23%) at one extreme, and Kuwait (53%), Saudi Arabia (58%) and Palestine (66%) at the other. First cousin marriage is universally encouraged.

Though endogamy has declined locally, in Tunisia for example (Ben Salem and Locoh, 2001), it has maintained its position in Egypt and in Algeria (Table 6). It remains a key element of marriage systems in the region, even "if it has changed its meaning, form and direction in the new generations, by expanding to include a wider family circle" (Ouadah-Bedidi, 2004, p. 431).

Nevertheless, in six of the ten countries in Table 6, around two in three marriages are between individuals who are not related. The situation

TABLE 6.— DISTRIBUTION OF MARRIAGES BY KINSHIP TIES BETWEEN SPOUSES IN SELECTED COUNTRIES (%)

Country	Survey date	First cousins	Other kin	Not related	Total
Algeria	1970	23	9	68	100
	1986	27	11	62	100
	2002	22	11	67	100
Saudi Arabia	1987	36	22	42	100
Egypt	1991	31	7	62	100
	1995	35	4	61	100
	2000	32	6	62	100
Iran	1991	25	4	71	100
Jordan	2002	26	17	57	100
Kuwait	1987	30	23	47	100
Palestine	1995	30	36	34	100
Tunisia	1995	28	12	60	100
Turkey	1993	15	8	77	100
Yemen	1997	34	6	60	100
<i>Sources:</i> Country survey reports.					

⁽³⁶⁾ G. Tillion (1982, p. 83) summed up the problem thus: "endogamous marriage is a way of keeping everything: the daughters and the profit".

⁽³⁷⁾ These results are based on questions to women that vary slightly in formulation depending on the country. In Algeria for example (2002 survey): "Do you have a kinship tie with your spouse? If so, which one?"; in Yemen (1997 survey): "Is there a blood relationship between you and your husband? Give details".

is not one of complete freedom of marital choice for young men and women, but families now play a less important role.

6. *Divorce and remarriage*

In the past, the fact that traditional Muslim law⁽³⁸⁾ enabled men to divorce through unilateral repudiation of their wives led to high levels of marital dissolution. Indeed, Fargues (1986) suggests that it even acted as a regulator for a marriage market based, as we have seen, on generalized marriage⁽³⁹⁾. In addition, divorce was frequently the response to a sterile or sub-fecund union⁽⁴⁰⁾.

As is the case in other world regions, divorce and remarriage are among the least well-documented demographic phenomena, due to the lack of data for both earlier and contemporary periods⁽⁴¹⁾. The few recent studies have on the whole concluded in favour of a definite decline in divorce in the Arab societies, even though levels remain non-negligible. The divorce rate per 100 marriages⁽⁴²⁾ in Algeria is believed to have dropped from 38% in 1900 to 13% in the 1960s; in Egypt from 32% in 1941-45 to 14% in 1996-2000 (Fargues, 2002); in Tunisia it remained stable, at around 15%, from the 1960s to the 1980s. In the 1970s, according to the WFS surveys, the probability of divorce after 30 years of marriage was 14% in Egypt, 24% in Morocco, and only 6% in Syria. In Algeria, it dropped from 40% (1970 survey) to 19% (1992 survey). If the data from these few countries are reliable, we are indeed witnessing a relative stabilization of marriage. Divorce, on the other hand, appears to occur as early as ever and would seem to be spreading to all groups in society⁽⁴³⁾.

As in other regions of the world, remarriage is less frequent among women than among men, and takes place after a slightly longer interval. In Algeria, twice as many men remarry after a divorce than women (Ouadah-Bedidi, 2004). In Iran, the frequency of female remarriage may even have fallen between 1977 and 1991 (Ladier-Fouladi, 2003).

⁽³⁸⁾ See Kouaouci (1983) for the Koranic prescriptions relating to divorce, remarriage, waiting period, etc.

⁽³⁹⁾ In the past, the substantially higher age of men at first marriage led to a sex imbalance in the numbers of available partners. Balance can be restored if a man marries several women, either simultaneously (polygyny) or successively (divorce, repudiation).

⁽⁴⁰⁾ Equally, the threat of divorce and polygyny could motivate women to have as many children as possible.

⁽⁴¹⁾ We note simply that measurement of the frequency and timing of divorce and remarriage requires either an excellent civil registration system, or event history surveys on the full marital histories of men and women.

⁽⁴²⁾ This is a poor indicator of the intensity of divorce.

⁽⁴³⁾ As in Tunisia, for example.

7. Sub-national geographical and social disparities

These nuptiality transitions vary in pace and form between countries but also between different living environments and social groups within countries. As in other parts of the world, changes do not affect the entire population of a country to the same degree. We will take as an example the median age of women at first marriage by place of residence (urban or rural area) and educational level, in the five countries that have recently conducted a DHS survey (Table 7).

TABLE 7.— MEDIAN AGE AT FIRST MARRIAGE OF WOMEN^(a) BY RESIDENCE AND EDUCATIONAL LEVEL IN FIVE COUNTRIES (YEARS)

Country	Survey date	Residence		Level of education			Total
		Urban	Rural	Illiterate	Primary	Secondary or above	
Egypt	2000	21.7	18.3	17.3	18.4	22.8	19.9
Jordan	2002	22.5	21.9	20.4	20.6	23.5	22.4
Morocco	2003	24.0	20.9	20.4	23.8	27.7	22.7
Turkey	1998	20.5	19.9	18.0	19.8	23.8	20.3
Yemen	1997	16.2	16.0	15.8	18.2	24.8	16.2

^(a) Age at which 50% of women aged 30-34 years in the survey were already married.
Sources: Country reports from the latest DHS surveys.

An urban-rural contrast in median age at first marriage⁽⁴⁴⁾ is observed everywhere but to varying degrees depending on the country. The differences between median ages are still negligible in Yemen where half of women were already married at age 16, small in Jordan and in Turkey, and large (around three years) in Morocco and Egypt. The educational level of women is shown – a classic result – to have an enormous influence on their age at first marriage. Between illiterate women and those with a primary education, the increase is already perceptible (including in Yemen), and those with a secondary education or above marry at a much later age, ranging from 23 years in Egypt to nearly 28 years in Morocco.

The same pattern is observed for other components of nuptiality. The period of single life is much longer in the cities, notably the largest ones, and of course among highly educated men and women, for whom permanent celibacy is likely to become a real prospect in the near future. Polygyny seems to be more present in rural than in urban areas, and among the least educated groups. This also appears to be the case for family endogamy which, though universally present, is tending to decline, in Algeria at least, as the educational level of men and women rises. Similarly, divorce is often more frequent in the cities than in rural areas (Libya, Algeria).

These combined factors mean that *several nuptiality regimes co-exist today in the same country*, with different models by social group, living

⁽⁴⁴⁾ Age at which 50% of women aged 30-34 years in the survey were already married. These medians are lower than the means presented earlier.

environment and region. This is scarcely surprising insofar as modernity, cultural openness, the relations between men and women, the effects of economic crisis and of development all vary from one sub-population to another, in North Africa and the Middle East, as elsewhere in the world. These diverse and, in some cases, rapid changes in marriage patterns have an appreciable influence on fertility levels and trends in these countries.

VIII. Fertility: major changes in intensity and timing

The region as a whole (average for the 20 countries) has experienced a spectacular fertility decline over the last twenty years. Exceeding 6 children per woman in 1975 (Appendix Table A.6), fertility in the region still stood at 5.7 children in 1980-84, before dropping to 4.2 in the early 1990s and then to 3.1 around 2002. This decline for the whole region, fairly late compared with other regions but nevertheless rapid, conceals diversity in the pace of change between the three sub-regions, but primarily between countries, social groups and living environments.

1. Decline everywhere but at different paces

Comparison of the total fertility rates of all 20 countries in 1970-74 and in 2000-04 (Figure 9)⁽⁴⁵⁾ clearly shows the decline to be general but extremely uneven. In ten or so countries, with very different socio-economic profiles – from Tunisia and Algeria to Jordan, Kuwait and Qatar – the number of children per woman has fallen from between 6 and 8 in the 1970s to between 2 and 3 at present. Six of these countries are in the final stages of their fertility transition, with close to 2.1 children per woman: they are Algeria, Tunisia, Morocco, Iran, Lebanon and Turkey, which have fallen below Israel, the country where fertility was by far the lowest thirty years ago. At the other extreme, Yemen, Iraq and Palestine still have levels of between 5 and 6 children per woman. There has been a marked increase in heterogeneity within the region.

We can illustrate the diversity and specificity of the transition histories using some well-documented individual cases.

2. Five examples of fertility transition since 1960

Our examples are five countries (Figure 10) for which suitable time-series are available and that represent the diversity of fertility changes in the region. In all these countries (Algeria, Egypt, Iran, Jordan and Tunisia), total fertility stood at very high levels of between 7 and 8 children per

⁽⁴⁵⁾ Based on the most recent United Nations data (2005) presented in Appendix Table A.6.

woman in the early 1960s, with virtually no deliberate birth control. Tunisia⁽⁴⁶⁾ and Egypt were the first countries to see a decrease in fertility, starting with the introduction of family planning programmes in the late 1960s. But the fertility histories of the two countries diverged after 1974. In Tunisia, fertility continued to fall steadily down to its present level of 2.1 children per woman, whereas in Egypt it followed a more erratic, slower, and ultimately less certain course: a slight upturn following military demobilization after the 1973 war with Israel, a renewed decline between 1980 and 1990, followed by virtual stagnation at around 3.5 children per woman⁽⁴⁷⁾. In the remaining three countries, on the other hand, fertility gave few signs of change before the late 1970s. In Algeria, it was not until 1981 and especially 1986, after the official launch of a family planning programme, that a rapid decline was observed. In Iran, an abrupt downward movement began in 1984, after the establishment of the Islamic Republic in 1979, against a background of severe economic crisis and five years before the birth control programme was restarted. Finally, in Jordan, the mid-1980s saw the onset of a transition that was more gradual than in the other two countries, consistent with that observed in many others.

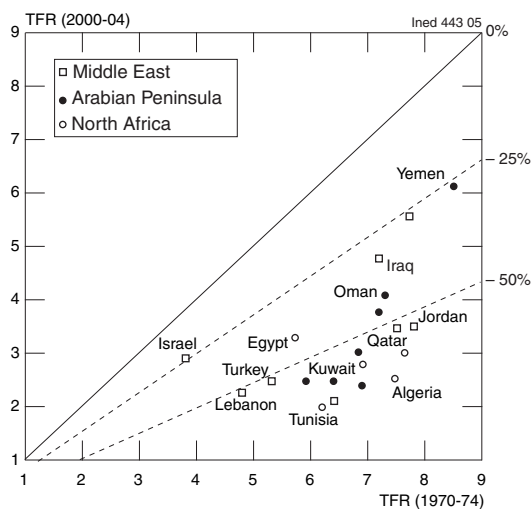


Figure 9. – Total fertility rates (TFR) from 1970-74 to 2000-04 in the 20 countries (number of children per woman)

Note: The various lines correspond to the indicated rates of decline.

Data source: United Nations (2005).

⁽⁴⁶⁾ For further details, see for example Sandron (1998).

⁽⁴⁷⁾ Fargues (2002, pp. 184-5) attributes this not directly to Islamist discourse, but indirectly to “a ‘re-Islamization’ of ordinary behaviour, of certain practices conforming to the precepts, real or supposed, of religion”, like the custom of relatively early age at marriage in Egypt.

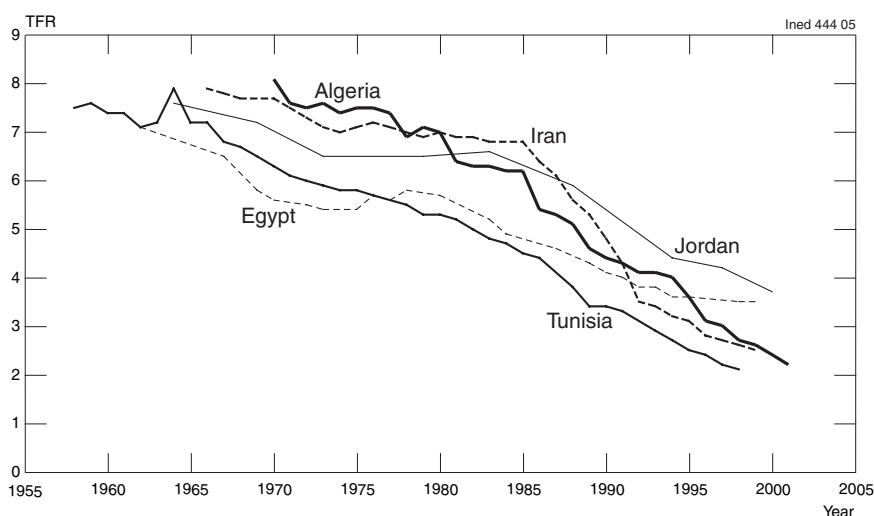


Figure 10.— Total fertility rate from 1960 to 2000 in five countries
(mean number of children per woman)

Sources: Ouadah-Bedidi (2004) for Algeria; Ladier-Fouladi (2003) for Iran;
Fargues (2002) for Egypt; country survey reports for Jordan;
Waltisperger et al. (2001) for Tunisia.

3. Substantial and contrasting changes in the timing of births

These changes in the intensity of fertility were accompanied by major changes in its timing. To illustrate this point, we can examine two other countries, Morocco and Turkey, where total fertility has also fallen from 6 to 2.5 children per woman, or by 58%, over thirty or so years. Figure 11 presents the trends in age-specific rates over this period and shows that fertility decreases markedly at all ages but at differing paces. The sharpest decline occurs at below 25 years in Morocco (strong increase in the proportion single at these ages), and at over 35 years in Turkey (widespread use of terminal contraception)⁽⁴⁸⁾. By around 2000, for an equivalent number of children in both countries, this yields differing tempos of fertility and an appreciably lower mean age at childbearing in Turkey (26.6 years) than in Morocco (29.1 years).

Figure 11 shows clearly that the fertility transition follows diverse paths in North Africa and the Middle East, as in the rest of the world. So as we have seen, overall fertility depends partly on changes in age at marriage⁽⁴⁹⁾, and these changes have been substantial in some countries. We will now move on to look at marital fertility.

⁽⁴⁸⁾ Calculation results not presented here.

⁽⁴⁹⁾ But also on the frequency and timing of divorce, widowhood and remarriage.

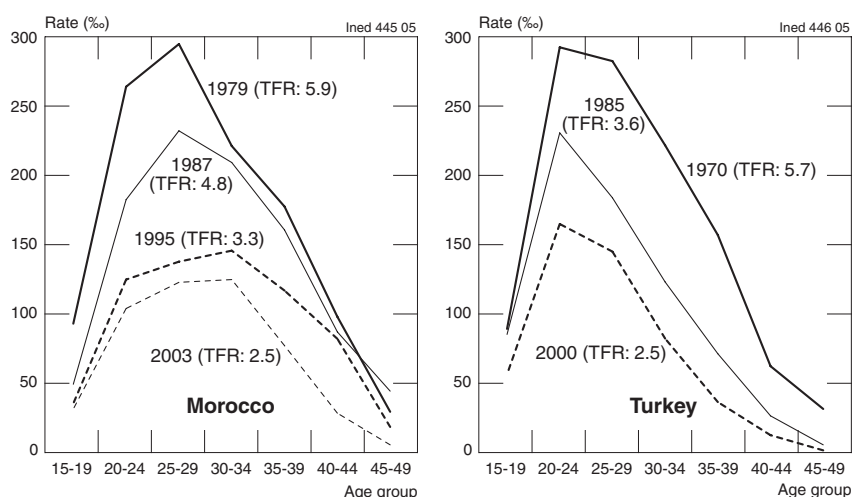


Figure 11.— Age-specific fertility rates in Morocco and Turkey between the 1970s and 2000s (‰)

Sources: The various fertility surveys in each country (see Appendix Table A.1).

4. Marital fertility remains relatively high

Table 8 compares the total and marital fertility rates in ten countries in the 1990s. Trends in marital fertility are determined primarily by practices for spacing or stopping births.

Marital fertility remains relatively high in the region. Excluding Turkey (3.1 children) and probably Israel, a woman who marries at age 15 and stays married until age 50 has around 6 children (from 5.1 in Egypt to 8.0 in Yemen and Saudi Arabia). In a country like Algeria, where overall fertility is now very low (2.2 children), marital fertility still stands at 6 children (Oudah-Bedidi, 2004). But it has fallen considerably, from 11 children in 1970 to 8.3 in 1992 and then to 6.0, as a result of increased contraceptive practice among married couples.

5. Declining demand for children: towards a new family model?

In every country of the region, the demand for children remains strong and the image of the family highly valued, but the number of children wanted is declining almost everywhere. The indicators available in the nine countries for which we have information all point in the same general direction. For example, the ideal family size has been falling for 15 years among married women aged 15-49, along a negative gradient from the oldest to the youngest cohorts. The proportion of married women

TABLE 8.— TOTAL AND MARITAL^(a) FERTILITY RATES FOR SELECTED COUNTRIES IN THE 1990S (NUMBER OF CHILDREN PER WOMAN)

Country	Survey date	Total fertility	Marital fertility
Algeria	2002	2.2	6.0
Saudi Arabia	1987	6.5	7.8
Bahrain	1989	4.2	6.0
Egypt	1995	3.7	5.1
United Arab Emirates	1989	5.9	7.2
Jordan	1997	4.5	6.2
Morocco	1995	3.4	5.2
Tunisia	1995	2.6	6.1
Turkey	1998	2.6	3.1
Yemen	1997	6.7	8.0

(a) The total fertility rate is the number of children a woman would have during her lifetime if she were to experience the fertility rates of the period at each age.

The marital fertility rate is the number of children a woman would have if she remained married from 15 to 49 and experienced the average marital fertility at every age. We have calculated it by summing the published marriage duration-specific fertility rates.

Sources: National survey reports (Appendix Table A.1).

aged 30-34 years who report not wanting any more children is on the increase⁽⁵⁰⁾. This is also observed among women who already have three children. Growing numbers of couples are thus prepared to limit the number of their children, notably in the cities and among the higher social groups.

The indicator of demand for children varies between countries. Among married women aged 25-34 years, the ideal number of children ranges from 2.5 in Turkey to 4.4 in Palestine and 4.6 in Yemen (Appendix Table A.7). Ideal family size is close to observed fertility levels (TFR) in Jordan, Turkey and Morocco, markedly higher in Algeria (by almost one child), and substantially lower in the two high fertility countries (Yemen and Palestine).

The indicators of nuptiality, examined earlier, and fertility all suggest that *profound changes in the traditionally dominant family model are under way in the region*. Overall, there is a shift from the large family model to that of the smaller nuclear unit, doubtless partly in response to the difficult living conditions in many countries (for employment, housing, cost of living, etc.), but also because of the environment (urbanization) and cultural change. At the national level, the model is not (yet) that of two children per couple, since reproductive norms and behaviour still vary substantially, even within countries.

⁽⁵⁰⁾ It rose from 70% to 77% in Egypt between 1986 and 2000, and from 47% to 56% in Morocco between 1987 and 1995.

6. Social and spatial diversification of reproductive patterns in the different countries

In the history of every society, the fertility transition at the national level occurs in stages. Fertility decline does not begin at exactly the same time across all the regions or social groups in a country, nor does it proceed at the same pace. There are always social groups (or regions) that are ahead of others, culturally more open to progress or that adapt more easily to the effects of crisis. In other words, we observe first an increased diversification of life (or survival) strategies – which include fertility – followed by a gradual convergence of behaviour. As elsewhere, fertility transitions in the region are driven by urban living, access to education and the social group. To illustrate this, Table 9 presents the differences between actual and ideal fertility according to the place of residence and educational level of women, and the two extreme regions in five countries currently in different stages of the transition.

TABLE 9.— TOTAL FERTILITY RATES AND MEAN IDEAL NUMBER OF CHILDREN^(a)
BY WOMEN'S RESIDENCE AND EDUCATIONAL LEVEL,
AND FOR THE EXTREME REGIONS OF THE COUNTRY (FIVE COUNTRIES)

Country	Index	Residence		Level of education			Extreme regions		Total
		Urban	Rural	Illiterate	Primary	Secondary or above	Minimum	Maximum	
Egypt (2000)	TFR	3.1	3.9	4.1	3.8	3.2	2.9	4.7	3.5
	Ideal number	2.7	3.1	3.3	3.0	2.6	2.6	3.5	2.9
Jordan (2002)	TFR	3.5	4.2	3.7	3.8	3.7	3.5	4.0	3.7
	Ideal number	4.2	4.5	4.8	4.4	4.1	4.1	4.6	4.2
Morocco (2003)	TFR	2.1	3.0	3.0	2.3	1.8	1.8	3.1	2.5
	Ideal number	2.7	3.3	3.3	2.7	2.4	2.5	3.4	2.9
Turkey (1998)	TFR	2.4	3.1	3.9	2.4	1.6	2.0	4.2	2.6
	Ideal number	2.4	2.6	2.9	2.4	2.1	2.3	3.1	2.5
Yemen (1997)	TFR	5.0	7.0	6.9	4.7	3.1	5.8	6.6	6.5
	Ideal number	4.1	4.6	4.6	4.0	3.7	4.4	4.7	4.5

^(a) Reported by married women aged 15-49.

Sources: Country reports from the latest DHS surveys.

Urban and rural areas are everywhere quite distinct as regards both actual and ideal numbers of children. Urban fertility levels are appreciably lower in all the countries, even in Yemen where the transition has only just started⁽⁵¹⁾, but on the whole these urban-rural differences decreased substantially during the 1990s. Likewise, the desired number of children is consistently lower in the cities. These contrasts between urban and rural areas have varied over time, like those observed between social groups and educational levels. The case of Algeria (Table 10) provides an example. From a low level in the 1970s with universally high fertility, the disparities widened in the 1980s when changes in norms and behaviour began to

⁽⁵¹⁾ Though urban fertility still stands at 5 children per woman.

spread across the cities. They then narrowed again in the 1990s due to the rapid “diffusion” of these same changes in the rural areas.

Fertility in some capitals or major cities now stands at particularly low levels. In cities like Algiers, Rabat, Casablanca and Istanbul, the fertility transition is complete, with slightly fewer than two children per woman. In these contexts, demand for children is low, marriage is late for both men and women, and contraception is widely practised.

TABLE 10. – TOTAL FERTILITY RATE IN ALGERIA, 1970-2002,
BY RESIDENCE (NUMBER OF CHILDREN PER WOMAN)

Year of survey	Urban (1)	Rural (2)	Total	Ratio (2)/(1)
1970	7.3	8.5	8.1	1.16
1986	4.5	7.1	6.3	1.58
1992	3.6	5.3	4.4	1.47
1998	2.4	3.0	2.7	1.25
2002	2.0	2.5	2.2	1.25

Sources: Survey reports (see Appendix Table A.1.).

Similarly, the *education of women* has an increasingly important role in the region, as elsewhere in the world. Except in Jordan⁽⁵²⁾, receiving a primary education is enough in itself to modify behaviour appreciably; and this effect is greatly accentuated by access to secondary or higher education (Table 9). The largest inequalities associated with access to education are observed in Turkey and Morocco. As we have seen for age at marriage – and as we shall see for contraception and breastfeeding – education considerably modifies the role of the intermediate fertility variables.

Similarly, the countries still exhibit marked *regional diversity*, with differences in fertility ranging from 0.5 to 2.2 children per woman between the extreme regions of the five countries (Table 9). These differences remain particularly large in Turkey (western region/eastern region), in Morocco (Grand Casablanca/Tangiers-Tetouan), and in Egypt (Urban Governorates/Upper Egypt).

All in all, the comparative social and spatial homogeneity observed during the 1970s and 1980s clearly belongs to the past, even if the countries are at different stages of transition.

7. Human development and infant mortality: loose correlates of fertility

Contrary to what is observed at the world level or in other regions of the world, such as sub-Saharan Africa (Tabutin and Schoumaker, 2004), in North Africa and the Middle East no close relationship was discernible

⁽⁵²⁾ Where, remarkably, the 2002 survey, like that of 1997, shows hardly any differences in fertility by women’s educational level.

around 2002 between fertility and the human development index (HDI)⁽⁵³⁾, nor between fertility and infant mortality (Figures 12 and 13)⁽⁵⁴⁾.

The correlations are statistically significant ($R^2 = 0.29$ for HDI, $R^2 = 0.24$ for infant mortality), but the points are widely dispersed. For example, at an identical level of human development (HDI around 0.73), fertility values range from 2.0 children in Tunisia to 4.1 in Saudi Arabia

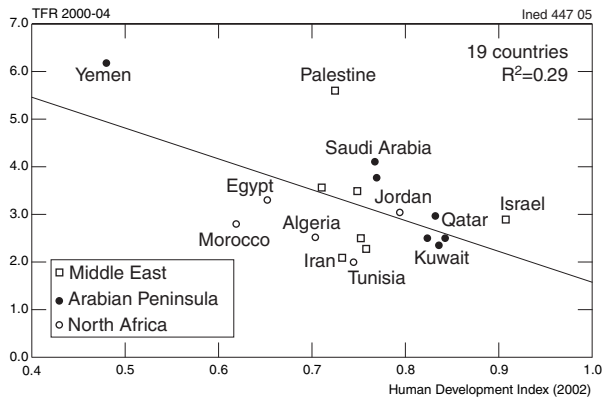


Figure 12. – Relationship between the total fertility rate and the human development index in 19 countries, c. 2002

Note: The HDI is not available for Iraq in 2002.
Sources: United Nations (2005) and UNDP (2004).

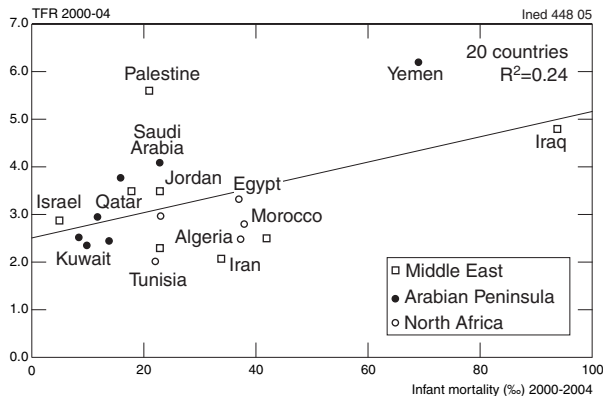


Figure 13. – Relationship between the total fertility rate and infant mortality in 20 countries, c. 2002

Source: United Nations (2005).

⁽⁵³⁾ The indicator proposed by the UNDP (1990), which combines life expectancy, education, literacy, and per capita GDP (see note of Appendix Table A.14).
⁽⁵⁴⁾ The country-level data are in Appendix Tables A.6, A.9 and A.14.

and even to 5.6 in Palestine. Conversely, for the same fertility level (around 3 children), the human development index ranges from 0.62 in Morocco to 0.91 in Israel. The same is true for infant mortality: Tunisia with 2.0 children, Saudi Arabia with 4.1 children and Palestine with 5.6 children are at a low level (around 22‰); at 3 children or thereabouts, mortality ranges from 5‰ in Israel to 40‰ in Egypt. All in all, *in many countries of the region, notably in the Middle East and Arabian Peninsula, current fertility is substantially higher than it would be elsewhere for the same level of development and health.* The absence of a clear relationship also confirms the distinctiveness of national histories and the diversity of the paths followed by the fertility transition.

IX. The proximate determinants of fertility: the key roles of marriage and contraception

The level of overall fertility in a population at any given time depends on norms and practices with respect to age at marriage, breastfeeding, post-partum sexual abstinence, abortion, and of course contraception (for both birth spacing and birth stopping)⁽⁵⁵⁾.

In the Arab and Muslim societies of the region, the proximate determinants⁽⁵⁶⁾ of fertility followed a traditional model comprising early marriage for women, absence of contraception within marriage, relatively short post-partum abstinence, and widespread and prolonged breastfeeding. As already noted, this pattern gave very high levels of total and marital fertility, of around 8 and 10 children respectively, and quite short birth intervals, of the order of 24 months. What is the situation at present? The most recent data by country, covering the period 1995-2003⁽⁵⁷⁾, are given in Appendix Table A.8.

The limited recent and comparable data point to an appreciable lengthening of *birth intervals* (Appendix Table A.7). Calculated for all women aged 15-49, the median last birth interval is 34 months in Egypt, 37 months in Turkey and 42 months in Algeria and Morocco. This tendency indicates a growing use of birth spacing practices. By contrast, in Palestine and Yemen intervals remain of traditional length, at 22 and 28 months respectively.

⁽⁵⁵⁾ The list could also include intra-uterine mortality and frequency of intercourse, which we will not consider here due to lack of adequate data.

⁽⁵⁶⁾ These determinants are described as proximate by comparison with the remote (or structural) determinants, such as education, urbanization, mortality, economic system, religion, etc. The term "intermediate fertility variables" is also used.

⁽⁵⁷⁾ Excluding Iraq, where the last national survey was in 1989.

1. Post-partum sexual abstinence and breastfeeding: few significant changes

Post-partum sexual abstinence and breastfeeding are two of the variables that can influence the duration of post-partum sterility following a birth.

Post-partum abstinence is traditionally short in the Arabo-Muslim world⁽⁵⁸⁾, where reference is often made to a norm of 40 days⁽⁵⁹⁾. To judge from the results for the last 30 years, it remains close to this duration, with a median value of 1.7 to 1.9 months in the latest DHS surveys (Appendix Table A.8). It has changed little over time; it is simply a little shorter in the cities and among educated and younger couples⁽⁶⁰⁾.

Breastfeeding⁽⁶¹⁾ continues to be widely practised in the region and generally for fairly long periods, with median durations of 11 or 12 months in Palestine, Turkey and Libya, between 13 and 15 months in Algeria, Morocco, Jordan and Tunisia, and even 18 months in Egypt and Yemen (Appendix Table A.8). On the whole, no major changes have occurred in the last fifteen years. This cross-country variability is nevertheless accompanied by substantial diversification in norms and practices within countries. In Egypt (DHS 2000), for example, the very long breastfeeding durations of the national average are being maintained in the cities as well as in rural areas, and vary little with the educational level or residence of the mother. In Turkey (DHS 1998), on the other hand, the practices are more differentiated between places of residence and social groups, although overall breastfeeding duration remains at around 12 months. The changes in behaviour for certain groups are clearer still in Morocco. Relatively weak at the start of the 1980s (1979-80 survey), the urban-rural differentials have grown considerably since then. In 2003 the median duration of breastfeeding was only 11 months in urban areas versus 16 in the countryside; it even fell to 9 and 8 months among women with the most education and of the highest social group, versus 16 months among those who were illiterate and in the poorest group. This quite radical break with tradition seems to have been less abrupt in Tunisia (Ayad and Jemai, 2001). No significant differences in breastfeeding between boys and girls are observed anywhere.

⁽⁵⁸⁾ In particular compared with the prolonged abstinence practised in sub-Saharan Africa.

⁽⁵⁹⁾ According to Kouaouci (1983), this norm is not present in the Koran or in the Sunna (Tradition).

⁽⁶⁰⁾ Except in Jordan (2002), where once again behaviours are very similar.

⁽⁶¹⁾ The Koran contains one explicit reference to its duration: "Two full years" (Sura 2, Verse 233). According to A. Kouaouci (1983, p. 40), "this duration should be interpreted as a maximum since the Koran specifies that the father and mother can decide to wean when they judge best for one or other party, or both, or just for the child". Putting the child out to nurse is also allowed.

2. *Rapid and diversified progress of modern contraception*

The situation in the region is not at all comparable with that of the early 1980s when – excepting Tunisia, Egypt and Israel – modern contraceptive use was particularly low, with prevalence among married women ranging between 4% and 10% in most countries. Considerable progress has been made, especially since 1985, with wide variations between sub-regions and between countries however. Contraceptive prevalence by country (any method, modern methods) is presented in Appendix Table A.8. Figure 14 illustrates the variability in contraceptive use across the region and its relationship with fertility.

Today, *knowledge of contraceptive methods* is widespread in the region. If the results from the latest surveys can be relied upon, between 90% and 98% of married women in most countries report knowing at least one modern method⁽⁶²⁾. Contraceptive practice now depends essentially on the demand from couples and on the availability of services (geographical or cultural accessibility, cost and quality).

Around the year 2000⁽⁶³⁾, *modern contraceptive prevalence* among married women aged 15-49 was over 40% in 9 countries of the region, between 20% and 40% in 9 others, and remained at particularly low levels only in Yemen (10%) and Oman (18%). The three Maghreb countries, and Egypt, Israel and Iran, stand out especially, with current prevalence levels of around 55% (Figure 14). By contrast, with the exception of Kuwait, levels in the countries of the Arabian Peninsula are clearly lagging behind (around 30% in 1996).

The three Maghreb countries, Iran and, to a lesser degree, Lebanon have experienced a *contraceptive revolution* that has surprised by its speed. Such a rapid change could not have been imagined barely 20 years ago. In Morocco, for example, modern contraceptive prevalence has climbed from 19% to 55% in 22 years, and in Algeria from 22% to 52% in 20 years.

Overall, and consistent with what is observed in other regions, a strong inverse relationship exists between modern contraceptive practice and total fertility (Figure 14), with a coefficient of determination of 0.73. The phenomenon is especially clear in the extreme situations, somewhat less so in the intermediate countries: thus a contraceptive prevalence of around 30% gives fertility ranging from 3 to 6 children per woman. The relationship with marital fertility, which we have not presented due to too few data, would have been even stronger.

As in other regions of the world, contraceptive use has spread – and continues to do so – from cities to rural areas, and from the most educated

⁽⁶²⁾ For Yemen, the least advanced country in this respect, the proportion is 79%.

⁽⁶³⁾ The survey results date from 1996 to 2003 depending on the country.

and affluent couples to the most disadvantaged couples. The fact that not all countries are yet at the same level results in clear differences between geographical and social groups by country. In the most advanced countries in terms of family planning provision (the examples of Egypt and Morocco in Table 11), social and geographical disparities are now relatively small, though educated and urban women still have a slight advantage. The disparities are much larger in countries where contraceptive use is at intermediate levels (Turkey and Jordan in Table 11). And they are enormous in Yemen, where policy on contraception is in its very early stages.

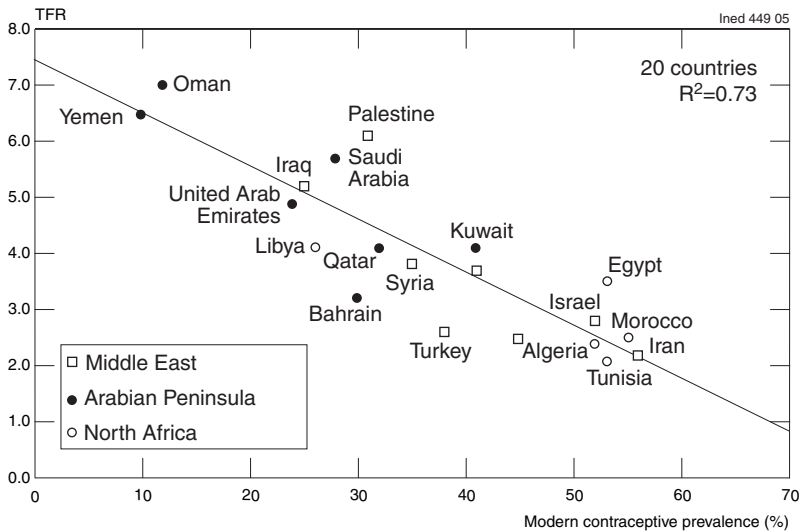


Figure 14.– Relationship between the total fertility rate and modern contraceptive prevalence among married women (age 15-49), c. 2000
Sources: National survey reports.

TABLE 11.– PROPORTION OF MARRIED WOMEN (15-49)
USING A MODERN CONTRACEPTIVE METHOD, BY RESIDENCE
AND EDUCATIONAL LEVEL (%)

Country	Residence		Level of education			Total
	Urban	Rural	Illiterate	Primary	Secondary or above	
Egypt (2000)	59	50	50	55	59	53
Jordan (2002)	43	36	33	36	43	41
Morocco (2003)	56	53	54	57	56	55
Turkey (1998)	41	31	28	39	53	38
Yemen (1997)	21	6	8	17	31	10

Sources: Country reports from the latest DHS surveys.

The *modern methods of contraception* used for birth spacing or birth stopping vary markedly between countries⁽⁶⁴⁾. The pill is still the most widely used method in Morocco and Algeria where it has been adopted respectively by 73% and 90% of users of modern methods, whereas the IUD has become by far the most popular in Egypt, Tunisia, Palestine and Jordan, with between 55% and 65% of users. On the whole, the condom remains unpopular, except in Turkey (22%). Female sterilization, which for long was viewed negatively and seldom used, is on the increase in countries such as Morocco, Jordan and Turkey where between 5% and 10% of married women say they use a modern method; it has even become the second method in Tunisia, after the IUD. The *traditional methods* reported are mainly withdrawal and periodic abstinence and in some cases prolonged breastfeeding⁽⁶⁵⁾.

But to what extent can the substantial reductions in total fertility described earlier be attributed to the increased age at marriage of women and to what extent to the adoption of contraception among married couples?

3. The respective roles of contraception and nuptiality in the fertility declines

We will confine our analysis to the three Maghreb countries – Morocco, Algeria and Tunisia – which have experienced the greatest changes in both nuptiality and contraception over the last thirty years. Indeed, these changes have at times even been described as marital and contraceptive revolutions. Here we will merely summarize the results of three recent studies⁽⁶⁶⁾ on Morocco (Bakass, 2003), Algeria (Ouadah-Bedidi, 2004), and Tunisia (Ayad and Jemai, 2001). The methodology they use is the Bongaarts model. This model breaks down the fertility-reducing effects of three main variables: the duration of post-partum sterility (closely related to length of breastfeeding), the postponement of marriage, and the spread of contraceptive use⁽⁶⁷⁾. More specifically, it is used to “explain” the difference between a total fertility observed at a given time (5 children per woman, for example) and a hypothetical maximum or theoretical fertility (estimated by J. Bongaarts at an average of 15.3 children).

⁽⁶⁴⁾ For an in-depth analysis of the dynamics of contraception, see for example Bakass (2003) on Morocco.

⁽⁶⁵⁾ The relative importance of these traditional methods in overall contraceptive practice varies greatly between countries: 50% in Yemen and Bahrain, 27% in Jordan and Palestine, 13% in Morocco, 10% in Saudi Arabia, and only 4% in Egypt (proportions calculated from country survey reports). Surprisingly, the relative importance of these traditional methods is unrelated to overall levels of contraceptive use.

⁽⁶⁶⁾ For some older studies of the factors responsible for the decline in fertility (increased age at marriage, birth control within marriage, changes in age structures), see Tabutin (1982) on the Maghreb countries, and Kouaouci (1992) on Algeria.

⁽⁶⁷⁾ For a presentation of the model, see Leridon and Toulemon (1997). Here we ignore the role of sterility (negligible in the Maghreb) and of abortion, which is poorly understood, though we discuss it briefly in the next section.

Table 12 ranks the three main fertility-reducing factors for each country in the 1970s, 1980s and 1990s. During the 1970s, the reduction in fertility (relative to the theoretical maximum) was due primarily to post-partum sterility, but the effect of nuptiality was already perceptible whereas that of contraception was weak⁽⁶⁸⁾. The latter began to develop in the three countries from the mid-1980s and increased its contribution to fertility reduction in the 1990s, as did nuptiality, through a large rise in women's age at marriage (see Section VII). In the future, the effect of contraception is likely to increase further and that of nuptiality to stagnate, given the already late ages at marriage. Finally, the effect of breastfeeding (which has hardly altered over 25 years) will be determined by the intensity of changes in behaviour.

TABLE 12.— THE THREE MAIN FACTORS IN FERTILITY REDUCTION
(RANKED BY ORDER OF IMPORTANCE)
IN THE MAGHREB IN THE 1970S, 1980S AND 1990S

Country	c. 1975	c. 1986	c. 2000
Algeria	1. breastfeeding 2. nuptiality 3. contraception (negligible)	1. contraception 2. nuptiality and breastfeeding	1. contraception 2. nuptiality and breastfeeding
Morocco	1. breastfeeding 2. nuptiality 3. contraception (weak)	1. contraception 2. breastfeeding 3. nuptiality	1. contraception 2. nuptiality 3. breastfeeding
Tunisia	1. breastfeeding 2. contraception and nuptiality	1. contraception 2. nuptiality and breastfeeding	1. contraception 2. nuptiality 3. breastfeeding
<i>Sources:</i> Summary of results from Bakass (2003) on Morocco, from Ouadah-Bedidi (2004) on Algeria and of Ayad and Jemai (2001) on Tunisia.			

All in all, over the last 30 years as a whole, the increase in women's age at marriage and the growth of contraception have contributed almost equally, but not at the same time, to the rapid fall in fertility.

4. Abortion

Except in the two countries where it is legal – in Turkey since 1983 and in Tunisia since 1973⁽⁶⁹⁾ – induced abortion is largely a taboo subject about which little is known and that receives little attention in the official surveys of the countries in the region⁽⁷⁰⁾. Abortion is not mentioned explicitly in either the Koran or the Sunna (the Tradition), and the four

⁽⁶⁸⁾ Less so in Tunisia, however, which was the earliest country to introduce family planning.

⁽⁶⁹⁾ It was authorized in Iran in 1976, and prohibited again when the Islamic Republic was set up in 1979.

⁽⁷⁰⁾ Despite their very restrictive laws on induced abortion, a few countries like Morocco and Algeria do approach the question in the most recent surveys.

great schools of jurisprudence⁽⁷¹⁾ in Sunni Islam have adopted more or less restrictive positions on the question, ranging from absolute prohibition (the Hanbalite school in Saudi Arabia, for example) to toleration or authorization, notably when the mother's health or life is at stake (the Malikite school in the Maghreb countries)⁽⁷²⁾.

Consequently, there is little research on the subject, and given the lack of data, abortion is usually not considered as an intermediate variable of fertility. Some figures can nonetheless be given. An earlier study on induced abortion in 21 developing countries (Johnston and Hill, 1996) found that abortion was clearly present in Morocco, Egypt and Jordan, as well as in Yemen, but that its impact on fertility was much smaller than in Latin America or Southeast Asia. Turkey⁽⁷³⁾ alone stood out clearly. Abortion appears to have been long practised here and on a fairly large scale (United Nations, 2002); in the latest DHS survey of 1998, 27% of ever-married Turkish women reported having had at least one abortion, notably after age 35 and a second child; 15% of pregnancies in the last five years were terminated, a slightly lower figure than in the 1993 survey. The proportions in Morocco are far lower, yet even so, according to the 1995 DHS survey (Bakass and Fazouane, 2004), 2.3% of recent pregnancies (3.6% in cities, 1.6% in the countryside) were reported as terminated by induced abortion, especially – as in Turkey – after age 35 (6.4%). In Iran, in cities such as Shiraz (Ladier-Fouladi, 2003), abortion is practised unofficially, mainly when the mother's life is in danger. In Tunisia, abortions are believed to have numbered around 20,000 annually in the 1990s, despite the intensive family planning programme (Ayad and Jemai, 2001).

These few data on the frequency of abortion, commonly under-estimated in the world, show the emergence and possibly growing importance of the problem in the region.

X. Overall mortality: substantial progress

Considering the region as a whole, the mortality transition began slightly later than elsewhere but was rapid thereafter. As in other developing regions of the world, data remains a problem: few countries possess reliable and continuous information on deaths by age, sex, cause and residence because civil registration is often incomplete, or because data remain unprocessed and unpublished. For the historical perspective we

⁽⁷¹⁾ Sunni Islam having no ecclesiastical hierarchy, justice is derived from four schools of law, all based on the Koran and the Sunna: the Hanafite school, the Malikite school, the Shafi'ite school and the Hanbalite school. They differ by the strictness of their interpretation of the texts and by their capacity to adapt to the modern world.

⁽⁷²⁾ For more details of legislation by country, see United Nations (2002) or CERED (1998).

⁽⁷³⁾ Tunisia was not included in the study.

will rely chiefly on the estimates by the United Nations Population Division, the only comparable figures available for all the countries⁽⁷⁴⁾. More specific points, such as inequalities by sex or by living environment, will be illustrated with reference to the countries for which the fullest data is available. We also attempted to estimate the impact of the major regional conflicts on mortality in certain countries, but had to abandon because of the lack of reliable and detailed time-series of data by age and sex and of research on the subject.

Data by country are given in Appendix Table A.9 for life expectancy and infant mortality, and in Appendix Table A.10 for maternal mortality and HIV prevalence.

1. Constant but uneven progress since 1950

Having stood at barely 44 years in the 1950s, life expectancy (or mean length of life) in the region as a whole is now close to 70 years⁽⁷⁵⁾, with average annual gains over the period 1950-54 to 2000-04 of about 0.52 years, close to those in Southeast Asia, but slightly less than in East Asia where the annual gain is 0.59 years (gains calculated from Table 13).

TABLE 13.— CHANGES IN LIFE EXPECTANCY SINCE 1950, MATERNAL MORTALITY AND HIV PREVALENCE C. 2000, BY SUB-REGION

Sub-region	Life expectancy (years)				Maternal mortality rate in 2000 ^(a)	HIV prevalence (%) end 2003 ^(b)
	1950-1954	1970-1974	1990-1994	2000-2004		
North Africa	42.8	53.0	65.7	70.3	120	≈ 0.1
Arabian Peninsula	36.5	48.5	65.1	68.3	29 ^(c)	≈ 0.1
Middle East	45.2	57.2	66.0	68.8	100	≈ 0.1
Whole region	43.5	54.8	65.8	69.3	102 ^(c)	≈ 0.1
Sub-Saharan Africa	37.4	45.3	48.2	45.9	870	7.5
East Asia	42.9	64.2	69.2	72.6	60	0.1
Southeast Asia	41.0	52.0	63.8	67.2	260	0.6
Latin America	52.0	60.5	67.9	71.3	170	0.6

^(a) Number of maternal deaths per 100,000 live births.

^(b) Men and women aged 15-49. The HIV prevalence rate measures the proportion of HIV-infected persons, whether or not they have AIDS.

^(c) Mean calculated without Yemen, where maternal mortality is very high (570 per 100,000 births) compared with the other countries of the region.

Sources: Appendix Tables A.9 and A.10. The sub-regional averages are national averages weighted by the mid-period population totals.

⁽⁷⁴⁾ Calculation of these life expectancies is often based on child mortality (relatively well documented) with extrapolation to other ages using model life tables.

⁽⁷⁵⁾ All the regional and sub-regional means given are weighted by the population size of each country.

Progress has been particularly rapid in the Arabian Peninsula, where the annual gain is 0.64 years, though it started from a lower level, with life expectancy of barely 33 years in Yemen (52% of the sub-region's population) in the early 1950s. The gains accelerated markedly in this sub-region between 1965 and 1985 (Figure 15).

Today, *the region has finally closed much of the gap* relative to Latin America and East Asia, though it still trails them by 2 to 3 years of life expectancy (Figure 15). It has a large lead over South Asia. In the three sub-regions, life expectancy is gradually converging towards 70 years, a figure already reached in North Africa according to these United Nations estimates.

As in the health development of the other world regions, the *speed of progress, generally rapid, has varied between countries*⁽⁷⁶⁾, though of course they did not all start from the same position. The geographical inequalities were already present in the 1950s (Appendix Table A.9). In a few countries (Yemen, Saudi Arabia, Oman) life expectancy was below 40 years, in most it was between 42 and 46 years, while it already stood at around 56 years in Lebanon and 65 years in Israel. Figure 16 illustrates the change in life expectancy in the 20 countries between 1970-74 and

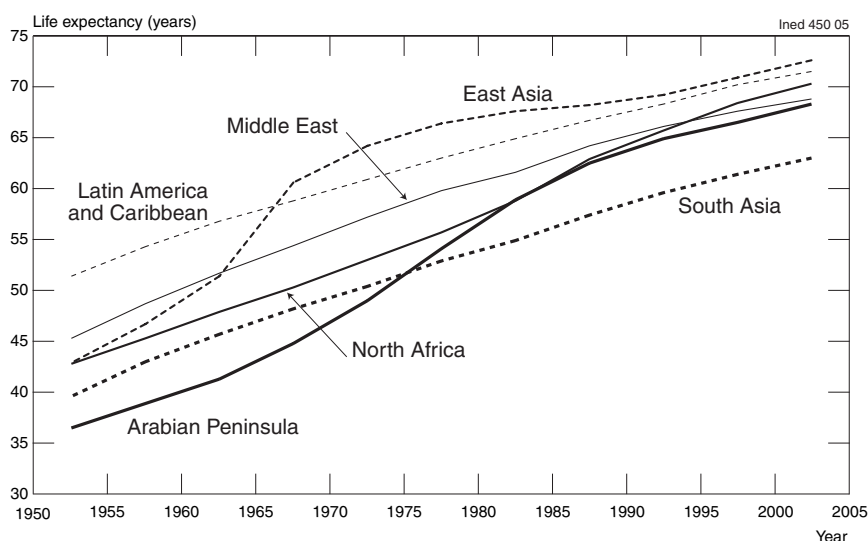


Figure 15.— Change in life expectancy by sub-region between 1950-54 and 2000-04

Source: United Nations (2005).

⁽⁷⁶⁾ For a more precise example of the various mortality transitions in North Africa from 1960 to 1990, see Tabutin (1993).

2000-04, the period in which progress was fastest and most diverse. It was particularly impressive – with mean length of life increasing by between 25% and 45% over 30 years – in the five countries of North Africa, and in Jordan and Iran, but also, if these UN data can be relied upon, in Palestine and in Yemen. In Israel and Lebanon, which started out from higher levels, progress was slower. The inequalities between countries remain today. At one extreme are Iraq, the only country where life expectancy has fallen by 3 years since 1980-1984 due to the various wars, and Yemen where it is barely 60 years; at the opposite extreme are a few countries at very advanced stages of their health transition and where life expectancies are close to those in western industrialized countries: Israel (about 80 years), United Arab Emirates (78 years) and Kuwait (77 years).

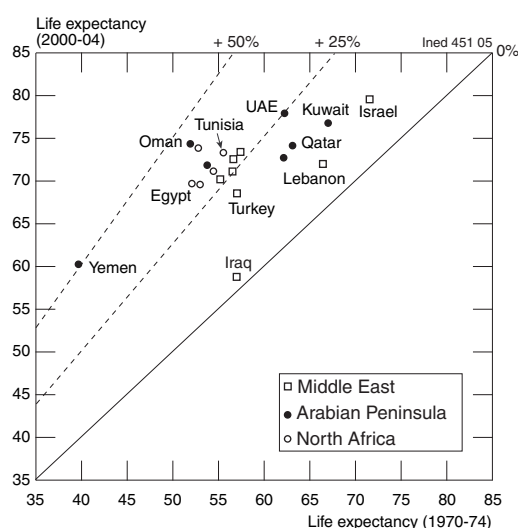


Figure 16.— Change in life expectancy levels by sub-region between 1970-74 and 2000-04 in the 20 countries

Note: The various lines correspond to the indicated rates of increase.

Source: United Nations (2005).

2. The epidemiological transitions underpinning mortality decline

Although lack of space and adequate data prevent a full illustration here, it is obvious that this passage from life expectancies of around 50 years in 1970 to close to 70 years today corresponds to a profound transformation in morbidity and cause-of-death patterns and in the age pattern of mortality. The infectious and parasitic diseases that predominated initially, particularly among children, have gradually given way to

chronic and degenerative diseases and to accidents; disease and mortality risks have shifted to increasingly older ages. In simplified form, this is the classic model of the epidemiological transition.

The age pattern of mortality can be illustrated using the example of Tunisia (Waltisperger et al., 2001). With the implementation of ambitious social and health policies from the 1960s, male life expectancy rose over a period of 26 years (between 1969 and 1995) from 52.3 to 69.6 years (a total gain of 17.3 years), and female life expectancy from 52.3 to 73.7 years (a total gain of 21.4 years, greater than that for men). Nearly 62% of the improvement for males, and 58% of that for females, stems from the reduction in under-five mortality, and above all in infant mortality⁽⁷⁷⁾. The next largest improvement, though far smaller, is after age 60. The obvious effect of this is to gradually push back the age structure of mortality and to change considerably the causes of morbidity and mortality, with consequences for health policies, both preventive and curative, that are already affecting most countries in the region.

3. *Sex inequalities: a return to normal?*

Mortality decline is invariably accompanied by a change in sex differentials. A situation in which male and female life spans are roughly equal gives way to one in which women live longer than men, although the size of this difference varies between cultures and regions⁽⁷⁸⁾. Excess female mortality, common at younger ages (we will return to this point) and in the childbearing ages, gradually diminishes and eventually disappears⁽⁷⁹⁾.

Table 14 presents the trends in these male-female inequalities since 1960 in four countries of the region (Algeria, Egypt, Tunisia and Iran) for which we possess relatively reliable time-series for life expectancy by sex. Up to the early 1970s, when life expectancies stood at around 52 years, the differences between men and women were small. They were almost non-existent in Algeria and Tunisia, and of barely one year to the advantage of women in Egypt, while in Iran, it was men who lived longer than women⁽⁸⁰⁾. From the early 1980s, the female advantage gradually became more pronounced, although the pace of this change varied. It proceeded

⁽⁷⁷⁾ That of boys, for example, went from 250‰ in 1946-1951 (one in four children died before the first birthday) to 158‰ in 1969 (one in six children), then to 34‰ in 1995 (one in thirty).

⁽⁷⁸⁾ See Tabutin (1978) for a history of this subject in Europe.

⁽⁷⁹⁾ Here we will not go into the possible explanations for these sex differentials and trends (see for example Waldron, 1998; or Vallin, 2002). Note simply that women are born with a certain genetic advantage over men which in principle gives them a longer life expectancy, but that this advantage can be nullified by discriminatory behaviour in food allocation, healthcare, etc. or by the risks associated with childbearing. Instead of the expected (or biological) excess male mortality, this may result in "socially" induced excess female mortality at certain ages. Its intensity and age distribution determines the differences in life expectancy between men and women.

⁽⁸⁰⁾ This was also observed in Algeria in 1954, though life expectancy was much lower, at 33.5 years for both sexes (Kateb, 1998).

smoothly in Tunisia and Egypt, where the sex differential currently stands at 4 years; it was much slower in Algeria, where women's average life expectancy of 75 years is only 2 years more than men's, and it was slower still in Iran, despite the war with Iraq (1980-88) during which a majority of the 200,000 or so victims (civilians and soldiers) were young males aged 16-30 (Ladier-Fouladi, 2003).

TABLE 14.- LIFE EXPECTANCY AT BIRTH BY SEX IN ALGERIA, EGYPT, TUNISIA AND IRAN, SINCE 1960 (YEARS)

Country	Year	Men (1)	Women (2)	Overall	Difference (2)-(1)
Algeria	1965	51.1	51.2	51.1	0.1
	1970	52.6	52.8	52.7	0.2
	1979	55.1	56.3	56.0	1.2
	1981	58.0	59.6	58.8	1.6
	1983	61.6	63.3	62.4	1.7
	1985	62.6	64.2	63.6	1.6
	1987	64.9	66.5	65.5	1.6
	1995	66.1	68.2	67.3	2.1
	2004	73.8	75.8	74.8	2.0
Egypt	1958-1962	48.3	49.3	48.8	1.0
	1965	49.3	50.1	49.7	0.8
	1975-1977	53.2	55.9	54.6	2.7
	1988	62.2	64.3	63.3	2.1
	2003	67.5	71.9	69.7	4.4
Tunisia	1968-1969	53.1	53.0	53.0	-0.1
	1973-1977	58.7	60.4	59.5	1.7
	1980-1981	65.1	67.3	66.1	2.2
	1984	65.9	68.9	67.4	3.0
	1995	69.5	73.7	71.5	4.2
Iran	1974	57.1	56.5	56.8	-0.6
	1986	58.5	59.2	58.9	0.7
	1991	62.4	63.2	62.8	0.8
	1996	66.8	69.4	68.1	2.6
<i>Sources:</i> For the three countries of North Africa, Tabutin (1991), updated from national statistical agencies; for Iran, Ladier-Fouladi (2003).					

The sex differences in life expectancy since 1960 are nevertheless smaller in these four countries than in other world regions. For example, for a life expectancy of 65 years, the female advantage was 4.3 years in Latin America and 7 years in East Asia (United Nations, 1988) but only 2 years in South Asia, another region where women have been, and still are, subject to severe discrimination.

In the past these small differences were due to concentrations of excess female mortality at certain ages. Until the mid-1970s, Algerian women, for example (Tabutin, 1991), experienced a large excess mortality beginning at age 6 or 7 months and lasting up to age 35; the same pattern prevailed, though with less intensity, in Tunisia. This excess female mortality – related to the status of women in society and to the risks of child-bearing – subsequently declined and eventually disappeared at almost all ages (the exception being the ages of 1-4 years, to which we shall return).

At present, women's life expectancy advantage in countries like Algeria and Iran is substantially smaller than that observed in much of the world.

In sum, the health and mortality transitions in the region have followed the classic pattern and benefited women more than men (the life expectancy differentials are increasing), but not always to the same extent as elsewhere.

4. Maternal mortality

Maternal deaths in the 20 countries of the region numbered roughly 15,300 in 2000, representing 3% of the world total of maternal deaths (for 6.5% of the world population)⁽⁸¹⁾. But in this region as elsewhere, national estimates of maternal mortality, that WHO defines as the death of a woman while pregnant or within 42 days of delivery, must be treated with considerable caution. In the absence of cause-of-death statistics these are usually indirect estimates, based on various possible definitions and calculation methods⁽⁸²⁾, and should be taken simply as orders of magnitude⁽⁸³⁾. The data by country are given in Appendix Table A.10, and the sub-regional estimates in Table 13.

For the region as a whole, the average maternal mortality rate is around 1 death per 1,000 births (Table 13). This is far better than in sub-Saharan Africa (1 death for 115 births), but better also than in Southeast Asia or even in Latin America (1 death per 590 births). Nevertheless, for women in the region, the risk of dying during their reproductive life is around one in 100 – compared with one in 4,000 in the industrialized countries – making maternal mortality a major public health issue (WHO, 2003).

The phenomenon is characterized by *great geographical diversity*. On average, maternal mortality is particularly low in the countries of the Arabian Peninsula (29 deaths per 100,000 births), if Yemen, where it is the highest (570 deaths) of the region, is excluded from the calculation. It is between three and four times higher in the Middle East and North Africa (Table 13). At one extreme are the countries where maternal mortality is practically “under control” (Israel, Qatar, Kuwait, with 17 deaths per 100,000 births, comparable with European levels); at the other are Syria, Lebanon, Iraq, Algeria and Morocco, where it still ranges between 140 and 250 deaths per 100,000 births. Intermediate levels prevail in the three large countries: Egypt, Iran and Turkey.

Although maternal mortality seems to have declined locally over the last ten years, vast progress remains to be made. Such progress depends

(81) Calculated from country data estimated by WHO (2003).

(82) For an overview of definitions and calculation methods, see Fortney (2002).

(83) For this reason WHO (2003) presents each country estimate as a wide range, whose the central value is used here.

both on the supply of health care (quality and quantity of services) and on demand from the population for pregnancy monitoring, safe delivery conditions and post-natal care. We will examine these questions in the next section.

5. *The threat of AIDS*

Compared with other world regions, HIV prevalence (percentage of people aged 15-49 infected with HIV) is low in North Africa and the Middle East (Table 13). The average prevalence calculated for the 20 countries⁽⁸⁴⁾ is only around 0.1%, the same as in East Asia but substantially lower than in Southeast Asia (0.6%), Latin America (0.6%) and above all sub-Saharan Africa (7.5% in late 2003)⁽⁸⁵⁾. According to United Nations estimates, national prevalence currently ranges from under 0.1% to 0.3% in Libya (Appendix Table A.10). Many public health specialists are concerned about the pandemic however⁽⁸⁶⁾, since there are many signs that sexually transmitted diseases, HIV/AIDS in particular, are increasing rapidly in the region, in certain countries at least. For example, we estimate that the number of infected persons in the region rose from around 60,000 in late 2001 to nearly 100,000 in late 2003⁽⁸⁷⁾. Some countries are particularly badly affected. Algeria, where the number of HIV infected people is thought to have increased from 6,800 to 9,100 over these two years, Libya (from 7,000 to 10,000), Iran (from 18,000 to 31,000), and some of the Gulf states such as Kuwait, Oman and Qatar. Israel, Egypt and Lebanon are all confronted by the same problem. Indeed, some commentators see HIV/AIDS as the third most important cause of morbidity affecting the adult population in the poorest countries of the region.

These figures must be treated with great caution, however, since most of the countries as yet possess no adequate surveillance system, notably for high-risk groups, and conduct little research in this field. Few have made it a clear priority for action. Only Tunisia, Iran, Morocco and Yemen have initiated clear national strategies for awareness⁽⁸⁸⁾ and action (Jenkins and Robalino, 2003).

Yet national and foreign health experts all agree on the need to act while prevalence levels are low, especially since conditions in many countries favour the development of the pandemic: large-scale migration,

⁽⁸⁴⁾ Our calculation uses the UNAIDS (2004a) estimates for each of the 20 countries.

⁽⁸⁵⁾ The figure for sub-Saharan Africa has recently been revised sharply downwards. UNAIDS put forward an estimate of 10.4% in late 2001, an indication that the statistics in this field should be treated with caution.

⁽⁸⁶⁾ See for example Jenkins and Robalino (2003), Kim (2002), Roudi-Fahimi (2003) or UNAIDS (2004b).

⁽⁸⁷⁾ This estimate was also based on national data supplied by UNAIDS (2004a).

⁽⁸⁸⁾ The population's understanding of the disease is far from perfect. In Algeria (2002 survey) and in Turkey (DHS 1998) for example, respectively 32% and 16% of married women (15-49 years) reported never having heard about AIDS; 30% in Turkey were unaware of any means of prevention. In Jordan (DHS 2002), 8% of women believed there was no way of avoiding it.

increased injecting drug use (in Iran, for example), high levels of poverty and unemployment (particularly among young people) more or less everywhere, plus localized conflict and violence.

XI. Child mortality and health

In this region, as in other parts of the world, children under five years of age have been the chief beneficiaries of the health transition. Enormous progress has been made in reducing infant and child mortality. Wide disparities remain, however, between countries, between different social groups within countries, and even between girls and boys (excess female child mortality, for example).

As was the case for fertility and life expectancy, the data for the trends in infant mortality by country since 1950 were drawn from United Nations estimates⁽⁸⁹⁾ (Appendix Table A.9). The other data, the most recent possible, on mortality by age (under 5), conditions of delivery, vaccination and antenatal care coverage and malnutrition levels are taken from the latest surveys (DHS, PAPFAM, MICS2, etc.) in each of the 20 countries (Appendix Table A.11)⁽⁹⁰⁾.

1. Substantial progress since 1960

Infant mortality rates in the 1950s (Table 15) were still extremely high throughout the developing regions, with little difference between them. Excluding South America, already ahead in this respect, infant mortality ranged from 168‰ to 192‰ (regional averages). If these estimates for the past can be relied upon, the Arabo-Muslim world, and the Arabian Peninsula in particular (219‰), even presented a slight excess mortality compared with the other regions.

The situation quickly began to change, but the pace of the change varied (Figure 17). Infant mortality in East Asia (including China) fell sharply from the 1960s before stabilizing at around 40‰ from 1980. Progress was much slower in South Asia, while it was fairly steady and rapid in the three sub-regions of interest here, especially in the Arabian Peninsula between 1970 and 1990 (excluding Yemen).

Today, with infant mortality at around 39‰, the level in the region as a whole (20 countries) is the same as in Southeast Asia, but higher than in East Asia (32‰) and Latin America (26‰). The six Gulf states (19‰) alone stand out as exceptions to the general rule.

⁽⁸⁹⁾ Some caution is required concerning data for earlier periods (1950s and 1960s in particular). Thanks to surveys conducted in recent years, infant mortality over the last twenty years is relatively well known however, though we believe it is still slightly under-estimated.

⁽⁹⁰⁾ Wherever possible we have used comparable indicators.

TABLE 15.— INFANT MORTALITY BY SUB-REGION, 1952-2002

Sub-region	Infant mortality rate (‰)				Change (%)		
	1952	1972	1992	2002	1952-1972	1972-1992	1992-2002
North Africa	189	130	58	36	- 31	- 55	- 38
Arabian Peninsula	219	135	49	38	- 38	- 64	- 22
Middle East	192	113	52	42	- 41	- 54	- 19
Whole region	192	121	54	39	- 37	- 55	- 28
Sub-Saharan Africa	177	134	109	101	- 24	- 19	- 7
East Asia	181	56	44	32	- 69	- 21	- 27
Southeast Asia	168	108	54	40	- 36	- 50	- 26
South Asia	187	131	84	69	- 30	- 36	- 18
Latin America	126	84	39	26	- 33	- 54	- 33

Source: Appendix Table A.9, United Nations (2005).

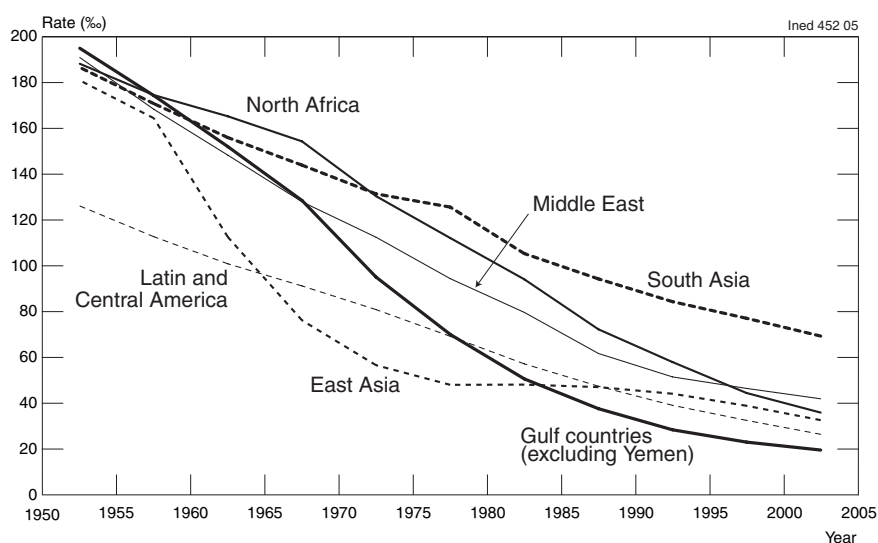


Figure 17.— Infant mortality between 1950-54 and 2000-04, by sub-region

Source: United Nations (2005).

These aggregate-level changes conceal the diversity in progress and in mortality levels by country, illustrated by Figure 18 that compares national infant mortality in 1970-74 and 2000-04. On the one hand, Israel, the most developed country, where infant mortality is only 5-6‰ (close to European levels); on the other, Yemen, the poorest country, where it is around 70‰. In Palestine, despite high fertility, economic hardship and the conflict with Israel, immense progress has been made in reducing infant mortality (currently around 20‰), with an effective health care system funded mainly by outside sources (oil producing countries, the Palestinian diaspora, international organizations). After three wars and a

protracted embargo, Iraq is the only country where no progress has been registered, and infant mortality is at the same high levels as in the late 1960s (94‰ in 2000-04). Over this 30-year period, infant mortality fell in most of the other countries by 70-90%, the pace of improvement being unrelated to initial levels (in 1970-74). Turkey has not caught up with Morocco, Algeria, Egypt and Iran, and mortality here still exceeds 40‰ at the national level⁽⁹¹⁾.

Beyond these overall changes, strong spatial and social differentials in infant and child mortality are observed in every country, frequently varying by a factor of 3 or 4 between regions, places of residence, or social groups. We return to this point later.

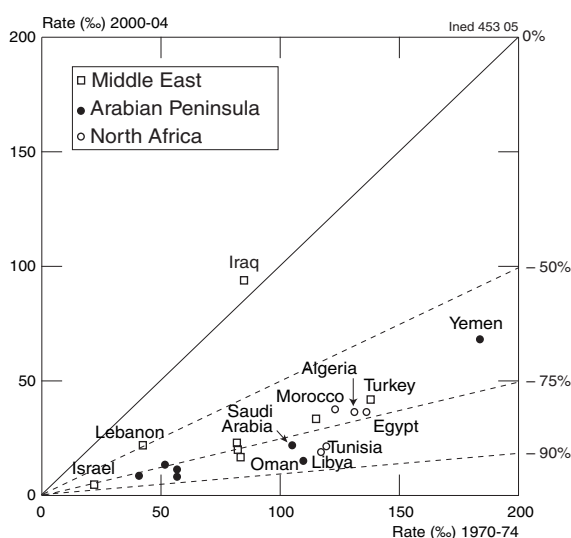


Figure 18.— Infant mortality in the 20 countries of the region, between 1970-74 and 2000-04

Note: The various lines correspond to the indicated rates of decline
Source: United Nations (2005).

2. Marked changes in the age pattern of under-five mortality

In historical mortality transitions, the progress achieved does not benefit all ages equally. The same is true for under-five mortality, which by convention is broken down into neonatal mortality (under one month),

⁽⁹¹⁾ For an analysis of the causes of the high mortality in Turkey (DHS 1998) in the 1990s, see Behar, Courbage and Gursay (1999). The authors believe that insufficient changes in attitudes and mentalities towards children are a more important cause than purely health factors. Nevertheless, Turkey presents marked shortcomings in the field of infant and child health (see point 4 below on spatial inequalities in the medical domain).

post-neonatal mortality (between one and twelve months), and child mortality (between one and five years). A reduction has been achieved in each of these components, but at different paces and following different chronologies.

By way of illustration we will take the example of Egypt between 1965 and 1998 (Figure 19). The history of under-five mortality there is consistent with the classic pattern. The gradual control (preventive and curative) of infectious and parasitic diseases had its greatest effect on mortality between 1 and 5 years, which plummeted from 119‰ in 1967 to 11‰ in 1998. Progress was also achieved against mortality between 1 and 12 months, though on a smaller scale (from 83‰ to 21‰). Meanwhile, neonatal mortality, more closely dependent on the mother and on the conditions of pregnancy and delivery (low birth weight, congenital malformations, etc.), declined later and more slowly.

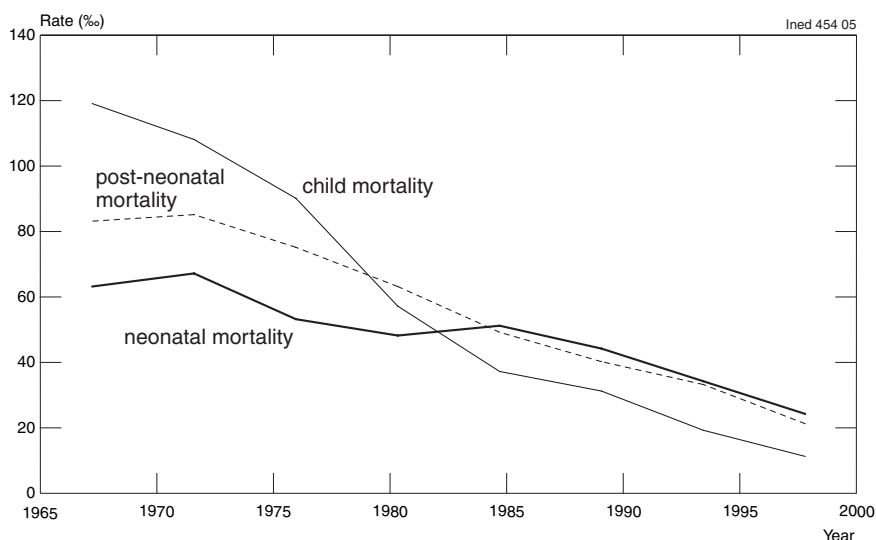


Figure 19.— Neonatal, post-neonatal, and child mortality in Egypt, 1967-98

Sources: various surveys since 1965 (see Table A.1).

The contrasting pace of these declines results in a radical and rapid transformation of the age patterns of mortality in the first years of life in most countries of the region. The gradual concentration of mortality risks in the first weeks or months of life has implications for action and policy in the areas of infant and child health, given that that reductions in mortality are more difficult and expensive to achieve at these early ages.

3. *Excess female child mortality: an ever-present problem*

In the 1970s and 1980s, North Africa and the Middle East, in common with the other world regions, experienced excess female child mortality at ages 1-5 that was particularly high and early, often beginning at the age of 2 or 3 months. In other words, when female children emerged from the period of endogenous risks and entered the ages of morbidity and mortality from infectious and parasitic diseases, they rapidly lost their initial biological advantage and became more at risk than male children (Tabutin and Willems, 1995; Tabutin and Gourbin, 1997). With the decline in mortality at early ages, notably through the greater control of infectious diseases, this excess mortality of female children has almost or entirely disappeared from many countries of the world and been replaced by a general excess mortality of male children. Often this has occurred when life expectancies approach 65 years⁽⁹²⁾.

The countries of the region have not followed this pattern. At present, with life expectancies around or above 70 years, and with relatively low infant and child mortality (regional average under-five probability of dying: 30‰), *excess female mortality at ages 1-5 is still observed at significant levels in virtually all the countries of the region*. According to Table 16, which gives the probabilities of dying (both sexes) at these ages and the sex ratios of the probabilities for 10 countries, this excess mortality ranges between 10% and 30% depending on the country, and there is no link with the mortality level. This has been a constant feature since 1970 in Algeria, Morocco, Egypt and Tunisia (Table 16), despite impressive mortality and fertility declines and substantial improvements in social welfare, education and health care.

The factors and mechanisms that account for the persistence of this historical excess female child mortality, usually attributed to differential behaviour by families and communities in the care and attention given to children, deserve special attention throughout the region.

4. *Spatial inequalities in healthcare*

To illustrate the health situation of the region and shed light on geographical inequalities in under-five mortality, we will examine three important practices for the health of mother and child: antenatal care, assistance at delivery, and vaccination. We will then make a few remarks about malnutrition, relatively prevalent in the region.

⁽⁹²⁾ As confirmed, for example, by the United Nations model life tables for developing countries (1984), constructed from the (reliable) tables for 22 countries. See Tabutin and Willems (1995).

TABLE 16.— EXCESS MORTALITY OF FEMALE CHILDREN (1-5 YEARS)
IN SELECTED COUNTRIES, 1970-2000

Country and date	Probability of dying (‰) between 1 and 5 years (both sexes) ^(a)	Ratio (%) of male probability to female probability
Algeria		
1970	83	92
1981	31	92
1985	20	87
1992	6	70
1996-1998 ^(b)	8	93
Egypt		
1988	42	82
1992	31	70
1995	25	77
2000	16	91
Morocco		
1979	52	73
1987	31	98
1992	22	88
2003	10	83
Tunisia		
1969	66	85
1980	29	93
1996	8	79
Libya		
1995	6	84
Lebanon		
2000	7	70
Bahrain		
1988	4	80
Jordan		
2000	5	100
Yemen		
1997	32	84
Turkey		
1992	13	90
1998	12	78
^(a) Probability of dying between the first and fifth birthdays.		
^(b) Averages calculated from the three official life tables based on civil registration (ONS, 2005).		
<i>Sources:</i> Tabutin and Gourbin (1997) updated from most recent surveys.		

Based on the most recent data, Appendix Table A.11 presents for each of the 20 countries the probabilities of dying at ages 0-1 month, 0-1 year, and 0-5 years, the proportion of births occurring without antenatal care, the proportion of children receiving the full set of vaccinations (BCG, DPT, polio and measles), and the proportion of children suffering from chronic malnutrition (moderate and severe). Table 17 gives all these indicators as sub-regional averages, from which Yemen and Iraq have been excluded because of their particularly poor health situation compared with the other countries.

TABLE 17.— MORTALITY UNDER ONE YEAR AND UNDER FIVE YEARS,
ANTENATAL CARE, DELIVERY CONDITIONS, VACCINATION AND CHILD MALNUTRITION,
BY SUB-REGION, C. 2000

Sub-region	Probability of dying (%)		% of births without antenatal care	% of deliveries unattended by skilled health personnel	% of children fully vaccinated	% of children with chronic malnutrition ^(a)
	Below one year	0-5 years				
North Africa (5)	32	39	25	20	88	17
Arabian Peninsula (6)	16	20	6	4	88	17
Middle East (7)	26	32	18	9	82	14
Total (18)	25	30	16	11	86	16
Yemen and Iraq (2)	85	105	45	54	42	37

^(a) Under age five in most of the surveys.
Source and definitions of indicators: Appendix Table A.11. The sub-regional figures are non-weighted averages of national results. Yemen and Iraq are presented separately because of their particularly poor health situation compared with the rest of the region. Figures in brackets indicate the number of countries per sub-region.

Taken as a whole, the region is still far from achieving full coverage in *antenatal care*. Among mothers in 18 countries (Table 17), 16% on average, or more than one in six, give birth without any form of antenatal care. Above all, enormous disparities, reflecting health policies, are observed between sub-regions and between countries – sometimes neighbouring ones – within sub-regions. The proportion receiving no antenatal care rises from just 6% in the Arabian Peninsula to 18% in the Middle East and 25% in North Africa. By far the highest coverage is found in the small Gulf states, plus Jordan and Tunisia⁽⁹³⁾ (between 92% and 98% of pregnancies, Appendix Table A.11), followed by Palestine, Lebanon, and Saudi Arabia (around 90%). By contrast, in four countries, among the largest by population size, coverage is seriously deficient: Syria, Turkey and Morocco (around 66%) and most of all Egypt, where barely one in two pregnancies receive antenatal care. That proportion is only one in three in Yemen.

Equally large geographical inequalities are observed for *medical assistance at delivery* (Appendix Table A.11, Table 17). The situations range from what can be described as near excellent in the United Arab Emirates, Israel and Jordan (where 96% to 99% of deliveries are attended by skilled health personnel), through relatively good (around 90%) in Algeria, Tunisia, Iran, Palestine, Lebanon and Turkey, to seriously deficient in Iraq and Syria (between 70% and 80%) and especially, once again, in Egypt and Morocco (between 60% and 70%). As for Yemen, only 22% of births are attended by skilled personnel, a level between those of Ethiopia and Rwanda, two of the most disadvantaged countries in sub-Saharan Africa (Tabutin and Schoumaker, 2004).

Although imperfect, a certain relationship exists between these two indicators of pregnancy monitoring and medical assistance at birth, and the level of neonatal mortality. The countries that rank lowest in this

⁽⁹³⁾ And probably also Israel, for which we have not found any recent information.

respect, Egypt, Morocco and Turkey (the latter for antenatal care at least), plus Yemen of course, are those where neonatal mortality is the highest in the region (Appendix Table A.11).

Vaccination coverage, while not total, is relatively high in the region, with 86% of children on average receiving the full set of basic vaccinations (versus 45% in sub-Saharan Africa) circa 2000 (BCG, DPT, polio and measles). Coverage levels generally range between 82% in Syria and 92% in Egypt (which stands out on this variable) or 95% in Iran. Three countries lag badly behind: Yemen (24%, a figure among the lowest in the world) and Iraq (61%) but also Turkey where, in 1998, fewer than one in two children were fully vaccinated⁽⁹⁴⁾. There are no instances of significant sex differences. Nor is any relationship observed between vaccination levels (fairly uniform) and levels of child mortality⁽⁹⁵⁾.

As a result of poor living conditions, low incomes and poverty experienced by a proportion of the population, *child malnutrition* remains a major problem in the region, with nearly 16% of children (regional average, Table 17), or more than one in six, suffering from chronic malnutrition (all degrees) and nearly one in thirteen from severe malnutrition⁽⁹⁶⁾. The situation in the region is far better than in South Asia (44% of children malnourished) or in sub-Saharan Africa (38%), but behind Latin America and East Asia. Malnutrition is rife everywhere, in North Africa (between 12 and 19% of children depending on the country), in the Middle East (although it appears to be lowest in Jordan and Palestine, at close to 8%) as well as in some wealthy countries of the Arabian Peninsula (notably Kuwait and Saudi Arabia). The level of child malnutrition in Yemen (52%) is comparable to that in the worst affected countries of sub-Saharan Africa (Ethiopia, Madagascar, Zambia and Nigeria).

All these national-level indicators obviously conceal numerous disparities within countries.

5. Strong social and spatial inequalities within the countries

However different their political and economic histories, all the countries of the region – as elsewhere – present major social and regional inequalities in child health and mortality. Without dwelling here on this

⁽⁹⁴⁾ A comparison of the results of the last two DHS surveys suggests that vaccination coverage may even have fallen sharply between 1993 (64% of children) and 1998 (46%), though we can give no explanation for this. In 1998, it was particularly low in rural areas (37%) and among the children of uneducated women (29%), though it did not exceed 51% in the cities and 61% among the children of highly educated women. It was very low in the eastern region of the country (23%), where high excess infant mortality is also observed.

⁽⁹⁵⁾ For example, two countries as different as Iran and Turkey in respect of vaccination have the same level of mortality at 0-5 years (50‰).

⁽⁹⁶⁾ Figures not given in Appendix Table A.11, taken from the UNICEF database (www.childinfo.org).

complex question, of key importance for public health policy, we look at the example of *Morocco*, a country with close to 32 million inhabitants today, where the demographic transition is proceeding quite rapidly and where, in common with other countries, social and regional inequalities are large⁽⁹⁷⁾. Table 18 presents the variability of child mortality and health indicators by living environment, mother's level of education, and living standard of the household.

As elsewhere, urban populations in Morocco are much more privileged than those living in rural areas, though their situation is far from perfect. Under-five mortality in rural areas is practically double the level in the cities, while antenatal care and medical assistance in delivery are half as frequent, and chronic malnutrition, already present in the cities (13% of children), is twice as common⁽⁹⁸⁾. Only on the vaccination variable are the differences reasonably small⁽⁹⁹⁾.

In Morocco, as elsewhere, *education* and *living standards* have a considerable influence on health practices and behaviour (Table 18). Under-five mortality varies by a factor of over two with educational level, and by a factor of three with living standards. The mothers' level of education introduces sharp contrasts in behaviour and practices, ranging from low use of medical services for pregnancy and delivery (one in two children) among illiterate women, to almost total coverage among the most educated women, although 10% of the latter's children suffer chronic malnutrition (moderate and severe)⁽¹⁰⁰⁾. The inequalities are further increased by differences in the standard of living. Overall, all the indicators improve from one income quintile to the next (Table 18). The situation of the poorest 20%, like that of the next lowest quintile, is particularly alarming. Excepting vaccination, between half and two thirds (depending on quintile) of women or children have no contact with the modern health system; nearly one in ten children suffer from severe chronic malnutrition, nearly one in seven from moderate malnutrition (figures not presented here). Poverty – material and cultural – clearly remains a key factor in child health.

⁽⁹⁷⁾ Morocco has implemented population policies for the last twenty years or so and more recently anti-poverty strategies in urban and rural areas (CERED, 1997, 2004). In terms of human development (HDI of 0.620), in 2002 the UNDP ranked it 125th in the world, close to Egypt but twenty places lower than Algeria, Iran, Palestine or Syria. In terms of human poverty, the country is close to the levels of Iran, Egypt and Oman (Appendix Table A.14). Calculated by the CERED (2003) by region, sex and living environment, the HDI varies from 0.495 (rural women in the Fez region) to 0.801 (urban men in the Lagouira region); in the 16 regions considered in the study, it is appreciably better in urban than in rural areas, and for men than for women.

⁽⁹⁸⁾ It is clear that the inequalities would have been even greater had we been able to isolate the two main cities (Rabat and Casablanca) from the others.

⁽⁹⁹⁾ This is a fairly common result when vaccination of children is organized in the form of a nationwide campaign.

⁽¹⁰⁰⁾ We were somewhat puzzled by this result, but it was already observed in the 1992 DHS survey (8%).

TABLE 18.— UNDER-FIVE MORTALITY, CONDITIONS OF DELIVERY, VACCINATION AND MALNUTRITION, MOROCCO, C. 2003, BY MOTHER'S RESIDENCE, EDUCATIONAL LEVEL AND HOUSEHOLD LIVING STANDARD

	Under-five mortality ^(a) (%)	Childbirths with antenatal care (%)	Births attended by skilled health personnel (%)	Vaccinated children aged 12-23 months (complete vaccination) (%)	Malnourished children ^(b) (%)	Relative weight of each group (%)
Place of residence						
Urban	38	85	85	94	13	60
Rural	69	48	40	84	24	40
Level of education						
None	63	55	49	86	23	50
Primary	42	79	77	92	14	20
Secondary or above	27	93	95	96	10	30
Living standard quintile						
First (poorest)	78	39	30	81	29	18
Second	65	56	50	85	20	19
Third	47	71	70	91	16	20
Fourth	37	87	86	95	11	21
Fifth (richest)	26	93	95	97	10	22
Total	55	68	63	89	18	100
(a) Probability of dying between birth and age five.						
(b) Height-for-age index as measure of chronic malnutrition (moderate and severe) in children under five.						
Source: DHS survey report, 2003.						

XII. Age-sex structures: rapid change and diversity

The region as a whole is still very young, with a median age slightly below 22 years around 2000. Over a third of its population is under 15 and only 6% is aged 60 and over (Table 19). Its population is "older" than that of sub-Saharan Africa, but still appreciably younger than the world population (26.8 years), of the developing countries as a whole (24.3), or of regions like Latin America and East Asia. These differences in age structures reflect differences in the fertility transition, which has occurred later in North Africa and the Middle East than in most other regions of the world.

Over a period of thirty years or so, however, the region has experienced an impressive fertility decline (see section VIII), resulting in already perceptible ageing at the base of the age pyramid. The proportion of under-15s has fallen from over 40% in 1950 to 35% around 2000 (Appendix Table A.12). But it is in the years ahead that the effects will be greatest. According to the latest United Nations projections (2005), the proportion of under-15s will probably be around 28% in 2020, the median

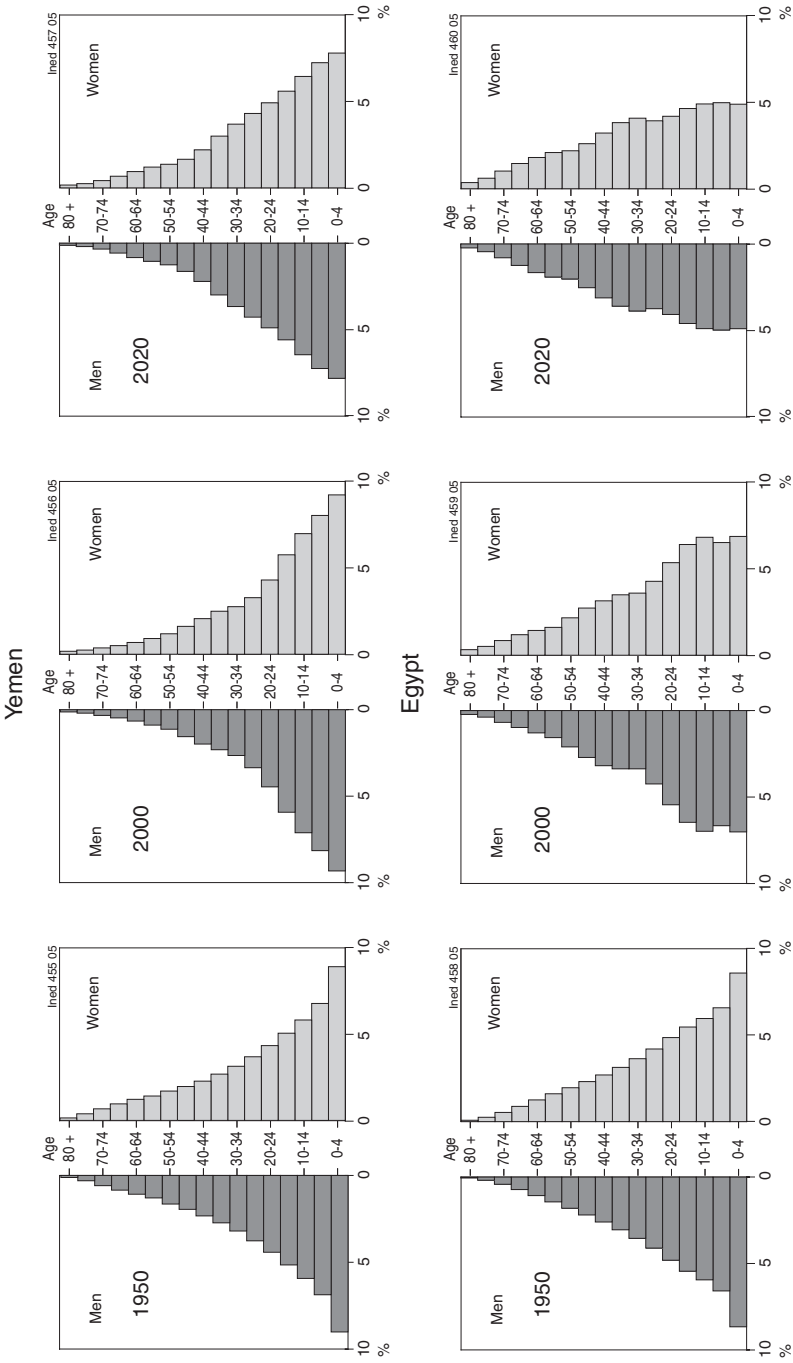
age 28, and the proportion of elderly around 9%. Allowing for the caution needed when using these longer-term projections, by nature more subject to uncertainty, in 2040 people aged 60 and over will probably account for around 15% of the population, corresponding to nearly 100 million elderly people in the region (versus 25 million at present). Population ageing will undoubtedly be a major challenge in many of these countries during the coming decades (UNESCWA, 2004). At present, however, it is the rapid growth in the number of young people of working age that is creating enormous problems, notably in the fields of employment and housing.

TABLE 19.— INDICATORS OF AGE-SEX STRUCTURES BY SUB-REGION IN 2000

Sub-region	Median age of the population (years)	% under 15	% aged 60+	Sex ratio (%) ^(a)
North Africa	22.0	34.4	6.8	101.1
Arabian Peninsula	20.1	40.7	3.7	122.8
Middle East	21.8	35.0	6.7	102.4
Whole region	21.7	35.5	6.3	104.5
Sub-Saharan Africa	17.5	44.3	4.7	100.8
East Asia	31.1	23.8	11.3	104.7
South Asia	22.5	35.4	7.1	105.2
Latin America and Caribbean	24.4	32.0	8.1	97.8
^(a) Ratio of males to females. <i>Source:</i> United Nations (2005).				

1. Growing heterogeneity between sub-regions and countries

The age-sex structures of the populations of the sub-regions and countries are quite diverse. The structures for North Africa and the Middle East are very similar, reflecting the relative proximity of fertility transitions at the sub-regional level, but that of the Arabian Peninsula by contrast is considerably younger, due to the young populations of Yemen and Saudi Arabia. It is also characterized by a large sex imbalance, with 23% more men than women, the result of immigration by foreign male workers. The heterogeneity of age-sex structures between countries is of course much greater (see Appendix Table A.12). In Israel, for example, the proportion aged 60 or over already exceeds 13%, whereas in many countries it is around 6%, and even close to 3% in the Gulf states. Young people under 15 account for nearly half the population in Yemen and Palestine, but barely a quarter in the United Arab Emirates. And the sex ratios vary from 96 men for 100 women in Lebanon to over 200 (twice as many men as women) in the United Arab Emirates! This heterogeneity in age and sex structures results not just from the diversity of fertility histories but also from international migration, particularly in the Gulf States (see below).



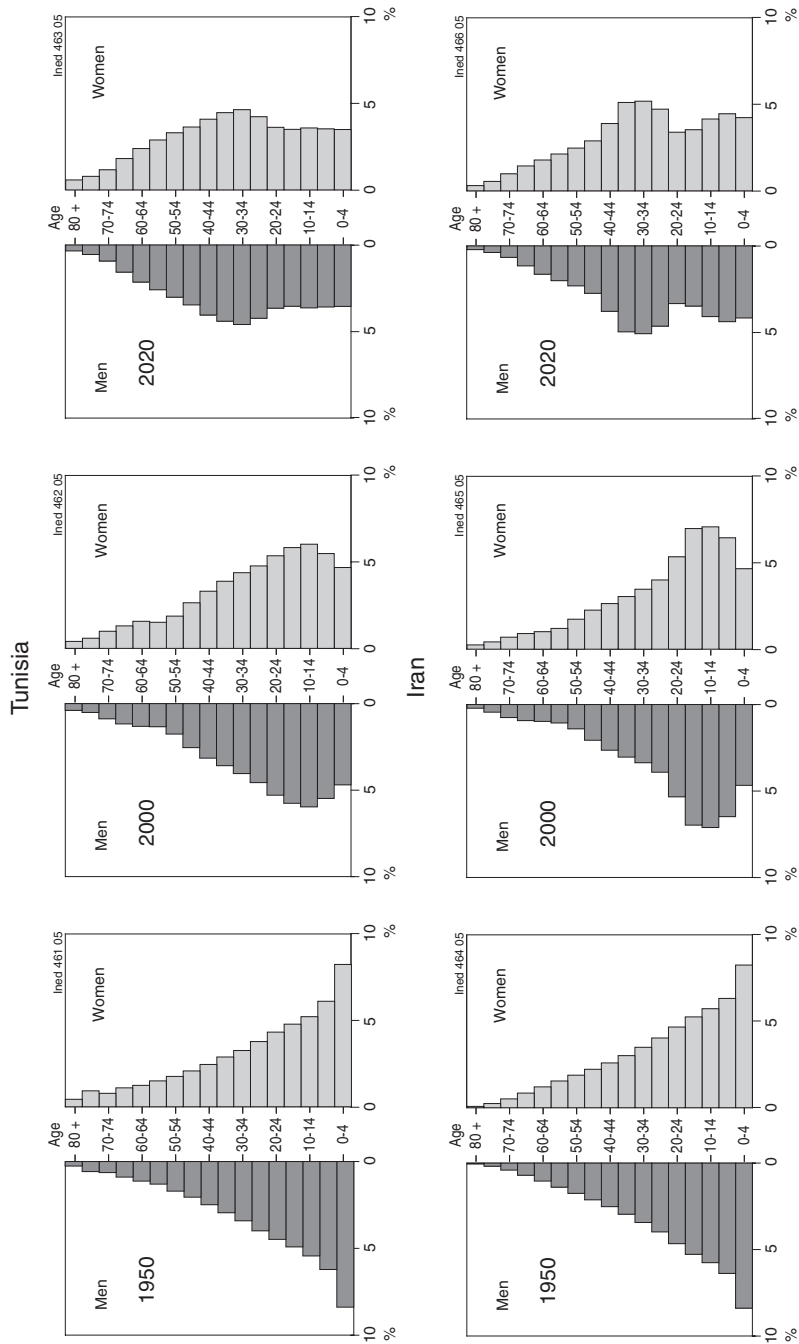


Figure 20.— Population pyramids in 1950, 2000 and 2020 in 4 countries
Source: United Nations (2005).

We will now take a closer look at the changes in the age pyramids between 1950 and 2000 and the projections to 2020 in four countries (Yemen, Egypt, Tunisia, Iran) with differing experiences of fertility transition (Figure 20). In 1950, none of these countries was yet engaged in the fertility transition, nor had they experienced large-scale migration: consequently they had very similar age and sex structures. By 2000 the situations were much more diversified, and they will become more so in the years ahead. The case of Yemen is typical of a country where fertility has undergone little or no change. Its population in 2000 is very young, younger in fact than in 1950, because mortality reduction has concerned mainly children. Between now and 2020, population ageing will occur, though on a moderate scale. As we have seen, the fertility decline in Egypt began quite early but has been rather erratic and generally fairly slow, and fertility currently stands at around 3.5 children per woman. This change is reflected in the age structure of the population in 2000: the base of the pyramid has narrowed but children aged 0-4 are still as numerous as those aged 5-9. The base of the pyramid will continue to narrow until 2020, at a relatively moderate pace. By contrast, the changes in Tunisia and Iran are much larger and this trend is set to continue. Fertility decline in Tunisia has been far more consistent than in Egypt, and the total fertility rate (2.0 children per woman) is now considerably lower. This is reflected in a marked narrowing of the base of the pyramid: in 2000, there are 15% fewer children aged 0-4 than aged 5-9, who in turn are less numerous than those aged 10-14. The ageing of the pyramid will continue fairly steadily in the years ahead, and the under-15s, who made up 30% of the population in 2000, will be no more than 20% or so in 2020. Finally, the case of Iran illustrates the changes to the age structure associated with a late but very rapid fall in fertility from 1985. From 2000, we see a marked narrowing of the pyramid's base, with almost 30% fewer children aged 0-4 than aged 5-9. Contrary to the situation in Tunisia, the coming decades will see major changes in the age structure, with large fluctuations in the number of births and in the size of the other age groups.

2. The effects of a rapid fertility decline: the example of Iran

We can illustrate the effects on age structure of a sharp decline in fertility by observing the fluctuations in the numbers of school-age children (aged 6-11 and 12-17) in Iran between 1980 and 2050 (Figure 21).

Between the 1980s and 1995, the number of 6-11 year-olds increased rapidly from just over 6 million to 11 million (annual growth of 3.6%); the number of 12-17 year-olds followed a similar course at a few years' interval. After this first peak, the school-age population started to contract as the number of births declined in the 1990s. The number of 6-11 year-olds drops back to just under 7 million in 2010; the 12-17 year-olds are expected to reach this figure in 2015. Despite the fall in fertility, births will

increase again after 2005 or thereabouts, as large numbers of women reach the ages of highest fertility. This will lead to a renewed increase in the number of 6-11 year-olds after 2010 and of 12-17 year-olds shortly afterwards. From 2025-2030 they will start to decline, though their numbers will continue to oscillate for several decades. As can be seen, Iran will face extreme fluctuations in the age structure of its population, affecting the organization of the educational system, for example. This will also be the case, albeit to a lesser degree, in other countries where fertility has fallen sharply over a short period (Algeria, Libya, etc.). What we have shown for the school ages will apply equally to the ages of entry into the labour force (18-25 year-olds) or of union formation (20-30 year-olds), and hence to the problems of employment and housing.

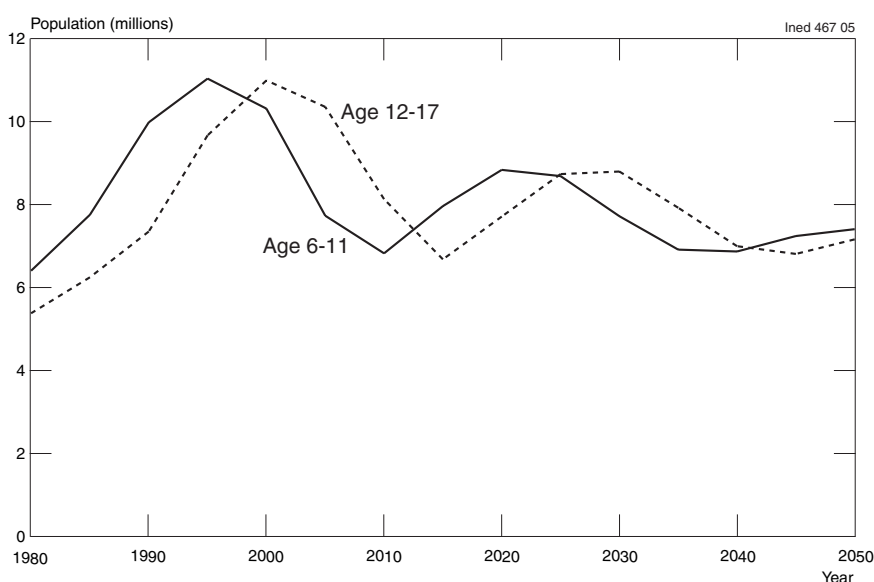


Figure 21.— Populations aged 6-11 and 12-17 in Iran, 1980-2050

Source: United Nations (2005).

3. *Dependency ratios and demographic dividends*

Another short-term consequence of the fertility declines is (or will be) a more or less rapid fall in dependency ratios⁽¹⁰¹⁾ in the countries of the region. We will again take the four countries in Figure 20 and examine

⁽¹⁰¹⁾ The dependency ratio measures the ratio of the “dependent” population (aged under 15 and 65+) to the working-age population (aged 15-64).

the change in their dependency ratios between 1950 and 2050 (Figure 22). In Tunisia and Iran, the countries furthest advanced in the fertility transition, the dependency ratios are currently very low, around 50%. In other words, in these countries, working-age individuals are twice as numerous as young people under 15 and persons aged 65 and over. The change has been particularly rapid in Iran, as a logical result of the abrupt decline in fertility since the mid-1980s. The ratio fell from 87% in 1995 to 50% in 2005, and will probably reach 42% in 2010. In Egypt, the change has occurred more slowly, and the dependency ratio stands at about 60%. Yemen, in the very early stages of transition, still has as many young and elderly people as adults aged 15-64.

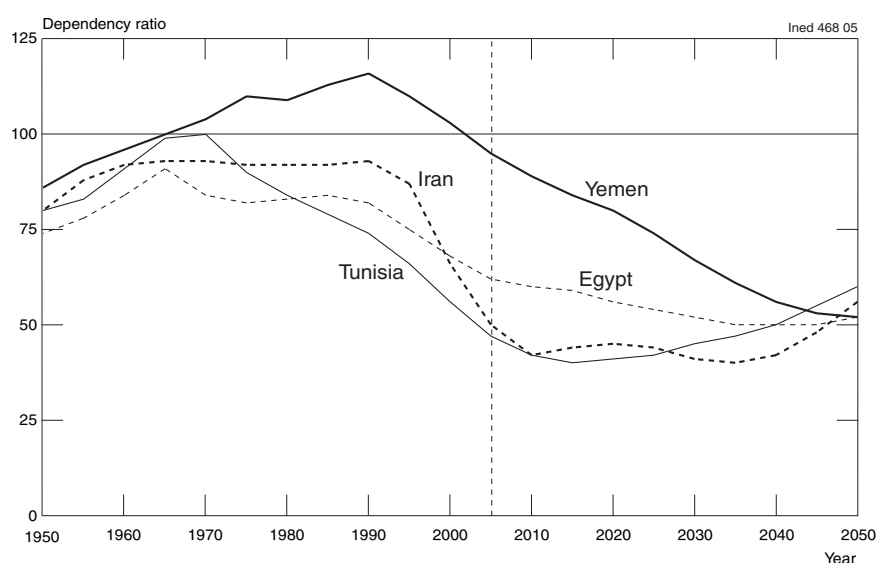


Figure 22.— Dependency ratios (%) in four countries, 1950-2050

Source: United Nations (2005), medium scenario for projections.

The fall in dependency ratios indicates a reduction in the demographic pressure that young people exert on the working-age populations (in particular by reducing the investments needed for their health and education), which has potentially important social and economic implications. In a favourable economic environment it may be possible to “reap” what are sometimes termed the “demographic dividends” associated with these changes in population age structures, in the form of more rapid economic growth and human development. Clearly, this depends on a great many other economic and political factors (Bloom, Canning and Sevilla, 2003). Will the countries of the region be able to capitalize on the short- and medium-term benefits of these structural changes?

4. Atypical pyramids: the effect of migration

Though fertility is generally the main factor, at least initially, behind changes in age structures, migratory movements also exert a strong influence in some countries of the region. This is the case for the oil-producing countries of the Arabian Peninsula with large populations of migrants (see section XIV). The type of imbalance encountered in the demographic structures of these countries is well illustrated by the age pyramid of *Bahrain* in 2004 (Figure 23), which distinguishes between Bahrain nationals and foreign nationals (nearly 40% of the total population). For the Bahrain nationals the population pyramid is of a fairly classic shape, with a slight narrowing of the base indicating a fall in fertility, but the structure of the total population is very different. The population presents a distinct “bulge” at the working ages (20-55 years), associated with the presence of foreign workers, men being heavily over-represented at these ages (160 men for 100 women). The sex ratio, which stands at 102 men for 100 women among Bahrain nationals, reaches 227 for foreigners and 136 for the total population. Atypical structures like these are observed in all the Gulf countries, with more or less extreme situations depending on the size of the migrant communities.

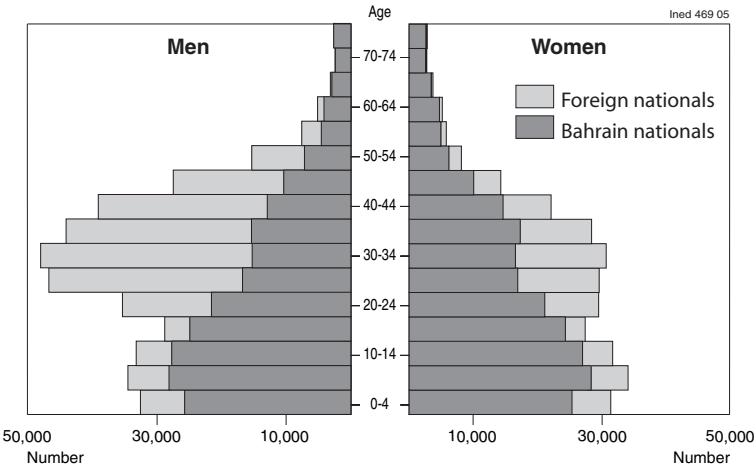


Figure 23.— Age and sex structure by nationality of the resident population of Bahrain in 2001

Source: 2001 Census data, published in *Bahrain Statistical Abstract* (2003).

XIII. Urbanization: a swift and nearly universal trend

As in other parts of the world, one of the major changes to occur in the Arab world and the Middle East during the second half of the twentieth century was the rapid urbanization of the population⁽¹⁰²⁾. Still largely rural fifty years ago, the region now has more urban dwellers than rural dwellers. The proportion of inhabitants living in urban areas rose from one in four in 1950 to 60% in 2000 and – according to United Nations forecasts (2005) – is set to reach 70% in 2025 (Table 20). The total urban population grew eightfold in 50 years, from 27 million in 1950 to 230 million in 2000; according to the UN scenario, it will approach 400 million in 2025. The level of urbanization in North Africa, the Arabian Peninsula, and the Middle East is relatively high compared with other regions. While lower than in Latin America, it substantially exceeds the levels in South Asia, East Asia, and sub-Saharan Africa (Table 20).

1. Disparate levels and trends

The region is far from homogeneous however. As with other variables, urbanization levels and trends differ significantly between sub-regions and between countries. By the early 1950s, levels ranged from less than 5% in Oman to nearly 80% in Qatar (Figure 24). Excluding these two countries, they ranged from 6% in Yemen to 66% in Israel, with a majority of countries reporting urbanization levels of 20-40%. Fifty years later, percentages ranged from 25% in Yemen to 96% in Kuwait, with 8 countries over 80% (versus a single one in 1950), and 18 of the 20 countries above 50%.

TABLE 20.– URBANIZATION LEVEL (%) BY SUB-REGION, 1950-2000, AND OUTLOOK FOR 2025

Sub-region	1950	1975	2000	2025
North Africa	28.5	40.3	51.1	61.5
Arabian Peninsula	12.5	41.5	63.4	70.0
Middle East	27.1	48.2	65.4	74.6
Whole region	26.5	45.4	59.8	69.2
Sub-Saharan Africa	11.0	20.0	32.5	46.6
East Asia	16.1	23.3	40.4	59.6
South Asia	16.6	22.2	29.5	40.2
Latin America and Caribbean	41.9	61.2	75.5	83.5
<i>Source: United Nations (2004c).</i>				

⁽¹⁰²⁾ Note that urban growth is due to the natural increase in urban population (difference between births and deaths), but also to migration from rural areas towards urban areas, and to reclassification of rural localities as urban localities.

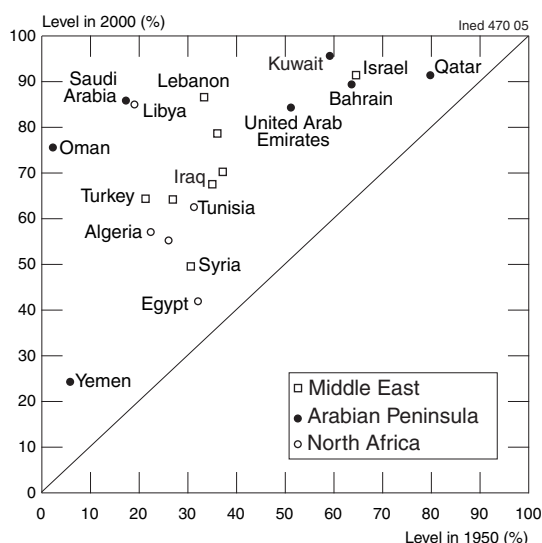


Figure 24.— Urbanization level (%) in 1950 and 2000
in the 20 countries of the region

Source: United Nations (2004c).

The changes have been especially pronounced in the Arabian Peninsula (Table 20). Back in the 1950s, its urbanization level was very low, and comparable to that of sub-Saharan Africa in the same period. Today, nearly two-thirds of its population lives in towns and cities⁽¹⁰³⁾. In 1950, the urbanization level was already above 50% in four countries: Kuwait, Bahrain, Qatar, and United Arab Emirates. But the current rapid trend is largely fuelled by the sub-region's largest country: Saudi Arabia. Its level of urbanization has increased from 17% to 86% in 50 years, with an urban population that has been multiplied by 33, from 560,000 inhabitants to more than 18 million. This country alone accounts for 60% of the sub-region's urban growth. The urban population today exceeds 75% in all six Gulf countries. Yemen is the clear exception, with barely 25% of urban dwellers. This trend in the Gulf countries, sometimes referred to as oil-driven urbanization, is partly due to the influx of foreign labour from neighbouring countries and Asia. We return to this point later.

North Africa has experienced far slower urbanization, and is the most sluggish of the three sub-regions. The proportion of urban dwellers has edged up from 28% in 1950 to just over 50%, making North Africa the least urbanized of the three sub-regions. This relative lag is largely due to the slowdown of urbanization in Egypt: from being the region's most

⁽¹⁰³⁾ Excluding Yemen, which was and is a largely rural country, the urban population rose from 20% of the total in 1950 to 86% in 2000.

urbanized country in 1950 with a level of 32%, it has fallen well behind the others at 42%. Conversely, Libya, one of the least urbanized countries in 1950 at 18%, now leads the group with 85%. Algeria, Morocco, and Tunisia have registered fairly similar trends, with the percentage of urban dwellers rising from between 20 and 30% to about 60% in 50 years. All in all, North Africa's situation is far more diversified today than half a century ago.

Urbanization has also advanced at varying speeds in the Middle East. Overall, the pace has been quicker than in North Africa, but slower than in the Arabian Peninsula. Israel, already the most urbanized country in 1950 (66%), now has 91% of its population living in urban areas. Lebanon went from 33% to 87% in 50 years, whereas Syria, from a comparable starting point in 1950, has only now crossed the 50% mark. Iran, Iraq, Jordan, Palestine, and Turkey post levels of between 64% and 79%, around 30-40 percentage points more than in 1950.

2. The emergence of mega-cities

In parallel with the growth of the urban population, the past fifty years have seen an increase in the number of large and very large cities. In 2000, the region had 31 cities of over one million inhabitants (including 14 capitals), compared with only three a half-century earlier (Alexandria, Cairo, and Tehran). There are now four cities with more than 5 million inhabitants: Cairo, Tehran, Baghdad, and Istanbul. According to the United Nations urbanization prospects (2004), Riyadh is expected to join the group by 2015. The region's most populous metropolis, Cairo, has over 10 million inhabitants, and could reach 13 million by 2015 (Table 21). Such large cities are centres of innovation and of social and economic progress. Most of them, however, also face severe problems in such areas as employment, pollution, access to drinking water, and housing (Grenon and Batisse, 1988).

In some countries, these large cities concentrate a sizeable share of the total population (Table 21). Nearly half of the Lebanese population lives in Beirut, 45% of Israelis reside in Tel-Aviv, and one-third of the Libyan population lives in Tripoli. The three cities also concentrate between 42% and 56% of the urban population – the sign of an unquestionable “macrocephalia” in these countries. The urban system is more balanced in other countries such as Morocco, Algeria, Turkey, and Iran. Casablanca, for example, accounted for only 21% of Morocco's urban population and 11% of its total population in 2000. Morocco has six other cities of more than 500,000 inhabitants (Rabat, Fez, Marrakech, Agadir, Tangiers, and Meknes), plus 13 other cities with a population of between 100,000 and 500,000. Another example is Iran, with 56 agglomerations of more than 100,000 inhabitants in addition to Tehran, including five exceeding one million inhabitants.

TABLE 21.— CHANGE IN POPULATION OF MAIN CITIES IN SELECTED COUNTRIES OF THE REGION, 1950-2000, AND PROSPECTS FOR 2015

Cities	Country	Population (in thousands)				Mean annual growth rate (%)		% of country's total population in 2000	% of country's urban population in 2000
		1950	1975	2000	2015	1950-1975	1975-2000		
Algiers	Algeria	469	1,507	2,761	3,260	4.7	2.4	9	16
Baghdad	Iraq	579	2,814	5,200	7,390	6.3	2.5	21	31
Beirut	Lebanon	335	1,500	1,639	2,174	6.0	0.4	48	56
Casablanca	Morocco	625	1,793	3,344	4,579	4.2	2.5	11	21
Damascus	Syria	367	1,122	2,105	2,849	4.5	2.5	13	25
Istanbul	Turkey	967	3,600	8,744	11,302	5.3	3.5	13	20
Cairo	Egypt	2,436	6,437	10,398	13,123	3.9	1.9	15	37
Riyadh	Saudi Arabia	111	710	4,519	7,155	7.4	7.4	21	24
Sanaa	Yemen	46	141	1,264	2,658	4.5	8.8	7	29
Tehran	Iran	1,041	4,273	6,979	8,457	5.6	2.0	11	16
Tel Aviv	Israel	418	1,206	2,752	3,542	4.2	3.3	45	49
Tripoli	Libya	106	611	1,877	2,497	7.0	4.5	35	42

Source: United Nations (2004c).

3. Slower urban growth

By and large, the phase of strong population growth (in relative terms) in large cities is over. Of the 12 cities listed in table 21, 10 registered substantially slower growth between 1975 and 2000 than between 1950 and 1975. For example, Tehran, whose population grew an average 5.6% a year between 1950 and 1975, expanded by “only” 2% a year between 1975 and 2000 and, according to United Nations forecasts, is set to grow at an annual pace of 1.3% until 2015. The only exceptions among these 12 cities are Riyadh and Sanaa. Riyadh has continued to expand by more than 7% a year, its population thus doubling in less than 10 years. For Sanaa, growth has accelerated from 4.5% to 8.8%, due partly to the return of Yemenis from Saudi Arabia during the Gulf War (1990-91).

This slower growth of large cities reflects a broader pattern of slower urbanization, due to the decline in natural growth and in migration growth. In all 20 countries except Yemen, urban growth rates in 2000-05 are considerably lower than in the 1970s: they have fallen from 3-5% in most countries in 1970-75⁽¹⁰⁴⁾ to around 2% in 2000-05. However, the slowdown in large cities is, on average, sharper than in urban areas as a whole. The large cities' share of total urban population has therefore decreased substantially in many countries. Algiers concentrated 23% of Algeria's urban population in 1975, compared with only 16% in 2000; roughly 16% of Iran's urban population now lives in Tehran, down from 28% in 1975. In some other countries, by contrast, the share of the urban population

⁽¹⁰⁴⁾ Some Gulf countries and Libya are the exceptions. Their urban growth rates were much higher during this period of intense migration. In the United Arab Emirates, the rate was as high as 15%.

living in the largest city has remained relatively stable (Cairo, Tripoli, Istanbul, Damascus); in a few others – Sanaa, Riyadh, Tel Aviv – it has increased.

XIV. International migration

International migration remains a rather poorly documented demographic phenomenon in North Africa and the Middle East, as in many other parts of the world. Data on migrant flows are available for some countries including Israel and several Gulf countries, and we will sometimes refer to them. For international comparisons, however, we rely mainly on the indicators published by the United Nations (2004a, 2005), available for all countries of the region. The first of these indicators, *migrant stock*, is defined as the number of residents in a country who are born abroad⁽¹⁰⁵⁾. The *proportion of migrants* is that number's ratio to the country's total population. The United Nations (2005) also publishes estimates of *net migration rates*, defined as the ratio of the mean annual migration balance in a period to the country's population. These data, the most recent possible, are reproduced in Appendix Table A.13, which also includes refugee populations in the countries of the region.

1. *Intensive and sharply polarized migration flows*

Generally speaking, the North Africa-Arabian Peninsula-Middle East region is characterized by intensive migration. Around 2000, it comprised 22 million *international migrants*. In other words, nearly 6% of the region's entire population consisted of persons born outside their country of residence. This proportion – far higher than those observed in other developing regions⁽¹⁰⁶⁾ – reflects several factors including the appeal of the Gulf countries for Arab and Asian workers, significant immigration to Israel, and flows of refugees, chiefly Palestinian. In about 2000, international migrants accounted for over 10% of the population in eleven of the region's twenty countries, and for over 30% in seven (Qatar, Kuwait, United Arab Emirates, Bahrain, Israel, Jordan, and Palestine). Far from being homogeneous, however, the region also includes countries with heavy emigration, such as Morocco, Algeria, and Turkey. The sub-regional and inter-country disparities in the proportions of migrants are therefore

⁽¹⁰⁵⁾ Migrant stocks are mainly estimated from census questions on place of birth.

⁽¹⁰⁶⁾ The proportion of migrants is slightly above 2% in sub-Saharan Africa and approximately 1% in Latin America, the Caribbean, and South Asia. By contrast, it is higher in the western countries: nearly 25% in Australia and New Zealand, 13% in North America, and 10% in Western Europe (United Nations, 2004a).

extremely large (Appendix Table A.13). The proportion ranges from under 1% in North Africa, a source of heavy emigration, to 6% in the Middle East and 20% in the Arabian Peninsula – and this figure rises to 31% if we exclude Yemen from the sub-region. Inter-country differences are even wider, with the proportion of migrants as low as 0.1% in Morocco and as high as 70% in Qatar.

Net migration rates in the late 1990s (Appendix Table A.13) broadly confirm this contrast between strongly attractive immigration countries on the one hand and emigration countries on the other. The annual migration balances are negative in North Africa except for Libya (–2.1‰ for Morocco, –1.3‰ for Algeria); the Middle East comprises high-immigration countries (9.6‰ in Israel) and emigration countries (–1.4‰ in Iran, –1.8‰ in Lebanon); the Gulf countries, apart from Oman, registered positive net migration in the 1995–2000 period, with rates as high as 40‰ for the United Arab Emirates⁽¹⁰⁷⁾.

This wide variety of country situations has been shaped by a number of factors including sometimes turbulent political histories, armed conflicts, and major economic changes. In sum, the nature and causes of these migration flows are highly diverse, and migration takes multiple forms – temporary or permanent, spontaneous or forced, legal or clandestine, and so on. Without elaborating on migration flows, which are complex and not always well documented, we will focus on four key elements of the region's migration dynamics: (1) migration to the Gulf oil economies, (2) settlement migration in Israel, (3) displacements of the Palestinian population and its present distribution, and (4) migration flows to western countries from the countries of the region⁽¹⁰⁸⁾.

2. *Migration to the Gulf: a slowdown in the 1990s*

As noted earlier, the countries of the Arabian Peninsula – particularly the six members of the Gulf Cooperation Council⁽¹⁰⁹⁾, harbour a large migrant population. Between them, they had nearly 10 million foreign-born residents in about 2000, i.e. approximately one-third of their total population, and almost half of the region's total migrants.

This migrant population, largely composed of temporary workers of Asian and Arab origin, has expanded considerably in the past 30–40 years (Figure 25). Already under way in the 1930s and 40s with the fledgling oil

⁽¹⁰⁷⁾ Naturally, there are some discrepancies between stock data and data on recent migration balances. Migrant-stock data measure the outcome of a multi-decade process, while balances reflect the difference between immigration and emigration in a recent period (1995–2000).

⁽¹⁰⁸⁾ Lack of space prevents us from discussing other drivers of migration dynamics in the sub-region, such as emigration from Lebanon during the civil war. See, for example, Fargues (2004) for some data on the subject.

⁽¹⁰⁹⁾ Which includes all the Arabian Peninsula countries except Yemen.

industry, the influx of foreign labour in the Gulf countries began to accelerate substantially in 1973-74 with the increase in oil revenues and in industrial and infrastructure investment in these countries (Seccombe and Lawless, 1986; United Nations, 2003). Saudi Arabia, which hosted only 300,000 migrants in 1970, now has more than 5 million. In the United Arab Emirates, the data show a rise from 60,000 migrants in 1970 to 2 million in 2000 (Figure 25 and Appendix Table A.13). These six Gulf countries have seen their migrant population expand tenfold since 1970, and fortyfold since 1960!

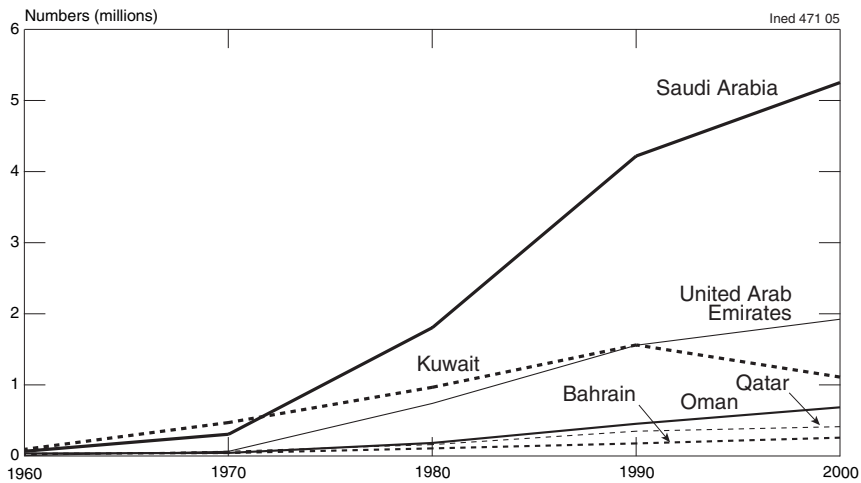


Figure 25.— Change in migrant stock in 6 Gulf States, 1960-2000

Source: United Nations (2004a).

The increase in the migrant population, in absolute and relative terms, slowed considerably in the 1990s however. In five of the six countries (Bahrain being the exception), the growth in migrant stock was significantly smaller in the 1990s than in the 1980s. In Saudi Arabia, for example, the annual average increase in migrant numbers slowed from about 240,000 in the 1980s to about 100,000 in the 1990s. Kuwait actually lost a large share of its population, with 450,000 fewer migrants in 2000 than in 1990. There are several reasons for these slowdowns. Iraq's invasion of Kuwait in 1990 and the ensuing war substantially affected migration in the region, particularly in Kuwait. Some 250,000 Jordanians, mostly of Palestinian origin, and about 160,000 Egyptians are believed to have left Kuwait after the conflict (United Nations, 2003). The Gulf War also impacted the migrant population of other countries: according to some estimates, several hundred thousand Yemenis left Saudi Arabia in the early 1990s (United Nations, 2003; Stevenson, 1993). Another contributing factor is the Gulf countries' stricter migration policies, aimed at

reducing their dependence on foreign labour: one example is the “Saudization” policy⁽¹¹⁰⁾.

The geographic origin of migrants in these countries has also shifted significantly in the past three to four decades, with a growing share of workers now coming from South and Southeast Asia (Humphrey, 1993; Kapiszewski, 2001). Admittedly, substantial numbers of Asian workers were already present in several countries in the 1970s⁽¹¹¹⁾, sometimes even forming the largest expatriate group. At the time, however, workers of Arab origin (for example, Egyptians, Jordanians, Palestinians, and Yemenis) were by far the largest group in Saudi Arabia (91%) and Kuwait (80%), representing 72% of the total expatriate population in the Gulf countries in 1975 (Kapiszewski, 2001). But by 1996, migrants of Arab origin accounted for only 31% of all foreigners. Asians had become the largest contingent of foreign workers in the six countries, their share ranging from 57% in Kuwait to 86% in Oman. In the late 1990s, India, Pakistan, Bangladesh, and Sri Lanka were the main countries of origin of Asian workers. Regional conflicts naturally played a role in these shifts in the composition of the migrant population. One of the main effects of the Gulf War, as noted above, was the massive departure from Kuwait and Saudi Arabia of Jordanian, Egyptian, and Yemeni workers. Among the other factors that have helped to stimulate immigration by Asian workers are their more “controllable” behaviour – they are less politicized and less inclined to protest than Arab populations – and their shorter stays (Humphrey, 1993; Russell, 1992).

3. Israel: populated by migration

Israel also displays an atypical pattern of migration dynamics. The country’s migrant population (persons born abroad) in 2000 was estimated at about 2.25 million, or 37% of its total population of 6 million (United Nations, 2005). This figure puts Israel in second place in the region, well behind Saudi Arabia (more than 5 million migrants), but ahead of the United Arab Emirates and Jordan (slightly under 2 million each), Palestine (1.7 million), and Turkey (1.5 million).

Israel’s population growth since its creation in 1948 has relied largely on voluntary migration of Jewish populations from very diverse origins, including the former Soviet Union, Europe, North America, North Africa, and Ethiopia. Between 1948 and 2003, Israel took in nearly 3 million immigrants (Berthomière, 2003; Central Bureau of Statistics,

⁽¹¹⁰⁾ This policy notably aims to reserve selected jobs for Saudi citizens. Other Gulf countries, such as the United Arab Emirates, have enacted similar policies (McMurray, 1999).

⁽¹¹¹⁾ In Bahrain, Oman, Qatar, and the United Arab Emirates.

2004)⁽¹¹²⁾ who arrived in several major waves (Figure 26). From 1948 to 1951, a total of almost 700,000 migrants came to settle in Israel, doubling its population in three years. By 1952, arrivals decreased sharply, then fluctuated at about 30,000 per year until 1989, with some higher peaks recorded during the period⁽¹¹³⁾. The fall of the Communist bloc triggered a second large immigration wave, mostly from the ex-USSR, with the arrival of nearly 200,000 immigrants in 1990 and just under 180,000 in 1991 (Central Bureau of Statistics, 2004). Entries then fell, stabilized at around 70,000 a year until 2000, and declined yet again to only 20,000 in 2003⁽¹¹⁴⁾.

These figures concern permanent immigrants⁽¹¹⁵⁾ and do not include arrivals of temporary workers, previously infrequent but on the increase

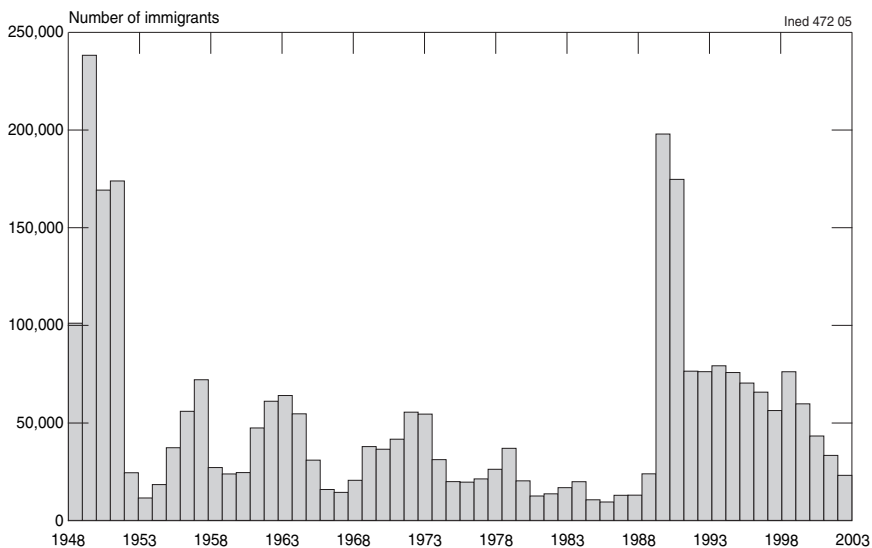


Figure 26.— Number of permanent immigrants to Israel, 1948-2003

Source: Central Bureau of Statistics (2004).

⁽¹¹²⁾ This immigration has been encouraged by the Law of Return, enacted in 1950, which grants Israeli citizenship to Jews and to their children, grandchildren, and nuclear families when they immigrate to Israel. Net migration contributed an estimated 42% to population growth between 1948 and 1998 (United Nations, 2003).

⁽¹¹³⁾ For example, in 1957, a year when many Moroccan Jews settled in Israel, and when the number of immigrants reached 70,000.

⁽¹¹⁴⁾ The number of emigrations is very small compared with immigrations, hence a substantially positive migration balance (Della Pergola, 1996).

⁽¹¹⁵⁾ The immigrants included in the statistics are defined as persons having entered Israel for permanent settlement, under the Law of Return or the Law of Entry. The figures also include the far smaller category of potential migrants, i.e. persons coming to Israel for no more than three years to examine opportunities for permanent residence. For more details on definitions, see Central Bureau of Statistics (2004, p. 58).

since the early 1990s. Turks, Chinese, Thais, Romanians, and others have been hired to meet growing labour demand, particularly in the construction industry, and to replace Palestinian workers, whose access to the Israeli labour market has been sharply curbed since the early 1990s (Kemp and Rajman, 2004; McMurray, 1999).

4. Palestinians: the world's largest refugee population

The Palestinians' migration history and their present distribution in the world are also intimately linked to the region's political situation and Israeli history. Since the creation of Israel in 1948 and the Israeli-Arab conflict, Palestinians have moved massively to neighbouring countries, mainly Jordan, Syria, and Lebanon. They have also relocated to the oil-producing Gulf countries, most notably after 1967 and the Six-Day War (Stanton Russell, 1992; Humphrey, 1993)⁽¹¹⁶⁾. After the Oslo Accords of 1993, return migration took place, with members of the diaspora settling in the West Bank and Gaza Strip, but the phenomenon has remained limited (Hammer, 2005, estimates their total number at around 100,000).

Because of these conflicts and the resulting migration flows, most of the population of Palestinian origin now lives outside Palestine (Courbage 1995, 2005). Table 22 gives estimates of the world distribution of the population of Palestinian origin. Out of a total estimated at more than 9 million, just over 3.5 million live in the Gaza Strip, the West Bank, and East Jerusalem. The great majority of the remainder live in neighbouring Arab countries (2.7 million in Jordan, about 420,000 in Syria, and 400,000 in Lebanon) and Israel (1 million, or slightly over 15% of the country's population⁽¹¹⁷⁾). About 460,000 Palestinians reportedly live in the Gulf countries (of whom 300,000 in Saudi Arabia), and 650,000 elsewhere in the world (other Arab countries, U.S., Europe, etc.). At the end of 2002, nearly half the Palestinian population had refugee status: approximately 4 million Palestinians are registered with UNRWA⁽¹¹⁸⁾ (1.5 million in Palestine and 2.5 million in Jordan, Syria, and Lebanon), and a further 350,000 under HCR status (mainly in Saudi Arabia and Egypt), making this the world's largest refugee population. Almost one-third of UNRWA refugees live in 59 camps in Palestine, Jordan, Syria, and Lebanon, where living conditions are often deplorable (FAFO, 2005; Rabah et al., 2005).

⁽¹¹⁶⁾ But, as noted earlier, the 1990-91 Gulf War caused massive departures of populations of Palestinian origin, chiefly to Jordan (Van Haer, 1995).

⁽¹¹⁷⁾ If the Arab population of East Jerusalem is included in the population of Israel, as it is in Israeli official statistics, the country's Palestinian population is about 1.25 million or 20% of the total.

⁽¹¹⁸⁾ UNRWA (United Nations Relief and Works Agency for Palestine Refugees in the Near East) classifies as Palestinian refugees persons residing in Palestine between June 1946 and May 1948 who lost their dwellings and means of livelihood after the Israeli-Arab conflict of 1948. The UNRWA definition of refugees also includes the descendants of persons who became refugees in 1948 (www.unrwa.org).

As Courbage (1995) underscored a few years ago, the future of Palestine's population will depend on many factors that are hard to predict, notably the scope of return migration by diaspora Palestinians.

TABLE 22.— ESTIMATED PALESTINIAN POPULATION BY PLACE OF RESIDENCE AND REFUGEE STATUS, CA. END-2002

Place of residence	Total number (end-2002)	Refugees registered with UNRWA (end-2002)	UNRWA refugees living in camps (end-2002)
Gaza Strip	1 299,000	893,000	474,000
West Bank	2 261,000	639,000	172,000
of which: East Jerusalem	246,000	—	—
<i>Total Palestine</i>	3 560,000	1 532,000	646,000
Jordan	2 716,000	1 698,000	297,000
Israel (except East Jerusalem)	1 038,000	—	—
Syria	423,000	406,000	121,000
Lebanon	403,000	389,000	219,000
Saudi Arabia	301,000	—	—
United States	232,000	—	—
Egypt	60,000	—	—
Kuwait	38,000	—	—
Other Gulf countries	121,000	—	—
Other Arab countries (Iraq, Libya, etc.)	118,000	—	—
Rest of the World	295,000	—	—
<i>Total outside Palestine</i>	5 745,000	2 493,000	637,000
Total	9 305,000	4 025,000	1 283,000

Sources: Figures for Palestinian occupied territories (Gaza Strip and West Bank) for 2002 are projections prepared from the 1997 census by the Palestinian Central Bureau of Statistics. They are published in the Palestine Statistical Yearbook, no. 4, Table 3.2.5 (Palestinian Central Bureau of Statistics, 2003).
Estimates of East Jerusalem population from Jerusalem Statistical Yearbook, no. 6, Table 5.6 (Palestinian Central Bureau of Statistics, 2004).
Estimates of Palestinian population outside occupied territories and East Jerusalem from Palestine Statistical Yearbook, no. 4, Table 3.2.5 (Palestinian Central Bureau of Statistics, 2003).
Statistics on refugees by country are published by UNRWA. We have used values for 2002 for comparison with total Palestinian population. More recent statistics are available on the UNRWA website (www.un.org/unrwa). The Palestinian refugee population under HCR status is not grouped with UNRWA refugees, but is included in the total population.

5. *Migration to Western countries: Europe the prime destination*

For many years, North Africa and the Middle East have been a major source of emigrants to Western countries, particularly those of Europe. In the 1960s and 1970s, migration from North Africa and Turkey was arranged to meet labour demand in European countries, most notably France, Germany, Belgium, and the Netherlands (see, for example, IOM, 2002, for migration from Morocco). Labour migration slowed significantly after the oil crisis, from 1973-74 onward, but migration for family reunion and clandestine entries continued to drive flows to Europe. Migration of refugees – Iranians and Iraqis especially – also contributed to departures

from the region toward the West⁽¹¹⁹⁾. As a result of these migration flows, several Western countries now have very large populations of North African and Middle Eastern origin.

Table 23 shows the migrant population from North Africa, the Arabian Peninsula, and the Middle East in eight Western countries – Germany, Australia, Belgium, Canada, U.S., France, Netherlands, Sweden – circa 2000⁽¹²⁰⁾. These eight countries alone harbour nearly 6.5 million migrants from the sub-regions studied. By comparison, fewer than 2 million migrants from sub-Saharan Africa are recorded in the eight countries, despite the fact that sub-Saharan Africa has 300 million more inhabitants. Most of the migrants come from the Middle East (about 4.2 million, of whom more than 2 million in Germany) and North Africa (about 2.1 million, of whom 1.3 million in France). By contrast, there are very few migrants from the Arabian Peninsula.

About three-quarters of them are recorded in the five European countries listed in Table 23, whereas the total population of the five countries is about one-half that of the U.S., Canada, and Australia combined. The figures clearly show Europe's dominant role as a host region for these migrants. This is mainly due to historical ties (including the colonial past), earlier migration policies, and – of course – geographic proximity. Migrant populations from the sub-regions examined also account for a very large share of total migrants in European countries. For example, they represent almost one-third of the total in France (36%) and Germany (32%), 27% in the Netherlands, and about 20% in Sweden and Belgium, compared with only 3 to 6% in the other countries. The migrants' origin by sub-region also varies widely between countries: North Africans form the largest group in France and Belgium; migrants from the Middle East are in the majority in all the other countries (up to more than 90% in Germany and Sweden).

Migration to several Western countries is continuing or intensifying across all categories: labour migration, refugee migration, family reunion, and so on. By way of illustration, let us briefly examine migration from the three Maghreb countries (Morocco, Algeria, Tunisia) to France in the period 1994-2002 (Table 24). During this period, France⁽¹²¹⁾ recorded over 300,000 immigrants from the three countries, with a particularly sharp acceleration in the late 1990s. The annual number of immigrants rose from 20,000 in the 1990s to over 60,000 in 2002, or about 30% of total entries into France that year. Immigrant flows from North Africa are around twice as large as those from sub-Saharan Africa.

⁽¹¹⁹⁾ In 2004, for example, the HCR (UNHCR 2005) recorded about 74,000 Iraqi refugees in Germany, 29,000 in the Netherlands, 24,000 in Sweden, and 23,000 in the Netherlands. An estimated 47,000 Iranian refugees reside in Germany, about 21,000 in the U.S., and some 8,000 in the Netherlands.

⁽¹²⁰⁾ The migrant population is defined here, as before, on the basis of place of birth. For lack of comparable statistics, the data for Germany refer to persons of foreign nationality, a measure that underestimates the migrant population owing to the large number of naturalizations.

⁽¹²¹⁾ During this period, 45% of North African immigrants were Moroccan, 40% were Algerian and 15% were Tunisian.

TABLE 24.— LEGAL LONG-TERM IMMIGRATION BY YEAR OF ADMISSION
TO LEGAL RESIDENCE IN FRANCE, FOR THE 3 MAGHREB COUNTRIES,
AND BY REGION FOR REST OF WORLD, 1994-2002

Nationality	1994	1995	1996	1997	1998	1999	2000	2001	2002
Maghreb	23,029	18,431	18,746	27,286	36,138	33,553	40,953	51,526	63,107
Morocco	9,267	7,453	7,669	10,957	16,243	16,496	21,507	24,986	26,177
Algeria	10,911	8,564	8,469	12,412	14,523	12,103	12,760	18,555	27,936
Tunisia	2,851	2,414	2,608	3,917	5,372	4,954	6,686	7,985	8,994
Sub-Saharan Africa	11,316	9,852	10,179	18,652	27,880	19,776	22,427	26,325	30,245
Europe	61,216	55,680	54,212	54,232	59,322	61,195	61,912	64,010	67,022
Asia	13,123	11,177	11,447	14,972	19,668	17,759	21,001	25,234	29,027
Americas	9,797	9,216	9,352	10,256	11,255	11,498	12,776	14,083	14,682
Other	1,082	1,824	2,050	2,033	1,616	1,339	1,359	1,516	1,624
Total	119,563	106,180	105,986	127,431	155,879	145,120	160,428	182,694	205,707
<i>Sources:</i> Tables published by X. Thierry (2004) and INED publications on statistics for immigration flows into France (1994-2002), available on the INED website (www.ined.fr).									

XV. Access to education for men and women

As in our 2004 report on sub-Saharan Africa, we conclude with a brief overview of education, without addressing the vast issue of the links between education and development or the key question of the relationship between training, employment, and unemployment. The essential role of education and human capital in the economic and social development of societies is universally recognized⁽¹²²⁾. In demography, among individual characteristics, the educational attainment of mothers and fathers is consistently one of the most discriminative “explanatory” variables in the study of behaviours concerning births, marriage, health, and, sometimes, migration; we have briefly discussed some examples here. At a macro level – i.e. the country level – advances in education and knowledge are often tied to the pace and patterns of demographic transitions.

We will examine the state of primary school enrolment⁽¹²³⁾ and adult literacy in the region, which has long lagged behind, and we will look for signs of a relationship between the level of educational development in the countries and fertility or child mortality. Appendix Table A.15 gives a breakdown by sex and country of adult literacy rates and primary school enrolment circa 2000. Table 25 ranks the region relative to the other main developing regions.

⁽¹²²⁾ For a broad overview of the Arab countries’ human capital status, see the UNDP Report on Human Development in the Arab World (2003). The 2002 report examined the main development challenges facing the Arab world at the start of the third millennium.

⁽¹²³⁾ Given the questionable reliability of information on educational attainment for international comparisons, we have not presented data on secondary and higher education.

TABLE 25.— NET PRIMARY SCHOOL ENROLMENT RATIO (%),
PROPORTIONS OF ILLITERATE ADULTS (%),
AND DIFFERENCES BETWEEN SEXES
IN SELECTED REGIONS OF THE WORLD, 2000

Regions	Primary school enrolment ^(a)		Adult illiteracy (age 15+) ^(b)	
	Rates (both sexes)	Ratio of F/M rates	Rates (both sexes)	Ratio of F/M rates
North Africa, Arabian Peninsula, and Middle East	84	0.93	32	1.87
Sub-Saharan Africa	64	0.92	40	1.54
East Asia	93	1.00	13	2.37
South and West Asia	81	0.85	45	1.65
Latin America	97	0.98	11	1.20

^(a) The net primary school enrolment ratio is the number of pupils in the age group officially corresponding to primary school divided by the total population of this age group.
^(b) The illiteracy rate (or proportion of illiterates) aged 15+ is the share of the adult population aged 15+ that can neither read nor write. Its complement is the literacy rate.
Sources: UNESCO (2003) and Appendix Table A.15.

1. Extensive adult illiteracy, particularly among women

Despite tremendous progress in most countries in the past thirty years, adult illiteracy remains very widespread throughout the region. With 32% of illiterates (Table 25), or nearly one in three adults, the region outranks South and West Asia (45%) and sub-Saharan Sahara (40%), but lags far behind Latin America (11%) and East Asia (13%). Apart from East Asia, the region under study is also the one with the greatest inequalities between men and women: nearly one adult woman out of two, versus less than one man in four, can neither read nor write. In terms of sub-regions (Appendix Table A.15), the Middle East (25% of illiterates) is in a better position, with slightly less gender inequality than the Arabian Peninsula (34%, including Yemen), and – even more so – North Africa (42%).

An examination of results by country (Figure 27) naturally reveals wider disparities, which are simply due to the history of access to education in each country since 1960 or 1970. At one end, we find Israel, the small wealthy countries of the Gulf, but also countries as diverse as Palestine, Lebanon, Turkey and Jordan, where the illiteracy rate is no greater than 5-20% and gender inequalities are the smallest in the region. At the other extreme, we find Iraq and Yemen, but also Morocco and Egypt, where approximately one in two adults can neither read nor write, and where gender inequalities are very large.

The fight against illiteracy and gender inequality is far from over in the region, particularly in the Arab countries. We will now look at primary school enrolment, which is a more accurate reflection of recent policies and plays a key role for the future.

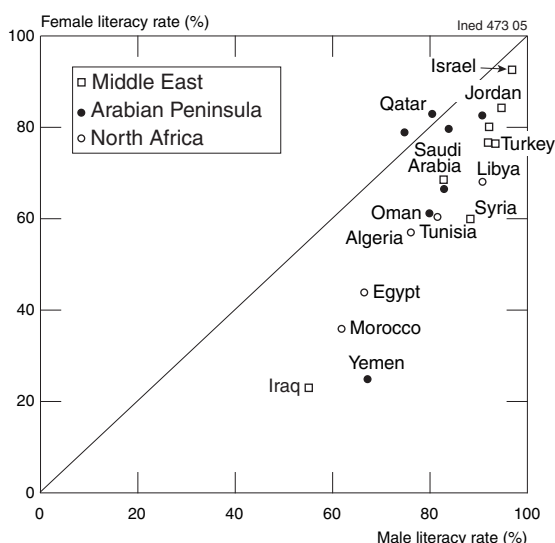


Figure 27.— Male and female literacy rates in the 20 countries, 2000 (%)

Source: based on UNESCO data (2003) in Appendix Table A.15.

2. A diverse pattern of school enrolment in the region

Overall, more than eight in ten children of primary school age were enrolled in school in 2000, with boys more likely to be attending than girls (Table 25). The figure is slightly higher than in South and West Asia (81%) and distinctly lower than in Latin America (97%) or East Asia (93%). In sub-regional average terms (Appendix Table A.15), North Africa (91%) is now sending more of its children to school than the Middle East (84%) and far more than the Arabian Peninsula (65%). Apart from Morocco, the North African countries are making up for the lag that developed in the 1960s, 1970s, and 1980s – particularly in female education – by implementing dynamic education policies. The lag is still reflected in a sizeable adult illiteracy rate, which should, however, decline fairly quickly.

According to these recent UNESCO data (2003), only two countries have achieved primary school enrolment for all children: Israel and Tunisia (Figure 28), though six others post a very high enrolment ratio (93–98%): Algeria, Egypt, Bahrain, Iraq⁽¹²⁴⁾, Jordan, and Syria⁽¹²⁵⁾. Despite progress in recent years, Iran and Morocco are far behind. Their national school-enrolment ratios of 75% are a long way from the hoped-for results, most

⁽¹²⁴⁾ Where UNESCO gives school enrolment ratios of 100% (!) for boys and 86% for girls.

⁽¹²⁵⁾ The UNESCO document (2003) gives no data on Libya and Turkey for 2000.

notably in rural areas⁽¹²⁶⁾. Saudi Arabia appears to be lingering at 58%⁽¹²⁷⁾, below Yemen.

Gender inequalities in primary school enrolment have narrowed dramatically with the development of access to education, and are generally quite modest (Figure 28). But Morocco, Saudi Arabia, Iraq, and, above all, Yemen still have a long way to go.

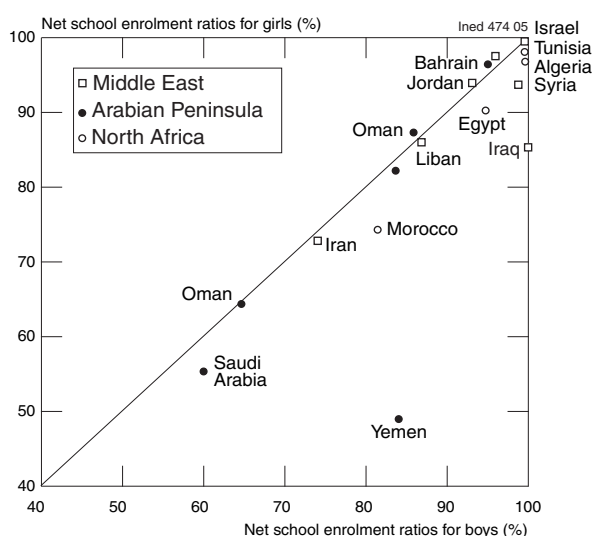


Figure 28.— Net primary school enrolment ratios by sex in 17 countries, 2000 (%)

Source: based on UNESCO data (2003) in Appendix Table A.15.

3. Relationships with fertility and infant mortality: looser than elsewhere

In international analyses (covering the whole world, all Southern countries or a single large region), the relationships observed at a point in time between fertility or child mortality and educational attainment are traditionally negative and fairly robust: generally speaking, the higher the educational attainment of a country's population, the lower its fertility and mortality. How well did the region fit this pattern in 2000?

Calculated for all 20 countries, the correlation between *female fertility* (TFR) and female literacy is indeed negative, but not very high: the

⁽¹²⁶⁾ For a review of advances and problems in education in Iran, particularly since the 1979 Islamic Revolution, see M. Ladier-Fouladi (2003, pp. 131-158); on Egypt, see Fargues (2002).

⁽¹²⁷⁾ Estimate by the UNESCO Statistical Institute (ISU).

coefficient of determination (R^2) is a modest 0.23 (Figure 29)⁽¹²⁸⁾. This is well below the level often observed (R^2 of about 0.60), including in sub-Saharan Africa (R^2 of 0.45, see Tabutin and Schoumaker, 2004). In other words, at the aggregate level, the influence of women's education on fertility is not as great in the region studied as in others. Figure 29 perfectly illustrates the diversity of situations: for example, at a female literacy level of 60% or so, fertility rates range from 2 children per woman (Tunisia) to more than 4 (Saudi Arabia); conversely, a fertility rate of about 3 children is reached with literacy rates ranging from 36% (Morocco) to over 80% (Qatar and Israel). Palestine's profile is exceptional in world terms, with a fertility rate of nearly 6 children per woman and almost 85% female literacy⁽¹²⁹⁾.

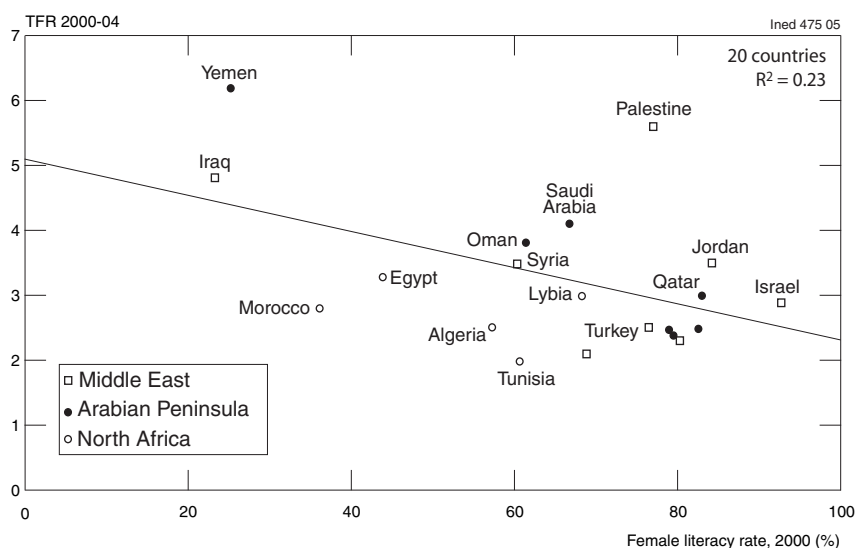


Figure 29.— Relationship between fertility and literacy of adult women in the 20 countries, 2000

Sources: based on United Nations data (2005) and UNESCO data (2003).

The correlation between *infant mortality* (Figure 30) and the female literacy rate, negative of course, is far higher and consistent with the classic pattern ($R^2 = 0.68$)⁽¹³⁰⁾, although not perfectly linear. When computed with the male literacy rate, the value drops to 0.43. This demonstrates the prevailing role of female education, even in aggregate analyses such as

⁽¹²⁸⁾ When the male literacy rate is used, the coefficient approaches zero ($R^2 = 0.08$).

⁽¹²⁹⁾ In fact, if we remove Palestine from the calculation, the coefficient of determination R^2 rises from 0.23 to 0.39.

⁽¹³⁰⁾ Removing Iraq, with its exceptional current circumstances, the value is approximately 0.61.

ours⁽¹³¹⁾. Without speaking of Iraq and Yemen, which register very high infant mortality, Turkey stands apart for its excess mortality: with 77% of women able to read and write, infant mortality could be twice as low.

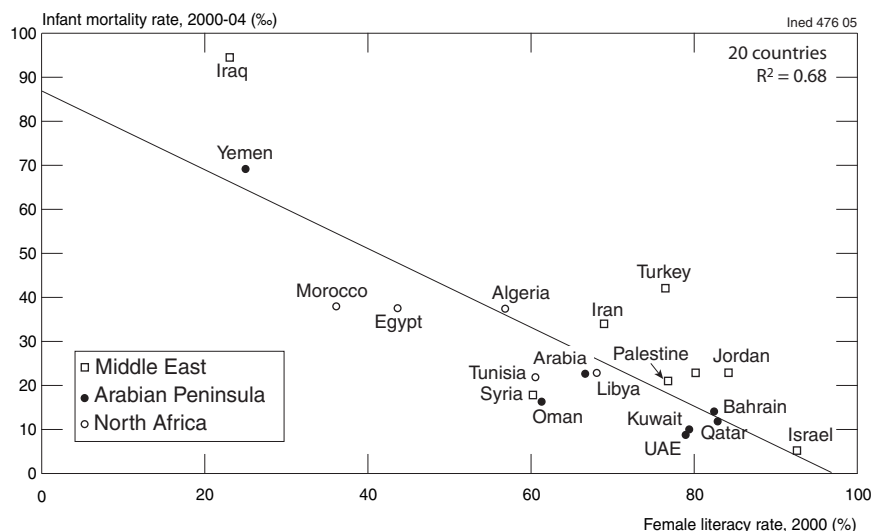


Figure 30.— Relationship between infant mortality and literacy of adult women in the 20 countries, 2000

Sources: based on United Nations data (2005) and UNESCO data (2003).

Conclusion

It is a long time since the terms “Arab”, “Islam”, “North Africa” or “Middle East” were associated with such characteristics as patriarchal families, early, universal, and even polygamous marriage, very high fertility and precarious health status. Though the region’s socio-demographic and health transitions began later than elsewhere, they have generally been quite rapid. The region’s demographic explosion is indeed over. The change of demographic regime is under way, albeit not yet complete. Most countries have already entered a totally different reproduction system, characterized by fairly low mortality, increasingly controlled fertility, late marriage with the emergence of permanent celibacy, significant mobility, and so on. The changes are radical in the three Maghreb countries and Iran; they are slower or uncertain in Saudi Arabia and Egypt for example, and still very limited in Palestine and Yemen.

⁽¹³¹⁾ This role is strongly confirmed by the study of the effect of individual characteristics. In all countries, a child’s risk of dying is closely linked to its mother’s educational attainment.

This current diversification of national demographic systems is accompanied, as elsewhere in the world, by a diversification within the countries themselves – in other words, by widening social inequalities and regional disparities. The decline of the welfare state, structural adjustment policies, unemployment (particularly among the young), and numerous conflicts have created large pockets of poverty and insecurity in these societies, including the richest among them. In the absence of adequate redistributive policies, these developments have directly generated inequalities in healthcare, employment, and sometimes education. Given its economic and cultural capital, each social group in a country adapts its demographic behaviour – most notably with regard to fertility, nuptiality and mobility – to the constraints of its present environment or the environment it perceives in the future. The overall process varies from one country to another depending on their history, their broad political, social, and economic options, and their macroeconomic resources.

In keeping with the spirit of these annual articles devoted to a particular region of the world, we have confined ourselves to a balance sheet, an essentially descriptive summary of the trends of the past 50 years. We have used the most detailed and up-to-date information possible on the components of the demographic dynamics of the three sub-regions and the twenty countries that compose them, with an enlargement of the Arab world to include Turkey, Iran, and Israel. In this report, we cannot claim to address the important but complex issues of the relationships between demographics and development in the region, the links between politics religion, and demography, the causes and consequences of these socio-demographic transitions, or the reasons for the sometimes wide divergences between countries.

Nevertheless, we would like to offer some thoughts. Observing the diversity of transitions in the region, we can draw one certain conclusion: Islam – still the official religion in a good number of countries, and very largely practised by their inhabitants – has not in itself constituted, or at least no longer constitutes, an effective barrier to socio-demographic change. High fertility and early marriage are not inherent to Islamist culture. A good example is Iran: fertility began declining as early as 1984, five years after the country became an Islamic republic, and five years before the reactivation of the national family-planning programme, supported by the religious authorities. A second case is Algeria, where the decline in fertility and the increase in women's age at marriage accelerated in the 1990s, when the Islamist movement was at its peak.

But, relative to other regions, the demographic history of the Arab world and the Middle East exhibits many paradoxes that challenge the robustness of demographic transition theories. As regards fertility and marriage, for example, how can we explain the rapid changes in Morocco, where access to education and social development have fallen far behind neighbouring countries such as Algeria and Tunisia? Conversely, how can

we explain the persistence of high fertility in the Palestinian territories, where child mortality is low and nearly all children attend school? How can we explain the relative slippage of Egypt, whose government has been championing a firm Malthusian policy for the past 40 years? Lastly, what are the key determinants of the considerable changes that have occurred in a large number of these societies, where women's participation in the labour force is among the lowest in the world, and where their emancipation is far from complete both in legal terms and in daily life?

Without claiming to answer these complex questions here, we would argue that the recent history of these countries displays significant common features: (1) a major downtrend in mortality, admittedly variable from one country to another, but visible everywhere; (2) the end of welfare states from the mid-1980s onward, largely as a result of diminishing oil rent⁽¹³²⁾ (economic liberalization and the privatization of a number of sectors have reduced household living standards and increased child costs in most countries); (3) cultural changes, linked to advances in education and communication – and also, no doubt, to migration – that have fostered a new vision of the family and children; (4) the overall decline of the traditional patriarchal system, which was based on the subordination of younger siblings to the eldest and on the submission of women to men (Fargues, 2003).

To conclude, we see *the region's demographic future* as both irreversible and uncertain. The *irreversibility* consists of the gradual change in fertility and marriage models, and – more generally – in family structures. Early family formation and rapid family enlargement have ceased to be the norm in many of these Islamic societies, especially among the younger generations. There is also irreversibility with regard to mortality – absent, of course, new conflicts (such as the current one in Iraq). But the future is also made of *uncertainties* concerning the pace of the changes and advances that many of these countries still need to accomplish. In each country, they will depend, among other things, on three more or less interacting key factors: (1) the reduction of poverty and social inequality, (2) progress in gender and inter-generational relations, and (3) in some societies, the future place of Islam and its different currents in social and political relations.

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⁽¹³²⁾ A direct source of income for producer countries and an indirect source for a number of others.