

Chapter 2

Arab Demography and Health Provision

Under Stressed Economics

Sulayman S. Al-Qudsi

Introduction

The chapter is concerned with the dynamics of health profile of Arab economies in the changing context of demographic transitions and volatile economic growth, both globally and regionally, and in the midst of rapid technological change that transforms the health sector and changes the relative importance of health priorities, in terms of investment spending and importance at the family and public policy agenda. The dynamic transformation of the health sector is closely intertwined with socio-economic and technological developments. To illustrate, the current global economic downturn of 2008 and 2009 has adversely impacted on the region and beyond economics, specifically, the global economic downturn threatens the very sustainability of health and education progress – by reducing the ability of both households and governments to invest in education and health sectors. The crisis could lead to spending cuts if governments cannot find additional financing in the event that private capital inflows and domestic fiscal revenues drop sharply. For instance, it is estimated that a 50 percent drop from the 2007 net assistance level from advanced to developing countries would reduce health support for developing-country health programs by more than US\$ 2.5 billion (USAID, 2009). Children and young people may be pressed to drop out of school to work more hours at home or take on outside jobs. In addition, the newly emerging diseases such as Swine flu coupled with pandemics of chronic diseases are likely to challenge both

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S.S. Al-Qudsi

Chief Economist and Head of Research Department-Arab Bank, PLC. Amman-Jordan. Shaker bin Zeid Street, Shmeisani Area, 950545, Amman, Jordan

e-mail: sshqudsi@gmail.com; dr.sulayman.alqudsi@arabbank.com.jo

the global and regional health systems. Economic volatility and stressed financial and economic conditions with fluctuations in oil prices are likely to affect the growth of the pharmaceutical industry adversely. The economic downturns may also worsen the already high out-migration of the Arab health workforce, especially doctors, nurses, and paramedical staff. While the broad objective here is to provide a basic assessment of the Arab health profile with the overall context of Arab economic transformations both overall and among constituent economies, the chapter assesses such issues as overall health sector provision, accessibility and inequities, size of employment in the health activities, mortality and morbidity issues, and the “brain drain” of health sector workers. The chapter highlights some of the policy challenges and imperatives that the dynamic interactions between volatile economic times and demography induce for the health services provision. These imperatives require immediate policy focus to safeguard the future for successive Arab generations.

Geography, History, and Ethnicity

Geographically, the Arab world straddles two continents, covering a distance of 6,370 km from Rabat on the Atlantic to Muscat on the Gulf (Bolbol and Fatheldin 2005). Representing nearly 10% of the world’s geography and with a share of 3% of the world’s GDP, the Arab World has nearly 300 million inhabitants or about 5% of the world’s population. The region gained increasing importance during the period 2002–2007, which witnessed massive increases in the prices of commodities such as oil and natural gas. Being resource-rich, the region was sizzling with economic growth and trade and investment in-and-out-flows. Many oil-exporting countries of the region experienced unprecedented growth and realized huge foreign reserves accumulations. These petro-surpluses led to enhancements of sovereign wealth funds (SWFs) that were largely invested in the international financial centers of the world, notably in the USA and the EU.

Despite its linguistic, religious, and cultural cohesion, the Arab region is also rich in diversity. In territorial size, some countries (Sudan and Saudi Arabia) comprise vast areas that approach one million square miles, while others (Bahrain) are small enough to fit into a major Western city. It is the home of diverse ethnic and religious groups including Muslim and Christian Arabs, Kurds, Druze, Berbers, and Armenians. It is also a fountain of political and ideological ferment and a locus of some of the most persistently explosive conflicts in the world. No country on earth can be unconcerned with the course of major developments in the region (Held 1993).

The history of Arabs goes back a few 1,000 years before Christ. The origin of the word “Arab” remains obscure, although philologists have offered various explanations. One such explanation associates the term with nomads; the root “Ahbar” means to move or pass. Arabs themselves seem to have used the word at an early date to distinguish the Bedouin from the Arabic speaking town and village dwellers;

and indeed, this use persists to some extent (Lewis 1993). The earliest known events in Arabian history are migrations from the Arabian Peninsula into neighboring areas. About 3,500 BC, Semitic-speaking peoples of Arabian origin migrated into the valley of the Tigris and Euphrates rivers in Mesopotamia, supplanted the Sumerians, and became the Assyro–Babylonians. Another group of Semites left Arabia about 2,500 BC and settled along the eastern shore of the Mediterranean Sea; some of these migrants became the Amorites and Canaanites of later times (Bram and Dickey 1992).

Beginning in the seventh century (AD), Arabs, proclaiming the new religion of Islam, ventured out from the Arabian Peninsula to conquer wide regions extending from the Arabian/Persian Gulf to the Atlantic Ocean. Arabic became the language of all the peoples who lived between Baghdad and Cordoba – a significant aspect of Islamic civilization. It became both the language of daily life and the language of science and literature, completely replacing Coptic, Aramaic, Greek, and Latin. The strategic geographical position of Islamic countries enabled them to dominate international trade in the middle Ages and to attract and nurture intellectuals from all over the world (Hassan and Hill 1986). Islamic science and medicine thrived; scholars such as Abu Bakr al-Razi and Jabir B. Hayyan were world renowned; scientific institutions flourished – for example, Bayt al-Hikma (House of Wisdom).

The common denominator among residents of the Arab world is their language. Formal Arabic is the official language in all countries of the Arab League. In addition to their common language, most Arabs follow the same religion. The overwhelming majorities (over 90%) are Muslims, predominantly of the Sunni persuasion, and Islam is a vital force in everyday life. However, being the home of the three revealed religions, the Arab world is home for prominent Christian minorities especially in Palestine, Egypt, Lebanon, Iraq, and Syria. In addition, Jewish Arab enclaves live in such countries as Iraq, Morocco, and Yemen.

Geopolitically, the region has been the center of intellectual debates and controversy that culminated in September 11, 2001 in the aftermath of the terrorist attack on the twin towers, which brought to the center stage the issue of the clash of civilizations. The ensuing adversarial political and military standing of the G.W. Bush administration subjected the region to wars, conflict, and mass killings and deteriorated regional integrity and cohesion. Not surprisingly, the policies were vehemently opposed by some of the region's best think tanks. Realizing apparent deficiencies in the whole concept, they posed the counterargument that the world is interdependent and that globalization leads to a common global destiny irrespective of the diversity of cultural and ethnic backdrop. That is to say, diversity is a common feature on earth and in fact in the whole universe and does not, per se, imply or lead to conflict. For instance, the Arab scholar, Edward Said (2001) mocked the whole thesis of clash of civilization dubbing it “the clash of ignorance” and concluded that “The real question is whether in the end we want to work for civilizations that are separate, or whether we should be taking the more integrative, but perhaps more difficult path, which is to see them as making one vast whole, whose exact contours are impossible for any person to grasp, but whose certain existence we can intuit and feel and study”.

Perhaps it is not difficult to understand the economic and resource underpinnings of the conflict theories. The region contains more than 60% of the world's proven oil reserves and more than 25% of the world's natural gas reserves. With two thirds of Arab countries producing oil, crude is undoubtedly the most important factor in the region's economic development (Raffer 2007). The economies of the Arab world exhibit great diversity in income and structure. The variety is highlighted by the fact that GDP per capita of the wealthiest country, Qatar, is 73 times higher than that of the poorest country, Mauritania. In addition, the economies are characterized by a multiplicity of structures. Some countries have accumulated significant wealth through the extraction of natural resources, while others follow more traditional trajectories of development, starting with lower-end manufacturing and slowly moving up the value chain. These differences affect the competitive performance in many ways, the most important being the availability of resources for public investment.

The organization of this chapter is as follows. Section "Stylized Economic and Financial Facts" provides an overall summary of Arab volatile economic development and economic stylized facts. The re-assessment of these stylized facts and global regional and economic turmoil is taken up in Section "Reevaluation of Stylized Facts" followed in section 3 by a review of Arab population dynamics including demographic transition and rural–urban migration. Section "Health Systems and Health Expenditures" presents the health system and the Arab health expenditures including the pharmaceuticals markets and trade. The section deals also with health inequality indicators within and across Arab countries. The final section summarizes salient issues and policy implications.

Stylized Economic and Financial Facts

The conventional wisdom about Arab economies is that the region's natural resource endowments provide ample financial capital and foreign exchange for economic diversification and for the transformation of oil wealth into versatile portfolio of human capital that could ultimately generate high value-added growth path for the Arab economies. On the downside however, Arab mineral resource endowments pose challenges associated with the so-called "resources curse" and Dutch disease syndromes which affect the exchange rates and in the process, could cause de-industrialization. Perhaps more seriously, they introduce frequent and sharp economic and financial volatilities which could set limits on the growth potential of a region that already has high population momentum and rapidly rising labor supply and high unemployment and inactivity rates. Figure 2.1A–F displays growth volatility in several Arab economies that are resource-based. The figures demonstrate how economic volatility derives in part from resource price volatility; that is how oil and natural gas prices affect the trends and cyclical patterns of economic growth of these economies.

Moreover, and despite impressive transformations, the region is still considered lagging in requisite quality human capital stock which adversely affects international

competitiveness. In addition, compared with international levels, the annual infusions of physical capital and R&D investment rates are insufficient and the region is virtually in the early stages of fostering its organizational capabilities and corporate governance. These forces tend to drag the overall productivity to levels below the region’s long-term potential. This is corroborated by recent work that indicated that the role of total factor productivity (TFP) in determining economic growth in Arab countries is insignificant and often detrimental. Most of the growth is due to the accumulation of physical capital and improvements in the quality of labor (Al-Qudsi, 2006; Al-Qudsi and Abu-Dahesh, 2004). Last but not least, Arab economic performance has been adversely influenced by protracted conflict conditions and by geopolitical and global competition to secure reliable supply of hydrocarbon energy sources.

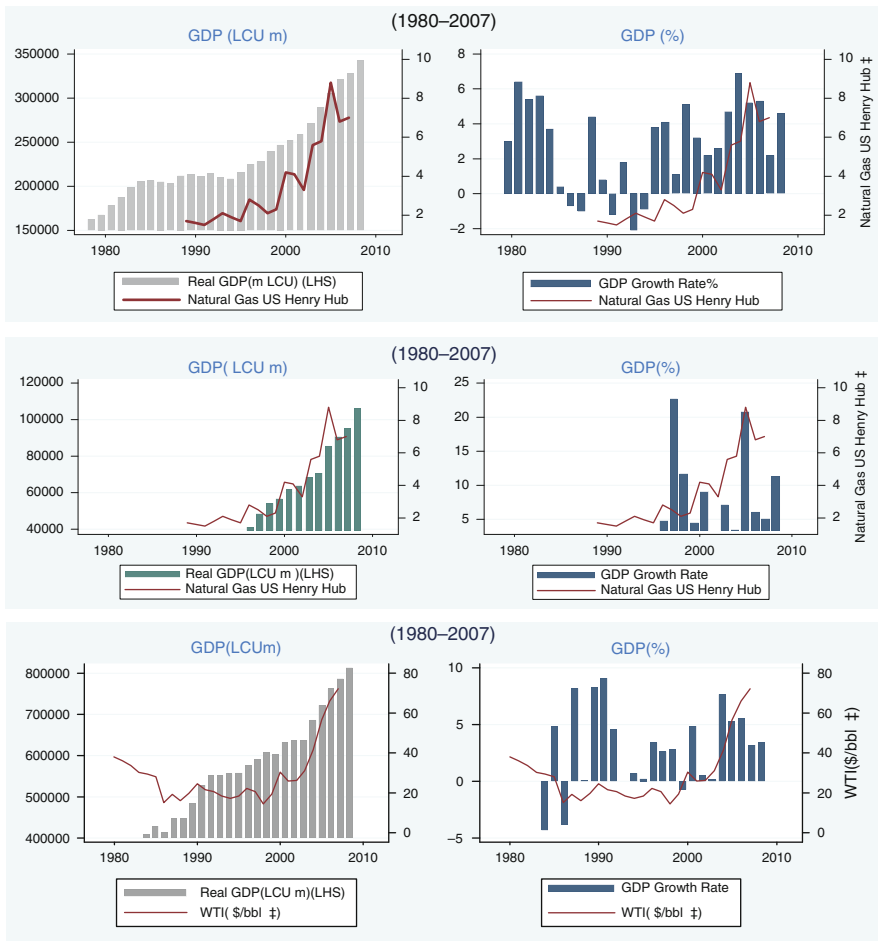


Fig. 2.1 Continued

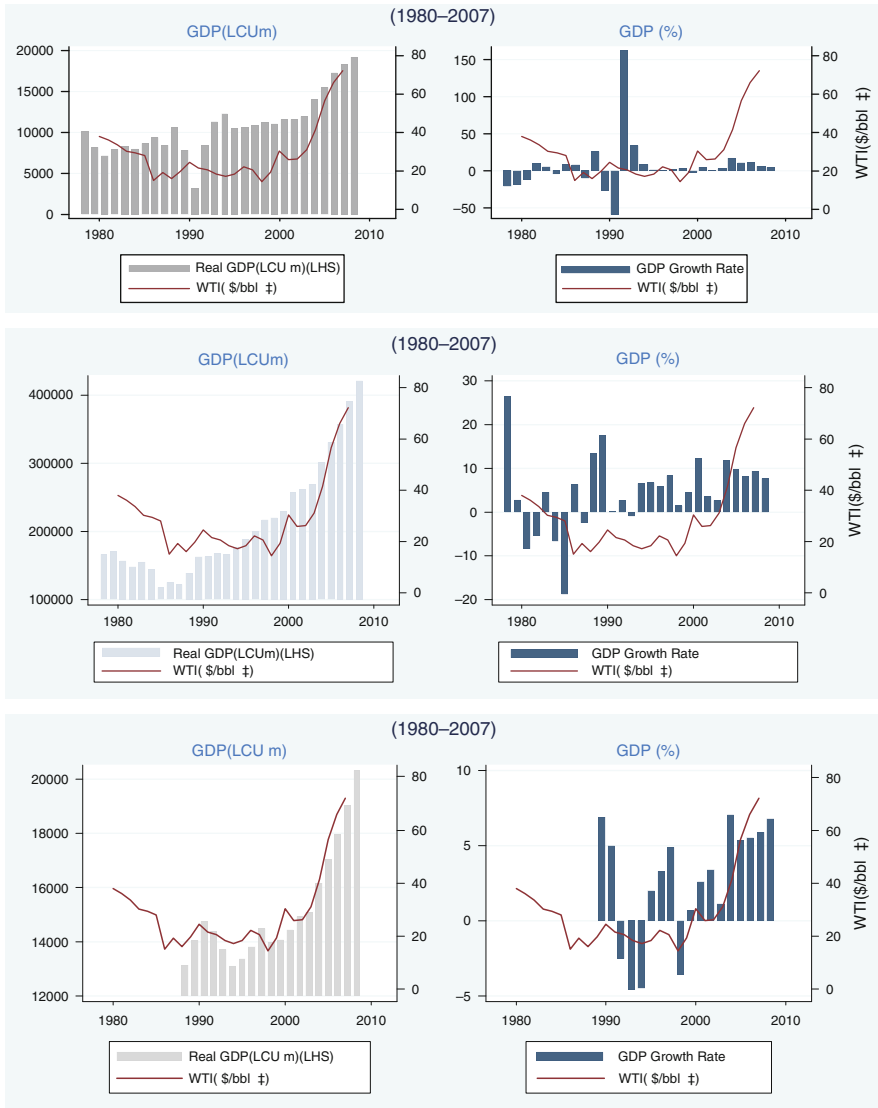


Fig. 2.1 (a) Algeria’s GDP versus natural gas price. (b) Qatar’s GDP versus natural gas price. (c) KSA’s GDP versus WTI. (d) Kuwait’s GDP versus WTI. (e) UAE’s GDP versus WTI. (f) Libya’s GDP versus WTI

Source: IMF and EIU

Reevaluation of Stylized Facts

However, these stylized facts have recently become subject to reevaluation and reassessment because of several emerging trends. First, most Arab countries have recently initiated and are implementing structural reforms that enabled them to enhance their economic growth which proceeded at an estimated average rate of 5.4% over 2000–2007, Table 2.1. While individual country growth rates varied in the latest available year, 2006, the regional average economic growth reached an all time high rate of 6.6% in 2006.

Due to an amalgam of forces including the rapid population and labor growth rates and the mismatch between the education system and labor markets requirements, the region suffers from high unemployment which hovers around 15% on average. Also, while inflation used to be mild, it has recently picked up momentum, Fig. 2.2. Even in the traditionally low inflation economies of the GCC, inflation is becoming an increasingly painful issue. To combat high unemployment rates as well as the region's rising cost of living, recent reform policies have focused on sustaining

Table 2.1 Real GDP growth (Annual change, in percent)

	Avg. 1998–2001	2002	2003	2004	2005	2006	2007
Middle East & Central Asia	3.8	4.3	6.3	6	6.3	6.6	6.2
Oil Exporters	3.6	4.8	7.5	6.1	6.6	6.6	6.2
Algeria	3.6	4.7	6.9	5.2	5.3	4.9	5
Bahrain	4.8	5.2	7.2	5.4	6.9	7.1	6.3
Iraq	8.2	-7.8	-41.4	46.5	3.7	4	14.4
Kuwait	2.5	5.1	13.4	6.2	8.5	6.2	4.7
Libya	1.7	3.3	9.1	4.6	3.5	5	4.6
Oman	3.6	2.6	2	5.6	6.7	7.1	5.7
Qatar	7.4	7.3	5.9	11.2	6.5	6.7	4.7
Saudi Arabia	1.5	0.1	7.7	5.3	6.6	5.8	6.5
Syria	2.4	3.7	1	3.1	2.9	3.2	3.7
UAE	4	2.6	11.9	9.7	8.5	11.5	5.8
Low-income countries	4.9	5.4	5.9	6.2	7.2	9.2	8.4
Mauritania	3.1	1.1	5.6	5.2	5.4	14.1	10.6
Sudan	5.7	6.4	4.9	5.2	7.9	12.1	11.3
Yemen	4.3	3.9	3.1	2.6	3.8	3.9	2.5
Emerging Markets	4	3.1	4.4	5.8	5.7	5.9	5.9
Egypt	5.1	3.2	3.1	4.1	4.9	5.6	5.6
Jordan	4.3	5.8	4.2	8.4	7.2	6	5
Lebanon	1.9	2.9	5	6	1	-3.2	5
Morocco	3.6	3.2	5.5	4.2	1.7	7.3	3.3
Tunisia	4.4	1.7	5.6	6	4.2	5.8	6
CIS	6	7.8	8.7	9	10.9	10.8	11
MENA	3.7	4.1	6.3	5.4	5.5	6.1	5.5
Of which							
GCC	2.5	1.6	8.5	6.6	7.1	7.2	6.1
Maghreb	3.5	3.6	6.6	5	4	5.8	4.8

Source: IMF 2008

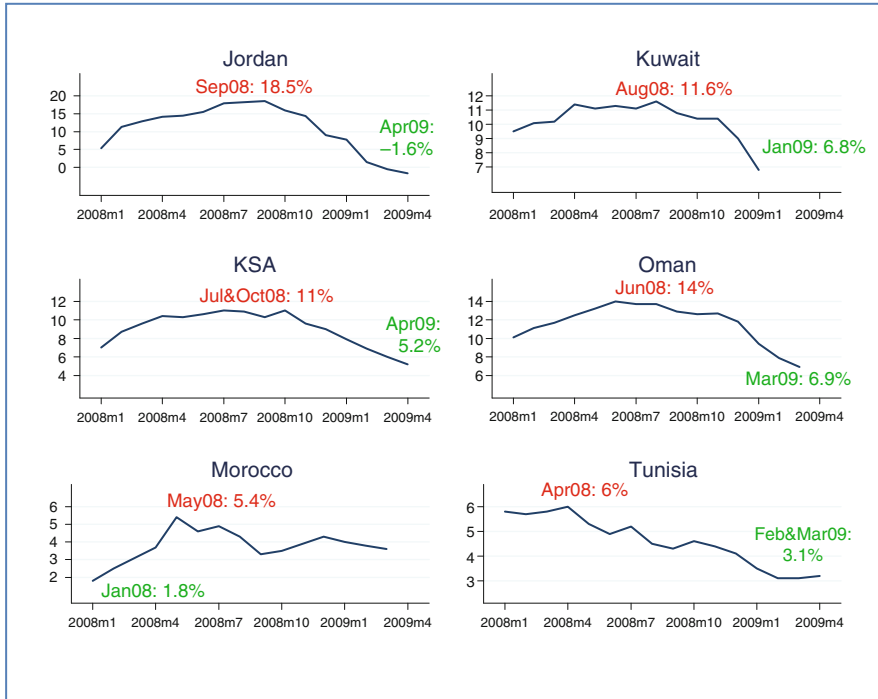


Fig. 2.2 Consumer price index, selected countries
 Source: Economic Intelligence Unit, EIU

economic growth, and curbing inflation and joblessness, the three main challenges faced by Arab economies in general.

Second, the utilization of “petro-dollar” surpluses in the oil-producing Arab countries appears more prudently managed, which induced favorable internal and external balances relative to historical records. For instance, Saudi public debt has declined from 93% of GDP to the current 28%. In the non-oil-exporting countries of the Mashreq region, growth accelerated in 2006 in the context of an upturn in foreign direct investment and an overall favorable external environment.

Third and equally important, however, is the fact that, in the course of time, Arab countries have gradually nurtured their nascent and banking. Infrastructures and applied policies that incrementally benefitted from the oil-induced financial surpluses on one hand and also embodied invaluable lessons gained from stressful financial episodes that occurred in other regional settings in Asia, North and Latin Americas, and Europe.

The sustained growth of the region during 2002–2008 came to a halt when the global economy was hit by the financial crisis which initially started with the subprime crisis in the USA in August 2007 but was rapidly transmitted into Europe and the emerging economies including that of the MENA region. These profound developments were transmitted to the region and by now, there is little doubt that

Arab economies in the Middle East and North African region, MENA, have been adversely affected by the global economic downturns. The main drivers of the contraction were lower and more volatile oil prices, reduced trade and contracted investment flows, and reduced trade and investment flows and lower investor and consumer confidence in key sectors such as construction and real estate. To exacerbate the downward trend, many government and private investors and SWFs in our region have endured major investment losses. According to one estimate by a senior GCC minister and Kuwaiti Harvard graduate, Dr. Mohammed Al-Sabah, “the financial crisis has cost the Arab world US\$2.5 trillion in the past 4 months alone”. He estimates that “Up to 60% of the region’s development projects had been canceled or postponed”. The crash in oil prices has hit the region just as hard.

Arab Population Dynamics

According to the revised population estimates of the United Nations, the population of Arab countries rose from 171.6 million in 1980 to 300.2 million in 2002. Table 2.2 summarizes population estimates in selected Arab countries. In terms of medium variant projections, the population of the 22 countries of the Arab region is expected to reach 385.2 million in 2015 and 631.2 million in 2050. The average,

Table 2.2 Population in Arab countries, figures in thousands (2001–2007)

Country	Populations							Gr. rate
	2001	2002	2003	2004	2005	2006	2007	
Jordan	4,940	5,070	5,200	5,350	5,470	5,595	5,724	2.3
UAE	3,488	3,754	4,041	4,368	4,105	4,175	5,215	1.72
Bahrain	654.62	672.123	689.418	707.16	724.695	742.561	760.168	1.68
Tunisia	9,650.6	9,748.9	9,839.8	9,932.4	10,031.1	10,130	10,238	1.08
Algeria	3,083	31,281	31,738	3,236	32,786	33,278	33,810	1.6
Djibouti	545	557	570	583	600	616.8	618.9	3
Saudi Arabia	20,957.6	21,486.72	22,022.11	22,563.89	23,118.99	23,678.8	24,242.6	2.4
Sudan	31,913	32,769	33,648	34,512	35,397	35,470	36,400	2.63
Syria	16,720	17,171	17,635	17,793	18,138	18,581	19,175	2.45
Somalia	9,691	9,787	9,885	9,983	10,082	10,083	10,184	1
Iraq	24,813	25,565	26,340	27,139	27,954	28,793	29,656	3
Oman	2,478	2,538	2,341	2,416	2,452	2,489	2,526	1.5
Palestine	3,381.75	3,562.001	3,844.044	3,922.06	4,106.455	4,297.07	4,491.72	3.4
Qatar	648.744	682.434	717.766	744.029	789.392	885.359	918.16	1.5
Kuwait	2,182.61	2,262.959	2,325.44	2,390.591	2,457.257	2,525	2,666.4	5.6
Lebanon	3,636	3,675	3,714	3,754	3,794	3,835	3,876	1.07
Libya	5,300	5,581	5,669	5,880	6,097	6,263	6,431	2.7
Egypt	65,298	66,628	67,976	69,330	69,997	70,473	71,844	1.9
Morocco	29,170	29,631	30,088	30,590	31,101	31,620	32,150	1.5
Mauritania	2,568	2,669	2,913	2,983	3,054	3,186	3,262	2.4
Yemen	18,948	19,631	20,357	21,104	21,868	22,649	23,464	3.5
Total	287,814	294,722.1	301,553.6	279,281.1	314,122.9	319,366	317,479	2.4

Source: WHO, Statistical database, 2009

exponential growth rate of 2.6% per annum during the period 1980–2002 could drop to 1.9% per annum during 2002–2015, and is likely to fall after 2025 to approximately 1.3% per annum during the period 2025–2050.

High population growth rates reflect high fertility. In fact the single most remarkable demographic aspect of the Arab region is the nearly universal high level of fertility – the average level of childbearing is six children per woman. While fertility levels are high in general, disparities exist within and across countries. In Algeria in 1988, for instance, women still gave birth to more than six children in the southern part of the country but less than four in the north. Lebanon, despite its small size, harbors strong regional contrasts: Beirut (2.3 children/woman) versus the north (4.3 children/woman), for instance. In Egypt, the average family numbers only 3.6 children in Port Said but 8.2 in Fayoum (Fargues 1994).

Similar to other developing regions, fertility did drop markedly, however, when considered over longer time horizons. For instance, it dropped from 5.7 births per woman in Egypt during the 1970–1975 to 3.3 births per woman during 2000–2005. Similar downward trend is discerned in other countries: in Iraq the corresponding drop was from 7.2 to 4.8 live births per woman during 1975–2005. Jordan's total fertility dropped from 7.8 to 3.5 and in Lebanon, the drop was from 4.8 to 2.3 live births per woman. In Saudi Arabia, the drop was from 7.4 to 4.1 and in Syria total fertility declined from 7.5 to 3.5 live births per woman (Sanchez-Barricarte and Veira-Ramos 2008).

The region's rapid population growth was the result of a substantial decline in mortality triggered by the increasing use of antibiotics, by vaccinations, and by the spread of disease control and sanitation programs. Most countries of the region have made considerable progress in improving health conditions for their citizens, and these conditions still fall short of aspirations. "Good health" is obviously a multidimensional, complex phenomenon; measuring it is correspondingly difficult. Life expectancy at birth and infant mortality rates are two indicators of health conditions that are widely used. Life expectancy at birth has improved substantially throughout the Arab world. In most countries, a newly born child can expect to live 20 years longer than his or her parents.

While mortality in the MENA declined over time, the decline in the number of "births per woman" did not occur until the mid-1970s and beyond as discussed earlier. As a result, the second half of the twentieth century witnessed explosive population growth throughout the region as births far outnumbered deaths. The region's growth rate reached a peak of 3% a year around 1980. Currently, the population of MENA is growing at about 2% a year, still higher than the world average. The world as a whole reached its peak of population growth of 2% a year in the mid-1960s and is currently growing at 1.2% a year.

The aforementioned demographic pattern produced youthful population structure and invariably reduced the median age of the Arab countries as shown in Table 2.3. One of the results of the youthful population structure is the rapid increase in labor force and in the face of sluggish economic growth and inability to create productive jobs; unemployment rates remain high, greater than 25% for the young age cohorts.

Table 2.3 Demographic and socioeconomic statistics

	Median	Under	Over	Annual growth rate		Living in urban		
	age	15(%)	60(%)	(%l)	(%l)	areas (%)		
	2007	2007	2007	1987–1997	1997–2007	1990	2000	2007
Egypt	23	33	7	2	1.8	43	42	43
Jordan	22	36	5	4.5	2.7	72	80	78
Kuwait	30	23	3	–0.5	4.4	98	98	98
Lebanon	28	28	10	2.3	1.2	83	86	87
Libya	25	30	6	2.1	2	79	83	77
Morocco	25	29	8	1.7	1.2	48	55	56
Oman	23	32	4	3.2	1.3	65	72	72
Qatar	31	21	3	3	4.2	92	95	96
Saudi Arabia (KSA)	24	34	4	2.9	2.5	77	80	81
Sudan	20	40	6	2.5	2.2	27	36	43
Syria	21	36	5	2.8	2.6	49	50	54
Tunisia	28	25	9	1.8	1.1	60	63	66
UAE	30	20	2	5.5	4.7	79	77	78
Yemen	17	45	4	4.2	3	21	25	30

Source: WHO Statistics, 2009

The high population growth rates make the population histograms of many Arab countries flat-based, reduce the doubling time (the time during which the population will become double its current size if population growth rate remain at current levels), enhance the population momentum, increase the dependency ratio, and temporarily put tremendous pressure on the labor markets.

Such transition crops the question about the demographic consequences for long-run per capita GDP growth. Recent research has highlighted the importance of demographic transitions in explaining cross-country differences in per capita GDP growth. In short, what matters for economic growth is not the rate of population growth per se, but rather *the changing age distribution of populations as countries move from conditions of high fertility and mortality to low levels in both*. Thus, when a large share of the population is dependent, nonworking, and under the age of 14 or over 65, an economy carries a demographic burden that lowers labor input per capita, depresses the savings rate, and reduces the rate of GDP per capita growth. This was the case in Asia and Latin America in the 1950s and 1960s. Conversely, countries are endowed with a demographic gift when a larger share of the population is economically active (between the ages of 15 and 64), raising the labor force per capita, capital accumulation, and GDP per capita growth as was the case in Asia during the miracle years of the 1970s and 1980s, East Asia in particular. From this perspective, one is able to understand the role of demography in MENA in the past and its potential contribution in the future (Yousef 2005).

Because of the dynamics of international migration that the region witnessed during the past decades, many countries of the region have a high male-to-female sex ratio. In the oil-producing countries, for instance, the selectivity of the immigration process and policies render the sex ratio predominantly male. In fact, seven Arab countries top the list of the world's most-male countries. In the United Arab

Emirates, there are 206 men for every 100 women; Qatar, 168; Bahrain, 145; Kuwait, 133; Saudi Arabia, 119; Oman, 110; and Libya, 110 (The Economist 1991).

Dynamic population mobility is yet another notable characteristic of the Arab Middle East, both by choice and necessity. For example, the Bedouins of the Arabian Peninsula migrate from one geographic location to another in search of hunting and grazing land. Other movements are mandated by political reasons, such as the displacement of Palestinians in 1948 following the establishment of the state of Israel. Similarly, Syrians, Egyptians, and Lebanese have all been subjected to displacement due to the Arab-Israeli wars; the Lebanese conflict has led to massive population dislocation; the Iraq–Iran war has led to a large influx of Kurds into Turkey; and the conflict between the North and the South in Sudan has led to movement of refugees to the capital and other cities, creating large squatter settlements. Other forces causing population displacement include man-induced engineering developments. For instance, the construction of the Aswan Dam in 1964 submerged agricultural land in Aswan and Merowe in Egypt and Sudan, respectively. The Nubians who inhabited the areas were forced to resettle in large numbers. During the Arab oil decade of the 1970s, over three million workers migrated from “labor surplus” Arab countries to the Gulf and Libya, making up for labor shortages and helping to sustain development efforts. Most recently, the Gulf crisis and war led to the displacement of several million “third-country nationals”, including 500,000 Palestinians, one million Yemenis, 800,000 Egyptians, and several hundred Sudanese from Kuwait, Iraq, and Saudi Arabia (Shami 1993; Al-Qudsi et al. 1993).

The Population Aging Problem

Currently, nearly 21% of the population in advanced countries is 60 years of age or older, which is three times the corresponding rate in developing countries where the ratio is 8.4%. The U.N predicts that globally, the percentage of people aged 65 years or older will double between 2007 and 2050. By 2050, one-third of the population in developed countries will be 60 years or older, while in less-developed countries, one fifth (20%) will be over 60 (WEF 2008).

MENA countries encounter somewhat of a variant aging issue however: Specifically, the growth rate of the urban population of the elderly is found to exceed the rural growth rate. Indeed, some countries are projected to lose their rural populations in that age segment by 2015. This unexpected trend could stem from factual errors in the data. In fact, with the rapid mortality transition, the absolute number of survivors and therefore, the percentage of the old population are expected to increase. However, owing to the above-mentioned assumption of a constant age structure of the rural population, the elderly segment does not show the change in the percentage of rural population, thereby suppressing the effect of aging on the age structure of the rural population. Moreover, given that the urban population was obtained as the residual of the total projected population, the urban population could be overestimated in the 65+ group, which could account for the high urban

growth rate observed for that age segment of the population. However, migrations away from rural areas for the 65+ group could equally stem from a lack of rural infrastructure, particularly in the health and economic sectors. A majority of those engaged in economic activity in old age could lack adequate cover under social security schemes and therefore feel compelled to move to urban areas in search of employment (ESCWA 2007 Population Aging in Arab Countries UN, NY).

Rural-to-Urban Migration

According to a study by ESCWA (2007), available evidence suggests a migration from rural to urban areas, particularly in working-age groups, to varying degrees of magnitude across the Arab region. Generally, this phenomenon is supported by the age-structural transition of the urban populations of the eight selected Arab countries and by the analysis of trends in the growth rates of rural and urban populations. A downward and sometimes negative growth rate of rural population in some countries suggests a heavy rural-to-urban shift; and the upward trend in the growth rate of urban populations is expected to continue unabated until 2015.

In addition, and in tandem with the pattern in many developing countries, aging of rural populations is now well underway in Arab countries. The phenomenon of aging comprises both population aging and individual aging, which represent macro and micro concepts of aging. The former refers to aging of populations in an aggregate sense whereby the structure of a population by age and gender, which is represented by a pyramid, undergoes a shift as a result of changes in mortality, fertility, and migration flows. Individual aging, on the other hand, is solely influenced by reductions in mortality rates and has not contributed to a significant degree toward rural aging in the Arab region. Utilizing the aforementioned ESCWA study, in Table 2.4 three

Table 2.4 Indices of aging for rural and urban populations of selected Arab countries

Country	Rural						Urban					
	1980			1980			2000			2015		
	AI	YDR	ODR	AI	YDR	ODR	AI	YDR	ODR	AI	YDR	ODR
Egypt	8.2	73.0	6.0	10.9	79.2	8.6	20.8	45.0	9.4	45.0	25.4	11.4
Iraq	5.7	98.9	5.6	6.7	92.1	6.2	7.1	69.6	4.9	10.6	46.6	5.0
Jordan	5.9	83.9	5.0	6.5	120.0	7.8	7.2	67.6	4.9	14.2	44.3	6.3
Morocco	18.5	39.9	7.4	4.7	198.0	9.3	11.4	68.5	7.8	23.9	39.8	9.5
Tunisia	15.4	66.9	10.3	4.1	88.3	3.6	22.4	37.9	8.5	46.8	19.6	9.2
Syrian Arab Republic	9.3	42.7	4.0	3.7	88.3	10.7	6.3	37.9	7.4	10.4	19.6	7.1
Somalia	3.3	90.2	3.0	14.1	286.5	10.7	4.9	117.5	7.4	11.3	67.9	7.1
Yemen	7.2	118.8	8.5	6.5	82.1	5.3	NA	54.3	NA	16.5	27.7	4.6

Source: ESCWA 2008

Note: AI, YDR and ODR refer, respectively to aging index, young dependency ratio and old dependency ratio. NA Indicate that data are not available

indices of aging are presented for rural and urban populations of selected Arab countries, namely, the aging index (AI), which measures the number of 65+ per 100 persons aged 15 years and under; the young dependency ratio (YDR), which measures the number of persons aged 15 years and under per 100 persons aged 15–64 years; and the old dependency ratio (ODR), which measures the number of 65+ per 100 persons aged 15–64 years. Within the context of the latter, it is important to note that labor force participation is higher among the elderly in Arab countries where more than 38% were still working as against 27% in developed countries (ESCWA 2007).

The AI for rural population is highest in Morocco (18.5%), followed by Tunisia (15.4%). In the other countries, the index ranges between 3.3% in Somalia and 9.3% in the Syrian Arab Republic, thereby suggesting that the aging process is considerably slower in the rural populations of Arab countries. However, the AI is expected to rise in the wake of drops in fertility and increases in life expectancy. The rural YDR is comparatively high in all eight selected countries, particularly in Yemen, Iraq, Somalia, and Jordan. This could be attributed to prevailing high fertility in rural areas coupled with shrinking rural populations, owing to migration of economically active age groups.

Health Systems and Health Expenditures

The health system of Arab countries tends to be pluralistic and segmented with many different public and private providers and financing agents. In general, financing agents are the public sector, the private sector such as private insurance companies, unions, professional organizations and NGO's, and finally the household sector. The public sector provides health care through government hospitals and clinics, teaching, and university hospitals. The provision of health in the private sector occurs through a suite of profit and nonprofit providers including medication for service charges and fees, charity hospitals, pharmacies and clinics.

Health expenditure has increased markedly over time. Table 2.5 records comparative data on the health expenditures both as shares of each country's GDP and by private and public sector spending. Expenditure on health in Arab countries was generally in the vicinity of 4.5% of GDP versus globally this ratio was about 8.7% of GDP, with the highest level in the Mashreq (Jordan 9.9%) and the lowest in the GCC (Kuwait 2.2%). This translates to 116 USD per capita on average but varies however from low per capita levels in Syria to US\$ 2,753 in Qatar.

The provision of health requires the sufficient availability of good-quality staff, that is the number of health workers and their proficiency. Table 2.6 shows health workforce data in a set of Arab countries. Unequivocally, Qatar leads in terms of density (providers per 10,000 populations) in the case of physicians and dentistry providers. Two favorable factors induce these outcomes: small population size and

Table 2.5 Health expenditure Indicators in the Mena Region

Country	Gov. expenditure on health(%) of total exp. on health, 2000	Gov. expenditure on health(%) of total exp. on health, 2006	General government expenditure, 2000	General government expenditure, 2006	General government expenditure as percentage of total government expenditure, 2000	General government expenditure as percentage of total government expenditure, 2006	Per capita government expenditure on health (PPP int. \$), 2000	Per capita government expenditure on health (PPP int. \$), 2006	Per capita total expenditure on health (PPP int. \$), 2000	Per capita total expenditure on health (PPP int. \$), 2006	Total expenditure on health as percentage of gross domestic product, 2000	Total expenditure on health as percentage of gross domestic product, 2006
Algeria	73.3	77.3	9	9.5	97	146	132	188	3.5	3.6		
Afghanistan	1	27.5	1.1	4.4	<1.0	8	11	29	3.3	5.4		
Bahrain	67.5	66.4	10.2	9.5	478	669	708	1,008	4	3.8		
Djibouti	67.8	75.4	12	13.4	47	75	69	100	5.8	6.7		
Egypt	40.1	40.7	7.5	7.3	83	129	207	316	5.6	6.3		
Iran	37	55.6	9.6	9.2	135	406	364	731	5.9	7.8		
Iraq	34.2	72.5	1.3	3.4	15	90	45	124	1.1	3.8		
Jordan	46.6	42	10.3	9.5	192	257	413	611	9.4	9.9		
Kuwait	78.1	78.9	8.8	4.9	391	422	501	535	3.1	2.2		
Lebanon	30	46.8	7.8	11.3	177	285	589	608	11	8.9		
Libya	60.7	70.2	6.9	6.5	148	189	243	270	3.6	2.9		
Morocco	31.2	35.9	4.3	5.5	56	98	178	273	4.8	5.1		
Oman	83.6	84	7.3	5.4	286	321	342	382	3	2.3		
Pakistan	20	16.4	1.8	1.3	9	8	44	51	2.5	2		
Qatar	68.8	78.1	5	9.7	381	1,115	553	1,426	2.3	4.3		
Saudi Arabia	76.4	77.2	9.2	8.7	430	468	563	607	4	3.4		
Somalia	44.8		4.2		8		18		2.6			
Sudan	25.6	37.1	7.2	6.3	8	23	32	61	3.1	3.8		
Syria	40.4	47.6	6.5	5.9	43	52	105	109	4.9	3.9		
Tunisia	48.5	43.7	6.8	6.5	177	214	365	488	5.6	5.3		
United Arab Emirates	78.6	72.9	7.6	8.7	478	491	609	673	3.1	2.6		
Yemen	41.9	46.4	6.2	5.6	28	38	66	82	4.5	4.6		

Source: WHO, 2009

Table 2.6 Health workforce, infrastructure, essential medicines

Member state	Health workforce					
	Physicians		Nursing and midwifery personnel		Dentistry personnel	
	Number	Density (Per 10,000 Population)	Number	Density (Per 10,000 Population)	Number	Density (Per 10,000 Population)
	2000–2007		2000–2007		2000–2007	
Algeria	35,368	11	69,749	22	9,553	3
Bahrain	1,980	27	3,850	61	300	4
Egypt	179,900	24	248,010	34	25,170	3
Iran	61,870	9	98,020	16	13,210	2
Iraq	19,010	7	36,300	13	3,460	1
Jordan	13,460	24	16,770	32	4,330	8
Kuwait	4,840	18	9,940	37	810	3
Lebanon	8,440	24	4,720	13	3,260	9
Libya	7,070	13	27,160	48	850	2
Morocco	15,991	5	24,328	8	3,091	1
Oman	4,290	17	9,500	37	460	2
Qatar	2,150	26	4,880	60	690	9
Saudi Arabia	34,261	14	74,114	30	4,235	2
Sudan	11,083	3	33,354	9	944	<1
Syria	10,342	5	27,288	14	2,306	1
Tunisia	13,330	13	28,537	29	2,452	3
United Arab Emirates	4,960	17	10,340	35	850	3
Yemen	6,739	3	13,746	7	850	<1

Source: WHO Statistics, 2009

relative abundance of financial resources yet inadvertently, government's vision and policy agenda play a significant role as well.

The health supply indicators can be examined in terms of the availability of hospital bed, nursing, and physicians per 10,000 populations as shown in Table 2.7. Clearly, differences across Arab countries are substantial.

The supply of health workforce critically depends on the presence of effective and rewarding remuneration system that manages to attract and retain capable health workers over their life-cycles. Other supplementary factors include the availability of clinical laboratories, medical research facilities, and medical testing instruments and technologies as well as the supply of paramedical and supporting services, in sufficient quantity and quality that encourage physicians and dentistry workforce to pursue medical career path in Arab countries. Absence of these integrated factors and technological supplies invariably drives out-migration of health workers in search of self-improvement, scientific advancement, and higher living standards. Table 2.8 provides a snapshot of Arab doctors and health workers who are employed in the OECD countries.

Table 2.7 Human and physical resources indicators (per 10,000 population)

Country	Physicians		Dentists		Pharmacists		Nursing and midwifery		Hospital beds		Primary health care units and centers	
	No	Year	No	Year	No	Year	No	Year	No	Year	No	Year
Bahrain	27.6	2006	55	2006	4.1	2006	8.3	2006	27.4	2006	0.3	2006
Egypt	25.1	2006	28.2	06	3.6	2006	13.7	2006	21	2006	2.2	2006
Jordan	24.5	2006	33	06	8.2	2006	12	2006	19	2006	2.4	2006
Kuwait	18	2006	36	06	3	2006	2.0 ^b	2006	19	2006	0.4	2006
Lebanon	28.8	2007	17.9	07	10.9	2007	12.1	2007	34.3	2007	N.A	2007
Libya	17	2006	50	06	2.7	2006	2	2006	37	2006	2.6	2006
Morocco	5.6	2006	10	06	1.1	2006	2.6	2006	8.7	2006	0.9	2006
Oman	18.2	2007	38.7	07	1.9	2007	3.4	2007	20.2	2007	0.9	2007
Qatar	27.6	2006	73.8	06	5.8	2006	12.6	2006	25.2	2006	2.7	2006
Saudi	20	2005	34.6	05	2.1	2005	3.5	2005	22	2005	0.8	2007
Syria	14.8	2007	18.8	07	7.4	2007	6.5	2007	14.7	2007	1	2007
Tunisia	9.4	2007	31.1	07	1.8	2007	2	2007	17.6	2007	2	2007
UAE	16.1	2005	29.1	05	4	2005	5.8	2005	18.8	2005	4	2005

Source: World Health Statistics Database

Note: Year = Reference year for data provided

NA = Data not available for 2000–2005 or not reported a = 2003, b = 2004

Table 2.8 Arab doctor and nurses in OECD

Country of Birth	Nurses		Country of birth	Doctors			
	Number of persons working in OECD countries	Expatriation rate		Number of persons working in OECD countries	Expatriation rate		
Algeria	8,796	12.4	Algeria	10,793	23.4		
Bahrain	77	2.5	Bahrain	74	8.4		
Egypt	1,128	0.8	Egypt	7,243	15.8		
Iran	4,234	4.8	Iran	8,991	12.9		
Iraq	415	1.3	Iraq	3,730	18		
Kuwait	152	1.6	Kuwait	465	11.5		
Lebanon	1,400	25.2	Lebanon	4,552	28.3		
Libya	100	0.6	Libya	592	8.5		
Morocco	5,730	20.5	Morocco	6,221	28		
Oman	18	0.2	Oman	23	0.6		
Qatar	QAT	-	Qatar	QAT	45	3.3	
Saudi Arabia	SAU	151	0.2	Saudi Arabia	SAU	421	1.2
Sudan	SDN	183	1	Sudan	SDN	778	9.3
Syria	SYR	319	1	Syria	SYR	4,721	16.6
Tunisia	TUN	410	1.6	Tunisia	TUN	2,415	15.3
United Arab Emirates	ARE	11	0.1	United Arab Emirates	ARE	44	0.7
Yemen	YEM	231	1.7	Yemen	YEM	248	3.5

Source: OECD (2007)

The Pharmaceutical Market Issues

A related issue pertains to the availability of pharmaceutical products and the size of the pharmaceutical markets in the Middle East. Current estimates suggest that the pharmaceutical market in MENA is likely to grow by between 10 and 15% annually over the next 3 years. This rapid growth is driven by economic reform and the policy objective of achieving a greater degree of “self sufficiency” in medicine. Combined with rapid population growth and demographic transition, these factors are attracting huge domestic and foreign investments which are taking place in the private and public health sectors. Turkey, Israel, Saudi Arabia, Egypt, and Iran stand out as the largest markets in terms of projected growth potential and value representing a host of opportunities.

Despite this bullish forecast for pharmaceutical and healthcare markets, the Arab market represents just 2% of global pharmaceutical sales. On the downside, continued economic volatility and stressed financial and economic conditions with fluctuations in oil prices, which have historically been highly correlated with the pharmaceutical market growth in the region, are likely to affect the growth of industry adversely. In response to these challenges and to increase the efficiency and meet the escalating demand for medicines to match the rapidly growing population, Arab governments need to encourage domestic production, provide industry incentives including infra-structural investments and fiscal incentives and encourage syndicated industry financing with the objective of reducing reliance on pharmaceutical imports including medicines equipments while promoting medical and pharmaceutical exports.

To illustrate, in many Arab economies, production factors including technical expertise, raw materials, quality standards, and production and laboratory equipment currently need to be imported at exorbitant foreign exchange cost. To be sure, the region does contain vibrant domestic pharmaceutical markets such as those of Egypt, Israel, and Turkey; for instance, local pharmaceuticals manufacturing satisfies 90% of consumption requirements in Egypt. Yet and by sheer contrast, Saudi Arabia is a net importer of pharmaceutical products with 85% of pharmaceutical consumption requirements originating from import sources regionally and internationally. The stakeholders, government, industry, and consumers should examine and emulate policies of advanced countries. For instance, recently the Unites State government intends to “save \$313 billion over the next 10 years by forcing greater efficiency in Medicare, demanding better prices from drug makers and cutting the number of uninsured Americans”. Table 2.9 shows the Pharmaceuticals trade at Million USD current prices during the period 2000–2007.

Intercountry Inequalities in Health Indicators

As shown in Table 2.10, inequality in the health availability, affordability, and in health indicators is quite vivid in Arab countries. Health inequalities result from economic, political, geographic, and cultural forces. Such inequality tends to persist

Table 2.9 Pharmaceuticals trade (exports vs. imports) at million USD current prices

Year	Egypt		Jordan		KSA		UAE		Israel		Turkey		USA		Total MENA	
	exp	imp	exp	imp	exp	imp	exp	imp	exp	imp	exp	imp	exp	imp	exp	imp
2000	50	338	112	136	22	883	49	316	429	601	148	1,344	13,122	14,855	274	3,037
2001	50	427	193	158	27	967	51	326	638	657	153	1,345	15,421	18,753	358	3,379
2002	66	501	218	176	31	1,002	66	373	927	713	165	1,718	16,149	24,874	423	3,898
2003	51	362	211	209	40	1,387	94	445	959	784	220	2,302	19,199	31,739	446	4,564
2004	44	362	245	235	57	1,514	164	576	1,359	813	289	3,035	23,980	35,371	585	5,263
2005	65	401	296	263	119	1,730	138	612	2,068	904	317	3,184	25,946	39,323	710	5,396
2006	64	316	316	292	112	1,941	163	720	3,164	1,032	354	3,343	29,105	46,222	773	5,742
2007	92	436	448	350	155	2,230	231	958	3,509	1,113	378	4,084	33,464	54,003	1,005	6,631

Source: WTO, various years

Table 2.10 Health inequities in Arab countries

Member state	Year	Place of residence				Wealth Quintile				Education Level of Mother						
		Rural		Urban		Lowest		Highest		Lowest		Highest		Difference highest–lowest		
		Ratio	Difference	Ratio	Difference	Ratio	Difference	Ratio	Difference	Ratio	Difference	Ratio	Difference	Ratio	Difference	
MDG 5 Births attended by skilled health personnel (%)																
Algeria	2006	92	98	1.1	6	na	na	na	na	na	na	na	na	na	na	na
Bahrain		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Egypt	2005	66	89	1.3	23	51	96	1.9	45	54	89	1.6	35	na	na	na
Iraq	2006	78	95	1.2	17	na	na	na	na	79	96	1.2	17	na	na	na
Jordan	2007	99	99	1	1	98	100	1	2	na	na	na	na	na	na	na
Kuwait		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Lebanon		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Libya		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Morocco	2003–2004	40	85	2.2	46	30	95	3.2	66	49	94	1.9	46	na	na	na
Oman		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Qatar		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Saudi		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Sudan	1990	59	86	1.4	27	na	na	na	na	53	96	1.8	43	na	na	na
Syria	2006	88	98	1.1	9	78	99	1.3	21	na	na	na	na	na	na	na
Tunisia	2006	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
UAE		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Yemen	2006	26	62	2.3	35	17	74	4.3	57	27	61	2.3	34	na	na	na
MDG 4 Measles immunization coverage among 1-year-olds (%)																
Algeria	2006	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Bahrain		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Egypt	2005	97	97	1.0	0	95	97	1.0	2	96	98	1.0	2	na	na	na
Iraq	2006	60	76	1.3	16	na	na	na	na	60	79	1.3	19	na	na	na
Jordan	2007	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Kuwait		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Lebanon		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Libya		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Morocco	2003–2004	86	94	1.1	8	83	98	1.2	15	88	96	1.1	9	na	na	na
Oman		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Qatar		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
KSA		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Sudan	1990	56	70	1.2	14	na	na	na	na	50	85	1.7	35	na	na	na

Syria	2006	91	94	1.0	3	89	97	1.1	9	na	na	na	na
Tunisia	2006	97	99	1.0	2	na	na	na	na	na	na	na	na
UAE		na	na	na	na	na	na	na	na	na	na	na	na
Yemen	2006	59	80	1.4	22	52	86	1.6	33	60	81	1.4	21
MDG 4 Under-5 mortality rate (probability of dying by age of five per 1,000 live births)													
Algeria	2006	na	na	na	na	na	na	na	na	na	na	na	na
Bahrain		na	na	na	na	na	na	na	na	na	na	na	na
Egypt	2005	56	39	1.4	17	75	25	3.0	50	68	31	2.2	37
Iraq	2006	41	41	1.0	0	na	na	na	na	49	37	1.3	12
Jordan	2007	27	22	1.2	5	30	27	1.1	3	na	na	na	na
Kuwait		na	na	na	na	na	na	na	na	na	na	na	na
Lebanon		na	na	na	na	na	na	na	na	na	na	na	na
Libya		na	na	na	na	na	na	na	na	na	na	na	na
Morocco	2003–2004	69	38	1.8	31	78	26	3.0	52	63	27	2.3	36
Oman		na	na	na	na	na	na	na	na	na	na	na	na
Qatar		na	na	na	na	na	na	na	na	na	na	na	na
KSA		na	na	na	na	na	na	na	na	na	na	na	na
Sudan	1990	144	117	1.2	27	na	na	na	na	na	na	na	na
Syria	2006	24	19	1.3	5	22	20	1.1	2	na	na	na	na
Tunisia	2006	na	na	na	na	na	na	na	na	na	na	na	na
UAE		na	na	na	na	na	na	na	na	na	na	na	na
Yemen	2006	86	57	1.5	29	118	37	3.2	81	na	na	na	na

over time even as standards of living rise. To illustrate, infant mortality rate varies among countries. Life expectancy at birth also varies, from 73.4 years in Kuwait to 51.5 years in Yemen, while the number of patients per physician ranged from 5,639 for Yemen to 660 in Saudi Arabia. In several Gulf countries, patients enjoy free health services, while in some other countries inequitable distribution of health services remains a problem. Access to medical services and medical care is often very difficult for some sectors of the population, particularly those living in rural areas. For example, during 1985–1987 the percentage of the population with access to health services was only 35% in Yemen, 51% in Sudan, 74 and 76% in Morocco and Syria, respectively, 81% in Egypt, 90% in the UAE, and 100% in Kuwait (UNDP, 1991/1994).

These differences are the result of differences in resource- and non-resource-dependent characteristics. Resource characteristics include income and wealth variations while nonresource characteristics include genetic, psychological, and cultural factors. More specifically, differences in orientation toward smoking, drinking, diet, exercise, and occupational risk in interaction with availability (or lack) of medical goods and health facilities could produce differential health status outcomes. Whatever the underlying reasons are, continued existence of health inequalities across and within countries poses important challenges to policy makers in these countries.

With the onset of global financial crisis and the resultant global economic downturns since late 2007, the Arab region, in tandem with other regions must work hard to safeguard the future and maintain good health among its populace. Maintaining precrisis levels of government expenditures on health as a proportion of total government spending is desirable, but by itself does not guarantee that pro-poor services will be protected. Governments should take explicit measures to protect pro-poor expenditures on health. Public spending should target adequate nutrition for the most vulnerable groups, as a fall in the quantity and quality of nutrition is one of the most serious human development consequences of an economic crisis (World Bank 2009).

Special mention should be made of the interactions between health and water availability, access, and usage by income and social strata produce dynamic implications for socio-economic transformations. While the region is rich in oil and gas and other energy and nonenergy sources, it is generally plagued by water scarcity. Actual renewable water resources per capita are 1.1 m³ per year, the smallest globally. Roof-top water storage tanks are ubiquitous in Amman and Jordan, where water service lasts only 2 h a day and residents of arid Yemen use only 2% of the water consumed by the average person in other parts of the world. Much of Yemen's water is mined from rapidly depleting underground aquifers. Yemen and Jordan have the most severe water shortages in the Middle East and North Africa. And even the most casual observer knows water is scarce throughout the entire Middle Eastern region. Most of the countries of the region cannot meet current water demands and the situation is likely to get worse in the future. The World Bank projects that per capita water consumption will fall by half by 2050, with serious consequences for the region's already stressed aquifers and natural

hydrological systems (World Bank 2008). Some 60% of the region's water flows across international boundaries, further complicating the resource management challenge. Scarcity of fresh water in some countries and degraded quality of water in others cause significant health problems. Over 50% of all the populations in the Middle East and North Africa, excluding the Maghreb, depend either on water from rivers that cross an international boundary before reaching them or on desalinated water and water drawn from deep wells. Millions of people face daily problems in obtaining water for drinking, cooking, bathing, and washing. More than 25% of the population of Egypt, Sudan, Algeria, and Yemen are estimated to be without access to uncontaminated water, and unknown but large proportions have to spend hours daily to collect water. Cholera and typhoid related to contaminated water are common in Egypt, Sudan, and Yemen.

Large proportions of the population of some Arab countries do not have access to safe drinking water nor to sanitation. For example, 46% of the population of Morocco, 30% of Tunisians, 21% of the Syrian population, 10% of Egyptians, and 66% of the population in Sudan do not have access to safe drinking water (UNDP 1994, Table A.2). Oil spillage and resultant water pollution are common at the shores of the Gulf countries. The scarcity and contamination of water imply that mother's milk has a greater effect in promoting child survival in distressed areas where water and sewage facilities are poor (Sirageldin and Diop 1991).

Country differences with respect to *adult mortality* rate are marked. The republic of Yemen has the highest male adult mortality rate, 334 per 100,000 followed by Sudan with 267. Jordan has a relatively low rate of 138, while Algeria and Tunisia have rates of 135 and 166, respectively. In all countries, adult mortality rate is higher for males than for females because of the higher risk factors that men are typically subjected to – for example, occupational risk, industrial accidents, car accidents, smoking-related risks, war, and conflict-related risks. In addition to the role of genetics, falling victim to diseases depends on the age, income, nutrition, and exercise and work habits of individuals. Figure 3.1 displays the relationship between age and expected disability: visual, mental, chronic, and psychological-for males and females separately.

Needless to say that some segments of Arab population remain disadvantaged, in fact some are strictly “homeless” as shown in Table 2.11. The prevalence of malnutrition among children under 5 years of age is 13% in Egypt, 10% in Tunisia, and 55% in Sudan (World Bank 1993). The leading reasons for the prevalence of malnutrition are poverty, interhousehold and interregional economic disparities, and the inadequacy of infrastructure to deal with natural disasters. For instance, in Sudan and Yemen, economic hardships including famine situations reoccur. They result in large numbers of deaths and create human and medical hardship. Preschool children and women are typically at greatest nutritional risk. In the case of Egypt, empirical work has demonstrated that household income has pronounced effects during early childhood and that the impact on child malnutrition and mortality persists even when one controls for other socioeconomic forces (Casterline et al. 1989). Results of dietary studies in Egypt have shown that the average diet of low-income, nutritionally vulnerable groups – children under five

Table 2.11 Estimates of the homeless and disadvantaged in thousands & percent

	Year	No. of homeless	Homeless (%)	Source
Jordan	2005	170.7	13	
UAE	2005	59.041	2.3	estimate
Bahrain	2005	18.768	3.4	
Tunisia	2005	486.307	14.2	
Algeria	2005	1,448	15.3	estimate
Djibouti	2005	143.7	50	
Saudi Arabia	2005	458.587	6.05	
Sudan	2005	2,600	18.5	
Syria	2005	412.86	8.08	
Somalia	2005	1,065	24	estimate
Iraq	2005	2,366.952	29.2	
Oman	2005	68.55	7.5	
Palestine	2005	194	23.5	estimate
Qatar	2005	11.114	2	
Kuwait	2005	27.438	1.67	
Lebanon	2005	90.744	8.2	estimate
Libya	2005	286.485	17.2	estimate
Egypt	2005	2,267	10.7	
Morocco	2005	1748.98	15.7	
Mauritania	2005	191.84	22	estimate
Yemen	2005	834.057	16.3	estimate
Total	2005	14,950.123	15.3	estimate

Source: WHO, 2009

and pregnant and lactating women – provided only 76% of recommended caloric allowances, that the average amount of protein in the diet of these groups was below the recommended allowances, and that only 11% of their protein was from animal sources. Further, about half of rural farm laborers suffer from secondary anemia as a result of heavy iron losses associated with schistosomiasis and hookworm infections (El-Mehairy 1984).

The region continues to suffer from tuberculosis; poorer countries have the highest incidence. In Sudan, for example, the annual incidence rate during the period 1985–1990 was 211/100,000 persons. Morocco had an incidence rate of 125; Iraq, 111; and Egypt, 96. Oil-producing countries had substantially lower rates 22 and 12 in Saudi Arabia and Libya, respectively (World Bank 1993).

Infections and toxemia are reported to be among the leading causes of maternal deaths. Complications associated with childbirth are common in the region and at times leave residual damage to the kidneys or reproductive organs. Anemia is also a common complication, particularly in Jordan, Egypt, and Morocco, where its prevalence among pregnant women reaches 50, 47, and 46%, respectively (World Bank 1993).

Car accidents are, regrettably, responsible for significant mortality. In Bahrain and Kuwait, they cause 3.5 and 3.4% of all deaths, making these countries respectively first and second in the world in terms of the most deaths caused by motor accidents (The Economist 1991). One can only speculate that such high rates are

the result of two forces: modern technology and traditional cultural values. That is, the slow-adjusting cultural values are challenged by the fast pace of importation and use of consumer technologies.

Regional conflict continues to claim many lives. The Gulf war, for instance, is estimated to have caused over 100,000 deaths in Iraq and over 1,000 in Kuwait (Faour 1993). Scarcity of essential medicine, food shortages, and lack of potable water had a dramatic impact on health: 900,000 Iraqi children, accounting for 29% of all children, were malnourished.

Conclusion

Like other regions in our troubled globe, Arab health system has received a lot of attention lately after emerging new diseases such as Swine flu besides rising pandemics of chronic diseases across the world due to more sedentary lifestyles. Deteriorating global economic climate has already caused many of advanced and developing countries to announce major cost reductions in reaction to projected revenue shortfalls. Combined with growing populations, such developments will exert increasing pressures on health services and challenge the Arab health systems where fertility rate remains high compared to developed countries. Economic volatility and stressed financial and economic conditions with fluctuations in oil prices are likely to affect the growth of the pharmaceutical industry adversely. The regional and global economic downturns may also worsen the already high out-migration of Arab health workforce, especially doctors, nurses, and paramedical staff. These developments and associated challenges renew the debate about adequacy, affordability, equity, and efficiency of health system in Arab economies.

While demographic transition has been occurring and the supply of health services in terms of coverage and quality has increased substantially, the progress to date has largely been unequal across space and income and social strata. In the GCC countries, there has been a substantial improvement but in other countries, such as Sudan and Yemen, the improvement is much less discernable.

The nature of health problems is changing in ways that were only partially anticipated, and at a rate that was wholly unexpected. Aging and the effects of ill-managed urbanization and globalization accelerate worldwide transmission of communicable diseases, and increase the burden of chronic and noncommunicable disorders. Health systems are not insulated from the rapid pace of change and transformation that is an essential part of today's globalization. Economic and political crises challenge state and institutional roles to ensure access, delivery, and financing. The global economic downturn is imposing big tolls on the Arab governments and economies and will affect the future provision of health services in Arab economies. Regrettably, such cyclical downturns produce adverse income and health effects whose incidence is uneven across geography and income groups within Arab countries.

It cannot be emphasized enough that these developments require continuous monitoring by governments and by civil society groups and private sector establishments and by opinion leaders. The Arab region is in critical need of proper action plans and long-term strategies that can help it successfully respond to the emerging challenges. What is at stake is nothing less than the future well-being, health-wise and in terms of living standards, of Arab generations to come.

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