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Demographic Transition in Jordan

By

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Abstract

This paper deals with the demographic transition in Jordan between 1979 and 2007, and provides projections for the demographic indicators for the period 2008 - 2025.

In this paper we will study the components of demographic transition during the period of the study and see how these components developed over years, and see how these components will behave during the future.

Finally in this paper we will see when the demographic window will open in the society of Jordan, and how long it will stay open. Also we will study the economic implications on Jordan economy.

Introduction

The future of a country is in the hands of its people. Development can only happen when their skills, energies, and potential are harnessed. But Are the people young or old? Are they Working or dependent? Living alone, or in nuclear or extended families? Are they Healthy and long-lived, or not? And, as people are born and die, how do populations change? In the future, will countries have more productive populations? Or will they have to devote increasing resources to looking after their old people? (Bloom, Canning, 2001)

The population of Jordan has grown rapidly in the past five decades, this was because, of the mass refugees from the West Bank of Jordan after the Israeli invasion of Palestine in 1948, and 1967 which have doubled the population of Jordan many times, in 1990s after the Second Gulf War there were also a big number of refugees and returnees as well who were forced to leave Gulf countries, and lastly in 2003 there were a new wave of refugees arrived to Jordan from Iraq after the invasion of Iraq from the alliance countries. This growth went in parallel with high fertility rate before the 1970s, when fertility starts to fall down, this in addition to the fall down in mortality rates have resulted in a

change of age structure which, decreases the population in young ages < 15 years, and increases the population in the working age group 15 – 64, and the aging people as well. This demographic explosion went in parallel with an expanded labor force, increased urbanization and rural-urban migration, and a rising gap in food self-sufficiency. For much of the period rapid population growth was of little concern to policymakers economic were also undergoing rapid structural transformation. (Dhonte P. et al, 2000).

Jordan labor market, despite the new available record of job creation which has been created in the last years, and the survey done by the Department of Statistics to produce data about available jobs in Jordan, this survey will be conducted annually, despite this their remain burdened by high rates of unemployment (14.8%) for both sexes, (12.8%) for males and (25.9%) for females, the result of existing distortions and the legacy of the role of government as the main employer. Moreover, over the next two decades, the dynamics of demographic transition will generate great pressures as the population age structure matures.

Objectives

The aim of this paper is
1- To shed lights on demographic transition in Jordan.
2- To shed lights on the consequences of demographic transition on economy.
3- Recognize when and how long the demographic window will open and stay open in Jordan.

Importance of the Study

The importance of studying the demographic transition is an important issue in recognizing the economic situation, and from studying the age structure which will lead to recognize the openness of demographic window, which will be a gift if it accompanied by a very good policies to get the maximum benefits of this opportunity, and in the contrary will be a burden on the government if it is not accompanied with good policies. This study will:-

First, emphasize the impacts of the change in life expectancy and the decline in fertility that occurred in Jordan. Increased life expectancy has many economic effects. It can be thought as a proxy of population health. Moreover, economic theories of mortality are very few and

mortality is often seen as an exogenous factor. Fertility in Jordan is declining since 1970 and it is still declining, this will lead to a slowing of population growth. However, 'population momentum' will sustain population growth, even when fertility has declined to replacement levels.

Second, Migration has been subjected to intense checking by population economists and others, since Jordan has acquired its independence it become a host for many huge numbers of refugees, from Palestine in 1948, 1967, and until today it still receive refugees from Palestine. 300,000 returnees from the Gulf because of 1991 war and recently the Iraq occupation have added more people to the population, which adds more challenges.

High population growth has led to migration from smaller cities and villages to larger cities and from rural areas to urban areas. As a result, more than 78 percent of Jordan's population now live and seek their livelihood in cities (Population and Housing Census 2004). Key forces shaping the future of Jordan cities include population growth and migration, the role of the urban economy, and provision of urban services and housing. It also adds more problem of water scarcity, which is already, is serious. Jobs are not being created fast enough to absorb the growing number of workforce.

Organization of the Paper

This paper will be organized as follows: section one is an introductory section, section two contains literature reviews, data sources and methodology. Section three will study the components of demographic transition in Jordan and the projections of these components from 2008 until 2025, and examine when the demographic window will open in Jordan, and for how long it will stay. Finally the last section will contain the results and recommendations.

Literature Review

Bloom and Williamson (1998) and **Bloom, Canning and Malaney (2001)** argue that the 'demographic gift' leads to opportunities for growth of output per capita for two reasons. First, there is an accounting effect because a rising ratio of the working age population to the total population increases the ratio of 'producers' to 'consumers' in an economy. Second, there might also be 'behavioural' effects on growth of output per worker.

Bloom D., Canning D. and Sevilla J. (2002), found that a window is open up as the proportion of the population that is old and young (defined, respectively as those aged 65 and over; and those aged under 15) falls.

Bloom D. and Canning D. (2004), found that open economy, with good institutions and fairly homogeneous populations, have higher rates of economic growth. They found also that better health in the form of higher life expectancy does have a significant positive effect on growth. The higher ratio of working-age population to total population, have a significant effect on the growth. The open economy countries enjoy nearly twice the growth impact of demographic change as an average country.

Bloom D. and Canning D. (2005), argued that transitions from high mortality and fertility to low mortality and fertility can be beneficial to economies as the large baby boom cohorts enter the workforce and save for retirement, while rising longevity has perhaps increased both the incentive to invest in education and to save for retirement.

Kögel T. (2003) studied the effect of demographic age structures on economic growth and found that a high youth dependency ratio will reduce aggregate savings and correspondingly, that declining aggregate savings will reduce total factor productivity (TFP) growth.

Johnson R. (2004), forecasted world population includes three changes that may enlarge economic effects. First, many developing countries expect rapid population growth. Second, many developing countries also expect their birthrates to fall. Third, many developed countries expect rapid aging of their population.

Demographic Transition

The process by which fertility rates eventually decline to replacement levels has been portrayed by a famous concept in economic demography called the demographic transition. The Demographic Transition illustrates the pattern of change in births and death rates over a period of time as a country develops. It attempts to explain why all contemporary developed nations have more or less passed through the same three stages of modern population history. Before their economic modernization, these countries for centuries had stable or very slow

growing populations as a result of a combination of high birthrates and almost equally high death rates. This was stage I. Stage II began to occur when modernization, associated with better public-health methods, healthier diets, higher incomes, and other improvements led to a marked reduction in mortality that gradually raised life expectancy from under 40 years to over 60 years. However, the decline in death rates was not immediately accompanied by a decline in fertility. As a result, the growing divergence between high birthrates and falling death rates led to sharp increases in population growth compared to past centuries.

Stage II thus marks the beginning of the demographic transition (the transition from stable or slow-growing populations at first to rapidly increasing numbers and then to declining rates). Finally, stage III was entered when the forces and influences of modernization and development caused the beginning of a decline in fertility; eventually, falling birthrates converged with lower death rates, leaving little or no population growth (Grant J., Clausen A.W., 1994).

The pre-transition stage is when fertility is moderately high accompanied by fluctuating high mortality rate resulting in a constant age structure. In the pre-transition stage, however, mortality declines while fertility remains as in the previous stage resulting in a youthful population with a high dependency ratio. The population is dominated by those in the young age group (< 15). In the late transition period, fertility declines resulting in the movement across life cycle stages of large birth cohorts born in the past. This results in the increase in the proportion of the working age group. As a consequence, the dependency ratio declines. The last stage characteristic is identified by low birth and death rates. This phase is characterized by a large proportion of elderly population and therefore an increase in dependency ratio. The changes in age structure have social and economic ramifications (Kesaia S., 2006).

Many scholars have indicated that the increase in working population is a 'demographic bonus' or 'window of opportunity'. The question is whether Jordan will take advantage of this opportunity (Kesaia S., 2006).

The demographic transition can have a significant effect on society and its economy, once family size peaks they tend to keep falling, to well below the 'replacement level' of just over two live births for each woman.

Families switch on masse to reproductive strategy: instead of having many children in the hope that some will survive; they tend to maximize investment in fewer children. As a result, the value that a society attaches to education increases, enabling the development of a more sophisticated knowledge–investment.

In recent years, economists have begun to look more closely at the microeconomic determinants of family fertility in an attempt to provide a better theoretical and empirical explanation for the observed falling birthrates associated with stage III of the demographic transition. In doing this, they have drawn on the traditional neoclassical theory of household and consumer behavior for their basic analytical model and have used the principles of economy and optimization to explain family size decisions (Grant J. G., Clausen A.W., 1994).

The population growth experienced during the demographic transition results in greater urbanization, as people leave their land due to population pressures. Agriculture becomes less important as more people work in manufacturing and services, which can offer greater rewards. Again demographic transition encourages modernization and improvements in productivity.

The demographic transition, offers a society the opportunity of collecting a significant demographic dividend and, in some circumstances, catalyzes a leap in its level of human and economic development. It offers countries the chances of unprecedented economic growth in more productive work.

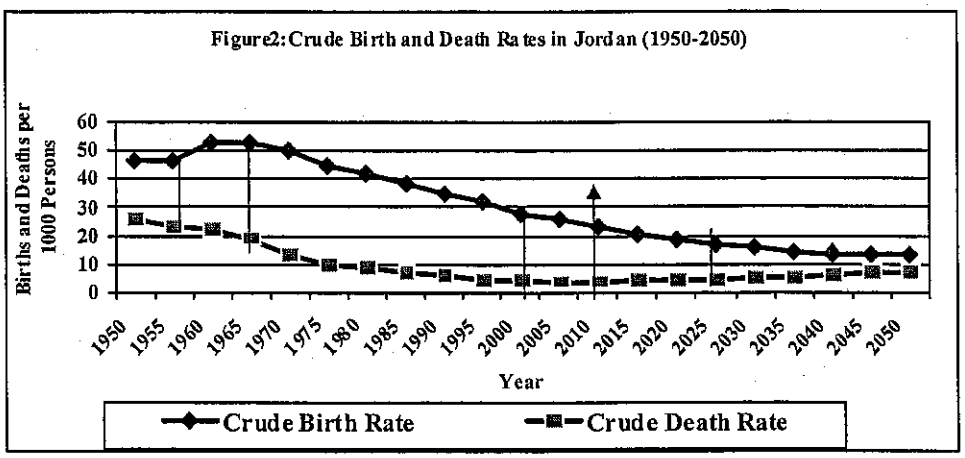
The women participation rate in 1979 was 3.07% and it has been increased to be 14.6 % in 2001 (Department of Statistics, 2001) and it became 11.7% in 2005 and it rise to 15.6% in 2006 (Department of Statistics, 2006). This rise in the participation rates of women are due to the rise in educational levels for women which led them to seek jobs instead of staying home especially if they did not get married.

In Jordan the high growth rate of population was due to a mass number of migrant who forced to leave their land in the West Bank of Jordan, because of the Israeli invasion, not only of natural increase.

The demographic transition in the Arab countries of Western Asia where Jordan belongs, in general has been somewhat peculiar. Total fertility rose substantially before it began its historical decline. The very high fertility rates, resulted in an extremely youthful population, which is combined with low mortality schedules, resulted in crude death rates of 3 to 4 per thousand populations that are, lower than rates ever achieved in developed and most developing countries (Tabbarah, 1999a).

The first phase, from 1950 to 1970, rates of natural increase rose rapidly because of both a rise in CBRs and a fall in CDRs. The second phase, from the 1970 to 2000, rates of natural increase fall because of the fall in CBRs was more substantial than the fall in CDRs. The third phase, which extend from 2000 to 2025, rates of natural increase will continue to fall due to the fall in CBRs as CDRs remain constant throughout the period. Finally, the fourth phase will start from after 2025; rates of natural increase are expected to fall rapidly because of both fall in CBRs and a steady relatively sharp rise in CDRs. During this latter period (and beyond), CDRs will rise in spite of an improvement in mortality levels as indicated by a rise in life expectancy (Tabbarah, 1999a.).

Figure (1): Crude Birth and Death Rates in Jordan (1950-2050)

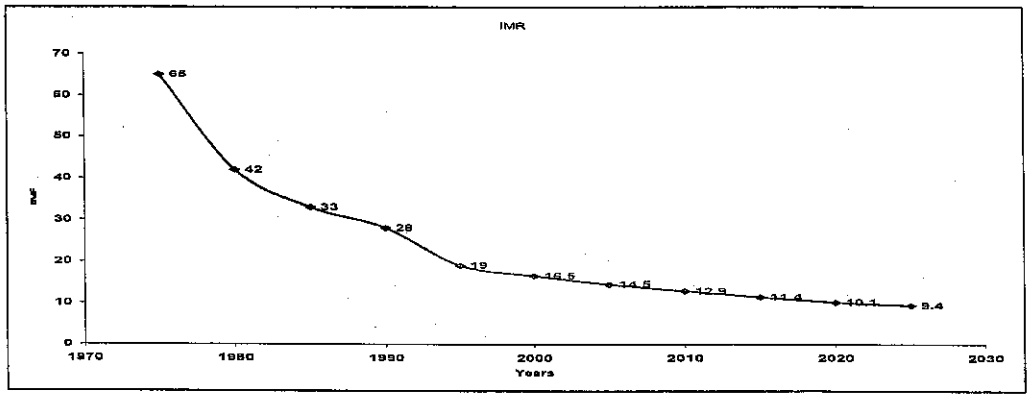


Source: World Population Prospects, UN, 2008

Mortality

Mortality was very high until 1970, with a crude death rate over 20.0 per thousand. The crude death rates have fallen sharply from 10.5 per 1000 live births in 1979 to be halved in the 90's and will be 4.2 in 2025; figure (1) shows the crude death rate trend. This declining in mortality rates is a sign of demographic transition which begin with sharp decline in mortality rates, especially infant mortality, that happened after the second world war due to the improvement in nutrition, medicine, and especially public health, expanded programs of immunization and antibiotic use, and access to safe water, sanitation and health services.

Figure (2): Trends of Infant Mortality Rates in Jordan (1979 - 2025)



Source: UN, World Population Prospects, 2008

Infant mortality, which was at a very high rate of 65 per 1000 live births in 1979, decreased to be 42 per 1000 live births in 1980 and it reached 23 per 1000 live births in 2000 and it will reach 9.4 per 1000 live

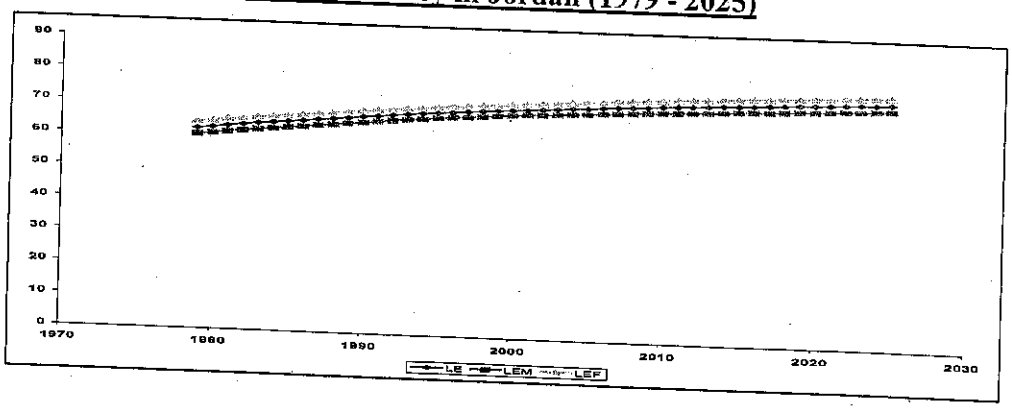
births in 2025 as it is shown in figure (2). This decline in mortality is shown as well in the improvement in life expectancy trends Figure (3). In 1975-1980, life expectancy was 59.4 years for men and 63 years for women. In the period 1980-1995, life expectancy increased from 63.7 years in 1980 to 69.8 years in 1995 and to 72.5 in 2005, it will continue it's increasing to 76.4 in 2025, the difference between male and female in life expectancy will increase by 15 years for males and 15.5 years for females between 1975 and 2025. The rise has continued, but at a slower pace. Life expectancy (L.E.) in 2004 was estimated at 71.5 for both sexes, 70.6 years for men and 72.4 years for women (Department of Statistics, 2004).

The differential in life expectancy between males and females was 3.6 years in 1975-1980. It increased at1980 to a level of 3.9, and then it decreased to the same level of 3.6 when it became stable until 1990. In 1995, it starts to increase again. The differential in 2004 was assessed at 1.8 year as it shown in figure (3).

Fertility

The demographic transition theory states that mortality declines are eventually followed by fertility declines. It's acknowledged that institutions, including cultural factors, are important determinants of fertility; however we do not yet know how to quantify the effects of institutional factors, and in particular we do not know how to identify those factors that trigger decline. Jordan has conducted many fertility surveys since 1976, to get specific information about the fertility situation in Jordan. These surveys were conducted by the Department of Statistics in cooperation with ORC MACRO International.

Figure (3): Life Expectancy in Jordan (1979 - 2025)



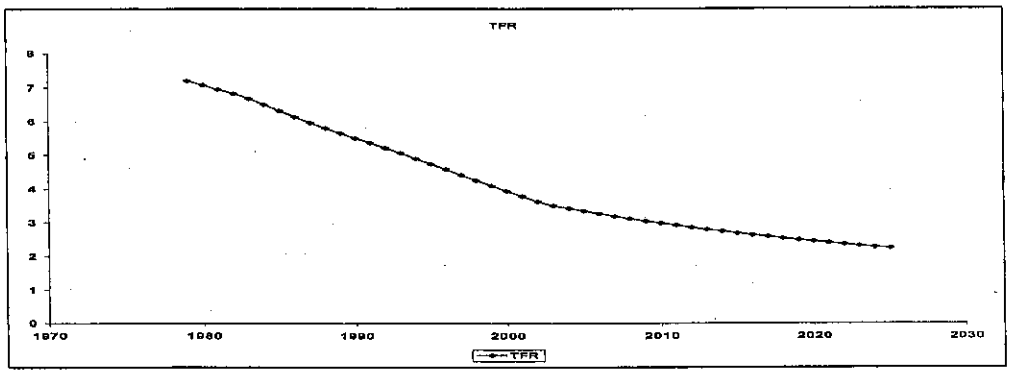
Source: Projection made by the researcher

These studies showed that fertility levels have been slowly declining in Jordan since the mid-1970s Figure (4).

The total fertility rate (TFR) declined from 6.68 children per woman in 1983 (Department of Statistics 1989), and 5.5 in 1990, it also have been declined from 5.5 in 1990 to 4.57, in 1996 and to 4.4, in 1997 and to 3.6 in 2002 and now (Department of Statistics 2002).

The age-specific fertility rates (ASFRs) among women aged 25-29 through 45-49 have decreased figure (5). Age-specific fertility rates curve has kept the same shape since 1976. They start low in the youngest age group (15-19), increase rapidly and peak in the next group, after which they decline sharply in the 40-44 age group. During the last decades, fertility has declined in all age groups. The largest decline appears to have taken place among women 15-24 years of age between 1976 and 1983.

Figure (4): Total Fertility Rate in Jordan (1979 - 2025)



Source: Projections made by the researcher

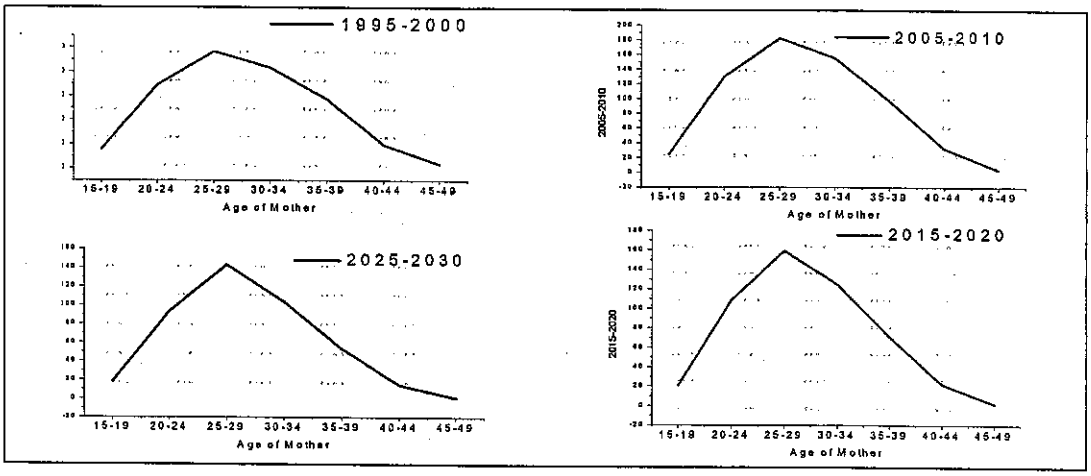
The largest decline between 1983 and 1990 equally affected women aged 25-39, which is probably due to a greater use of contraception, this decline may indicate an increase of age at first marriage (Department of Statistics, 1992).

Fertility Differentials

One of the most observed demographic phenomenon in the developed countries is that fertility rates are lower in urban areas than in rural areas, and that the larger the city, the lower the fertility.

Contrary to the experience in many developing countries, the rural-urban fertility differences in Jordan are insignificant and do not show a definite trend (Department of Statistics, 1972). Both 1976 JFS and 1990 JPFHS indicated that education was the strongest factor affecting fertility levels.

Figure (5): Age Specific Fertility Rates in Jordan 1995-2025



Source: UN Population Prospects Revision 2008, the chart is done by the researcher

The largest fertility differentials were registered by educational attainment. Present education policies determine the skill levels of future working adult populations. Education also has an indirect influence on population growth, by reducing the fertility of women who have been educated. Even now, the fertility differentials between those with no education and those with some education have been very high. For example, in Jordan in 1990, women with no education had 40.0% more children than women with secondary education and higher (Department of Statistics, 1992).

Table (1), the 1981 data showed that women with no education also had the highest fertility (TFR 8.2), and those with higher education had (3.3 TFR). In 2002 and 2007 women who have attended more than secondary had the lowest fertility rate (TFR 3.1, 3.2) respectively, and those with no education had (3.6 and 2.6 TFR). The category primary, elementary and preparatory stages were varied between the different surveys, so we can't compare the fertility of women who had these educational levels in all surveys. As an example, the primary found in

1981 and 1997, and the (TFR was 7.6, 4.5) for women with this level in the two surveys respectively.

Since all births in Jordan occur within marriage, thus age at first marriage is an important indicator of exposure to the risk of pregnancy and childbirth. The minimum age of marriage is 18 years for men, and 16 years for women. Age at first marriage has increased in Jordan from 18.3 in 1976 to 23 in 2002 (Department of Statistics, 2003).

The DHS data indicates that marriage age has been rising over the years, in 1990 the overall median age at first marriage was 21 years, while in 1997 this indicator was 21.5 years with 0.5 years increase, the fact that supports what we have indicated before, that education level of girls has increased, whereof it increased the age at first marriage. In 2002, the median age at first marriage has risen to 21.8 with a difference of 0.3 than in 1997. Jordanian girls are completing more years of school. They enroll in primary school at about the same rate as boys, and an increasing number of young women are entering universities, in some countries even outnumbering male students. Girls who are illiterate or have little schooling generally come from poor communities and tend to marry and begin childbearing at young ages. Early marriage cuts short girls' formal education and often traps them in a vicious cycle of low education, high fertility, and poverty.

The major factor behind fertility decline is the gradual increase in the age at first marriage and consequently giving birth, which is influenced by education and increased employment opportunities.

Table (1): Total Fertility Rates for Women Aged 15-45 by Educational Level, Jordan, 1981, 1990, 1997 and 2002

Educational Level	1981	1990	1997	2002	2007
No Education	8.2	6.92	4.6	3.6	2.6
Read & Write	7.2	--	--	--	--
Primary	7.6	--	4.5	--	--
Elementary	2.3	6	--	3.7	3.9
Preparatory	5.8	--	--	4.4	4.5
Secondary	3.4	5.39	4.5	3.9	3.9
Higher	3.3	4.1	3.7	3.1	3.2

Source: Different Fertility Surveys, Jordan
- Definition of educational level has changed

Migration

Jordan offers a rather unique case of a country with both extensive immigration and emigration flows. These flows have affected the growth, the distribution and the structure of the population. In 1949, the population of Jordan tripled as a result of the invasion of the West Bank. The inflow of Palestinian refugees increased the population from 400,000 to about 1.3 million persons within a single year (ESCWA, 1993). Between 1952 and 1961 the refugee population, which had settled mostly in the West Bank after the 1948 events in Palestine, started to move to the East Bank as a result of demographic pressure in the West Bank and more economic investments in the East Bank.

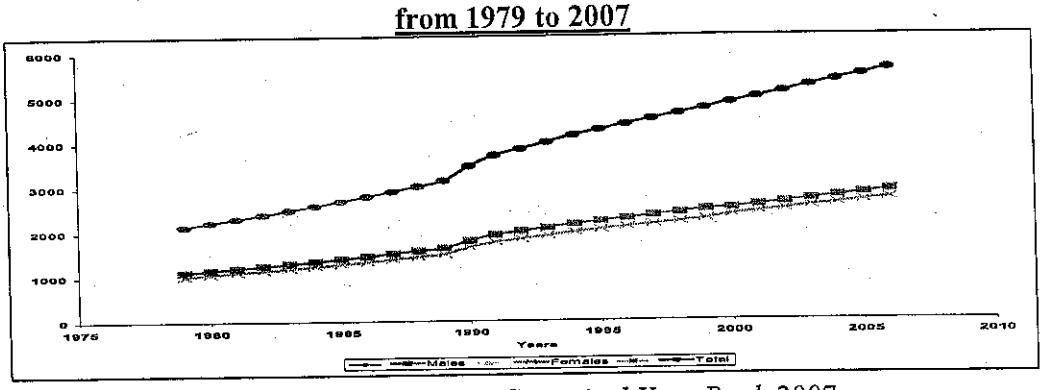
The occupation of the West Bank by Israel in 1967 provoked another massive inflow of refugees (about 285,000 persons) from the West Bank and the Gaza Strip into the East Bank. The latest large flow of migrants to the East Bank occurred when 300,000 Palestinians bearing Jordanian passports returned to Jordan after the 1990- 1991 Gulf war between Iraq and Kuwait (EIU, 1996). Although the 1961 census reported 64,000 Jordanians living abroad, the early 1970s witnessed the beginning of heavy and rapid emigration of the Jordanian labor force to the Arab oil countries (especially Saudi Arabia and the Gulf states), so that by the early 1980s nearly 40.0 percent of the actively employed Jordanians worked outside Jordan. This created increasing labor shortages in the country. The large emigration was compensated to some extent during the late 1970s and early 1980s by a sizable inflow of foreign workers into Jordan, particularly Egyptians. By 1984, 5.9 percent of the total population and 25.0 percent of the domestic labor force were foreigners (Samha, 1990).

When Jordan acquired its independence in 1922 the population was 225,380, but immediately after the invasion and after Israel has evacuated and occupied many villages in Palestine, many people forced to leave their home land towards Jordan the closest country and most of the people in the two countries have sort of blood relationship or by marriage relationship so, most of them have come and reside in Jordan. In 1950 the population of Jordan becomes 600,000, means that the population has doubled 2.66 times.

Palestinian refugees in camps, as it was published by UNRWA in 2006 were as it appears in table (2), which shows that Jordan has the largest number of Palestinian refugees in the hole region, and this is not the only figure of Palestinians in Jordan, whereas there are so many Palestinians who are living among Jordanian citizens most of them holding the Jordanian nationality. 'Jordan was the only Arab country, who offered full citizenship to all the Palestinian refugees and their descendants' (UNRWA, 1992) who, at the time of introducing the legislation (1954), were on the territory of the Kingdom. According to the 1954 Jordanian Nationality Law there is no difference between Jordanian non-refugees and Palestinian refugees. At that time the West Bank became a part of Jordan, which meant that all the Palestinians residing there could become Jordanian citizens. Therefore the West Bank refugees of 1967 are considered Jordanian citizens. Gaza's people, however, who arrived at the same time in Jordan, do not enjoy the same rights as others and are not Jordanian citizens (Andrzej B., 2002).

It seems that this is not the only way that Jordan got refugees, in 1990 after the second Gulf war, when Iraq invaded Kuwait, and since Jordan had many of their qualified labor force working in Gulf, and due to political reasons most of this labor force, especially those who worked in Kuwait, were forced to leave and return back to Jordan, which estimated at that time by 16,775 returnee (Department of Statistics, 1991). Figure (6) shows the changes in the population of Jordan over the years from different censuses since 1979 until 2004 and Estimated Population for Some Selected Years (In 000).

Figure (6): Jordan Population by Sex from different Censuses and Estimates from 1979 to 2007



Source: Department of Statistics, Statistical Year Book 2007

Table (2) shows that Palestinians were not separated from Jordanians in 1961 and before, but after that Palestinians became the largest non-Jordanian nationality in Jordan (92,131), (115,190) in 1994 and 2004 censuses respectively.

The Syrian population in Jordan was the largest number in 1961, and it became 31,805 in 1994 and 38,180 in 2004 as we see the growth of Syrians in Jordan between 1961 and 1994 was 19.6%, while the growth between 1994 and 2004 was 1.2%. Jordan is not only a receiving country but it is also one of the important labor exporting countries especially to the Gulf oil-countries and the Arabian Peninsula.

The economic expansion following the jump in oil revenues which resulted from the rise of oil prices in the 1970s attracted millions of foreign workers. Millions have also moved from "labor-rich," non-oil producing countries to seek for jobs in the oil-rich countries within the region.

High population growth has led to migration from smaller cities and villages to larger cities and from rural areas to urban areas. As a result, more than 78 percent of Jordan's population now live and seek their livelihood in cities (Department of Statistics 2004).

Table (2): Non-Jordanian Population in Jordan by Nationality, and Year from Available Censuses

Year	Palestin-Ians	Syrians	Egyptians	Iraqis	Indonesians	Philippines	Sri-Lanka
1961	*	1643	175	119	9	5	-
1994	92131	31805	122666	24501	171	2038	9933
2004	115190	38180	112392	40084	11310	4173	13552

Source: Department of Statistics, Population and Housing Census 1961, 1994 and 2004

** Palestine was part of Jordan at that time.*

According to the department of statistics, Amman governorate has the largest percentage of Jordan's population, while Balqa governorate

has the second large percent of the population, whilst Zarqa comes in third place. On the other hand Mafraq, Jarash, Ajlun, Tafeila and Aqaba were not governorates until 1995 where, Tafeila has the lowest percent of the population. Key forces shaping the future of Jordanian cities include population growth and migration, the role of the urban economy, and provision of urban services and housing. It also adds more to the problem of water scarcity, which is already serious. Jobs are not being created fast enough to absorb the growing labor force.

Age Structure

The rapid decline in infant mortality and the increase in life expectancy will cause an imbalance in the age structure of the population that considerably increased the number of people in the working age group 15-64, and also will increase the population in the older age group 65+.

Because people's economic behavior and needs vary at different stages of life, changes in a country's age structure can have significant effects on its economic performance. Nations with a high proportion of children are likely to devote a high proportion of resources to their care, which tends to depress the pace of economic growth. By contrast, if most of a nation's population falls within the working ages, the added productivity of this group can produce a "demographic dividend" of economic growth, assuming that policies to take advantage of this are in place. In fact, the combined effect of this large working-age population and health, family, labor, financial and human capital policies can effect virtuous cycles of wealth creation. And if a large proportion of a nation's population consists of the elderly, the effects can be similar to those of a very young population (Bloom, Canning, and Sevilla, 2002).

A large share of resources is needed by a relatively less productive segment of the population, which likewise can inhibit economic growth (Bloom, Canning, and Sevilla, 2002).

Changes in age structure are an integral part of demographic change in vital rates. The age structural transition is determined to a large extent by the decline in mortality and fertility. As many developing countries, Jordan's transition began with the sharp fall in mortality rates, especially infant and child mortality that occurred after Second World

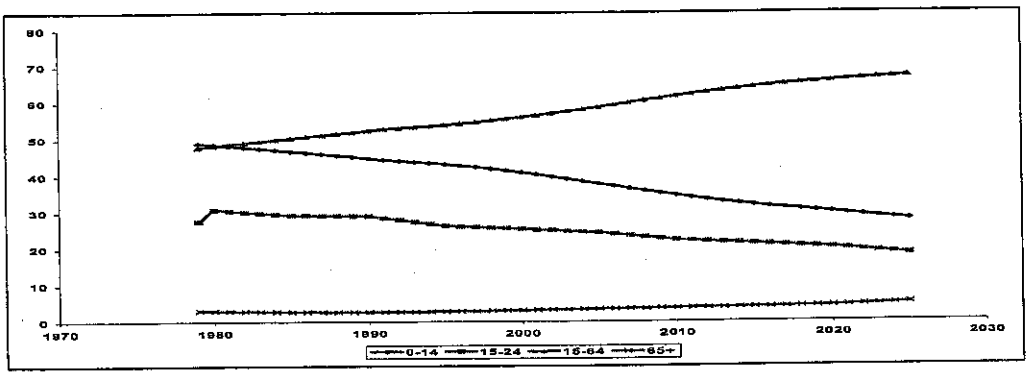
War, because of the improvement in nutrition, public health particularly expanded programs for immunization against infectious diseases and improved access to safe water, sanitation, and health services. Infant mortality, which was 160 per 1000 in 1950, almost halved in 1970 and halved again by 1985, and now stands at just over 20 per 1000 live births. Mortality in all ages also declined, leading to an increased life expectancy in Jordan of more than 25 years, life expectancy in 2007 is 73 years.

The relationship between population change and economic growth has taken on added salience in recent years because of demographic trends in the developing world. At varying rates and times since World War II, developing countries have been undergoing a demographic transition, from high to low rates of mortality and fertility. This transition produces a "boom" generation that is gradually working its way through each nation's age structure. As the boom generation enters working age, there is the opportunity to unleash an economic growth spurt, provided the right kinds of policies are in place to ensure the extra workers are productively employed. For this reason, policymakers should benefit from a clearer understanding of the relationship between economic development and the changes in age structure that result from the unfolding demographic transition (Bloom, Canning and Sevilla, 2002).

As it is shown from figure (7) the proportion of children 0-14 in Jordan has actually declined, from 49.01 percent in 1979 to be 40.9 in 2000, 37.85 percent in 2005 and is expected to be 27.88 percent in 2025. This young age structure (population under the age 15), gives population growth an unexpected momentum. The 15-24 age groups, represents the transition period from childhood to adulthood in most developing countries. In Jordan, the percent of this age group was 27.6 percent in 1979, 25.4 in 2000, and 24.4 percent in 2005, and it is expected to decline in 2025 to reach 18.4 percent. The most dramatic and rapid population increase in the coming decade is likely to occur in Jordan in the working age population by 2010, figure (7). This means that the experience of fertility and mortality is shown into age structure. The high fertility and rapid population growth in Jordan gives it a very young population. In addition, Jordan's population has been swollen by heavy flows of immigration, after the Arab-Israeli Wars in 1948, 1967. Jordan has received very large flows of Palestinians moving to the East Bank, and

another flow from the Gulf as a result of the second Gulf War, which was a return of 300,000 Jordanian nationals from the Gulf (Bloom, 2001).

Figure (7): Population Age Structure in Jordan (1979-2025)



Source: Projection made by the researcher

The combination of the decline in mortality, fertility and migration has contributed to the disordered flows of age cohorts and consequently to the changing balance of the age groups. Fertility decline is the main factor driving the age structural change. The changing balance in the size of the broad age groups as seen in figure (7) will be discussed against the economic condition in the following chapters. Economic measures used are the real GDP (Gross Domestic Products which represent the market value of everything produced within a country) in the next chapter (Kesaia Seniloli, 2006).

Demographic Window

The pre-transition stage is when fertility is moderately high accompanied by a fluctuating high mortality rate resulting in a constant age structure. In the pre-transition stage, however, mortality declines while fertility remains as in the previous stage resulting in a youthful population with a high dependency ratio. The population is dominated by those in the under 15-year age group. In the late transition period fertility declines, resulting in the movement across life cycle stages of large birth cohorts born in the past. This results in the increase in the proportion in the working age group. As a consequence, the dependency ratio declines. The last stage, characteristic of many developed countries, is identified by low birth and death rates. This phase is characterized by a large proportion of elderly population and therefore an increase in the

dependency ratio. The changes in age structure have social and economic ramifications.

A window is open up as the proportion of the population that is old and young (defined, respectively as those aged 65 and over; and those aged under 15) falls. The United Nations (2004) that the demographic window that may lead to the demographic dividend is opened when the proportion of the population under age 15 is less than 30 percent; and aged 65 and over is less than 15 percent of the total population. This shifts the balance between net producers (those who are economically active) and net consumers (who are not). Under certain circumstances, more of which later, this may have the effect of lifting economic output (i.e. creating economic growth) (Bloom, Canning, and Sevilla, 2002).

Opening and closing of a demographic window and some problems

We are here trying to draw a general scheme of the way of a complete structure by broad age groups of Jordan's population which follows the way of a complete first and second demographic transition, from a high fertility and mortality, to prolonged very low fertility and mortality as forecasted in Jordan.

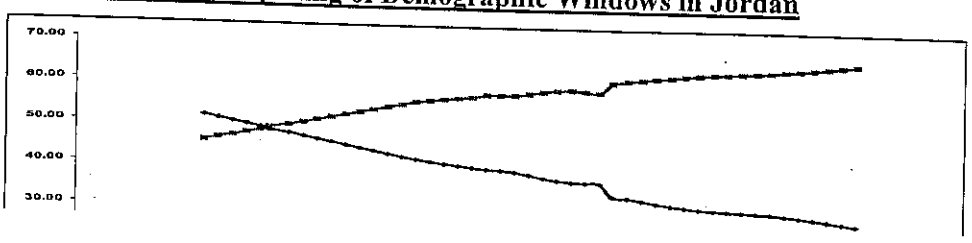
The left side before the window

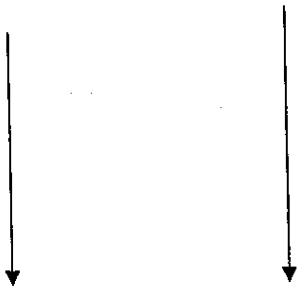
The major problem in this phase is the very rapid growth of the population and the excessive burden of young people. Population aged 0-14 were greater than 50% out of total population in the 50's and exceeds the working age population, aged 15-64.

The window

The major problem in this phase is a comprehensive and complicated question of governance. First, policy makers should have the capability and the operational possibility to adapt in a dynamic way the social and economic structure of a country according to the dramatic change in its demographic structure: a huge increase, slow in a first phase and rapid in a second one, of old population which at a given point in time overcomes a largely declining young population.

Figure (8): Opening of Demographic Windows in Jordan





Source: Projections made by the researcher

Both from a cultural and an operational point of view, individuals, families, people, and society as a whole should have the capability to move gradually from a child-oriented society to elderly-oriented one. But also in this phase, the presence and the importance of children should not be left aside. In general, the opening of a window implies a declining ratio of students that would turn to workers for couple of decades, a trend that could allow countries to finance better school systems and boost savings in pensions system (Golini A. and Marini C., 2005).

Second, the capability of creating enough jobs for possible excess of working age population, when its growth is very rapid and intense, both for demographic reasons and for social and economic reasons, particularly linked to the modernization of agriculture and a new condition of women. In many cases there is the necessity to relieve the possible surplus of labor force trough emigration. This means that people must have the real possibility to emigrate from a country and the real possibility to immigrate in many others.

Third, comes later from reduction of the working age population, especially for its young fraction, and aging, after the peak registered in the window. These trends can create some beginning problems in maintaining efficiency of the production system and competitiveness in the international arena.

Last, trying to maintain, in the long run, fertility at a sustainable level which guarantees a gradual decline (or growth) of population and its aging, so that after the demographic window a rapid and intense population implosion and involution can be avoided.

The Right Side after the Window

In the case of a prolonged, extremely low fertility, one can observe a real, progressive demographic implosion, which very unlikely could be put under control, particularly because in the first and the late part of the second demographic transition the interest, attitude and behavior of individuals and couples (directed to have just one or zero children) which is not the case in Jordan, where the fertility will not reach this level unless the culture has been changed and this is impossible. Jordan's community is likely to have more or less 2 children per woman. The major problem which arises in this case is the very rapid decline of total population and working age population and the excessive burden of old people.

The deaths/births ratio was 0.23 in 1979 and has been decreased gradually to 0.16 in 1997, and then started to increase again to 0.24 in 2007 as a reason of death increase because of the increase of elder population, and the percentage of women 15-49 increased from about 41.7% in 1980 to 48% in 1998 then to 51% in 2002 and finally to 52.4 in 2006 and will decrease again in 2025 to 26%.

Results

The study showed that mortality has declined in Jordan gradually, especially infant mortality according to the improvement in health status, nutrition, medicine and expanded programs of immunization. (IMR) infant mortality rate was 37 per 1000 live births in 1979 has declined to 29 per 1000 live births in 2000 and it will be 18.5 per 1000 live births in 2025. As a result of declined mortality, life expectancy has increased from 61.23 in 1979 to 73.4 years in 2004, and it will reach 75.8 years in 2025.

Fertility has also declined from 7.2 children per woman in 1979 to 5.5 children in 1990 and to 4.4 children in 1997, which means that couples in Jordan are likely to prefer small families. We found also that the most important factor that affects fertility is the mother education, where we found that women with high educational level practices the lowest level of TFR, whereas those who have no education registered the highest level of TFR. In the contrast to most of the developing countries, place of residence has a very minor effect on fertility rates in Jordan.

Mortality and fertility decline changed the shape of the age structure in Jordan. In 1979, Jordan had more than (37%) of its population in the age group (0-14), which meant that the effort should be focused on education, health and children facilities, but when fertility and mortality declined, this age group started to shrink and the second age group which resides between 15 – 64 became larger and to have the largest portion of the population (58.77) in 2005.

This group comprises the working age group and will be bigger in the near future, and to be precise, between 2014 and 2015 which means the opening of a demographic window in Jordan, the thing that needs from the government of Jordan in all its institutes to be aware and ready for, by creating jobs, training and high education to absorb all these numbers of working people to get benefits of this opportunity to accelerate the economic growth. On the other hand, the last age group 65+ elder people will be bigger than it was in the past and what it is now.

Recommendations

a. The results show, the number and percentages of working age population will increase, accompanied with a decrease in percentages of young population, which is a sign of a demographic window creating a very effective power if this opportunity is accompanied with effective policies aiming to create enough jobs to absorb these increasing numbers of active population. Otherwise, these numbers will become be a burden and will create a very serious situation to the whole country. So all parties should be cooperate and be ready to undertake their responsibilities facing this phenomenon, and turn it into an opportunity.

b. The growing number of working age population is accompanied by an increase of old age population as well. Government of Jordan should be ready for this population group, even though the increase will not be as much as the young or working age population, but the size of this group will be larger than it used to be.

c. Ministry of higher education with the cooperation with Ministry of Labor should seek the needed occupations and specialties and

advise new student and address them to study these specialties needed by the new age structure.

d. The government of Jordan should be ready for the growing number of elder population; medical services, retirement system, pension, and special care centers for such group. A second central issue in population aging involves provisioning financial aid to the elderly.

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