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Women's Human Capital and Economic Growth in the Middle East and North Africa

By Fatemeh Torabi¹ and Mohammad Jalal Abbasi-Shavazi²

Abstract

The process of demographic transition has increased the share of the working-age population in Middle East and North Africa (MENA). This situation has created an opportunity for economic growth, called the *demographic dividend*. Global comparisons show that a favorable age structure has not always resulted in a boost in economic growth. In order to take a full advantage of the MENA's demographic dividend, it is important to identify different factors contributing to economic growth in this region. Investment in women's human capital is expected to have important implications for the region's economic growth and for maximizing the benefits created by the demographic dividend. Using a range of data sources, this paper aims to determine the association between women's human capital (measured by adult educational attainment and health status) and economic growth (measured by gross national income per capita) in MENA. The findings show a positive association between these two. Specifically, the national-level income is generally higher in countries with lower maternal mortality and higher female literacy, female tertiary education, female life and healthy life expectancies at birth and professional childbirth attendance. Thus, investment in women's human capital can accelerate the pace of development in MENA.

Key Words: Women in the Middle East, Economic Growth, Human Capital

Introduction

The world has been amazed by the social and political movements taking place in the Middle East and North Africa (MENA) since 2010, particularly a large presence of young men and women in street demonstrations. MENA includes 19 Muslim countries, 14 countries in Middle East (Iran, Turkey, Syria, Iraq, Jordan, Lebanon, Palestine, Kuwait, Bahrain, Qatar, Oman, United Arab Emirates (UAE), Yemen and Saudi Arabia) and 5 countries in North Africa (Egypt, Libya, Tunisia, Algeria and Morocco). The population of the region was 460,998,000 (48.8% women and 51.2% men) in 2012 (United Nations, Department of Economic and Social

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affairs, Population Division 2013). Despite considerable social, economic and political diversities among countries in the region (Jones and Karim 2005), the recent movements have in part been attributed to high unemployment rates and poverty among young people (United Nations Population Fund 2011).

The process of demographic transition (i.e. changes from high to low rates of mortality and fertility) in MENA has increased the share of working-age population and created a favorable age structure for economic growth, which is often called the *demographic dividend* (Bloom, Canning and Sevilla 2003). In populations consisting of a large proportion of children (when fertility is at high levels) or of elderly people (when cohorts born before the fertility decline reach old ages), a considerable amount of resources are devoted to the needs of less productive segments of the population. This can hinder the pace of economic growth. Between these stages and when the population consists of a large proportion of individuals at working ages, a window of opportunity for economic growth is opened. This opportunity does not operate automatically and depends on the characteristics of individuals and the broad context in which they act. As Bloom, Canning and Sevilla (2003: xi) put it, “the combined effect of this large working-age population and health, family, labor, financial, and human capital policies can effect various cycles of wealth creation”.

An extensive literature exists on how changes in the population’s age structure (or the distribution of different age groups in the population) can influence its economic growth (see, e.g. Bloom and Williamson 1998, Bloom, Canning and Sevilla 2003, Mason 2003, Mason and Lee 2004). In a global comparison, Bloom, Canning and Sevilla (2003) show that not all countries have benefited from demographic dividend to boost their economic growth. East Asian countries have made the most of this opportunity and experienced an unprecedented economic development, called an *economic miracle*. In fact, the demographic dividend has been accounted for between one-fourth and two-fifth of East Asia’s *economic miracle*. Latin America has not been as successful as East Asia in making the best use of its demographic dividend; between 1975 and 1999, the GDP per capital annual growth rate of the region has only been 0.7 percent of that in East Asia. They attribute the success of East Asia to implementation of policies (particularly trade policies) that facilitate absorbing labor force to productive employments and the Latin America’s failure to take a full advantage from its demographic dividend to the lack of such policies.

In order to take a full advantage of MENA’s demographic dividend, it is important to identify different factors contributing to economic growth in this region. Human capital is an important determinant of long-run economic growth (Hartog and Maassen van den Brink 2007). It has been mentioned that women comprise nearly half of the MENA’s population. Thus, investment in their human capital is expected to have important implications for the region’s long-run economic growth and for maximizing the benefits created by the demographic dividend.

This paper aims to determine the extent to which women’s human capital contributes to the economic growth in MENA. Section 2 discusses changes in the region’s age-structure and their predictable influences on economic growth. Section 3 reviews the concept of human capital and its implications for long-run economic growth. Section 4 presents the main findings of this paper: the association between women’s human capital and economic growth. The indicators of human capital (adult educational attainment and health status) and economic growth (gross national income per capita) are derived from a range of data sources, including the United Nations, World Bank, World Health Organization and Population Reference Bureau. These

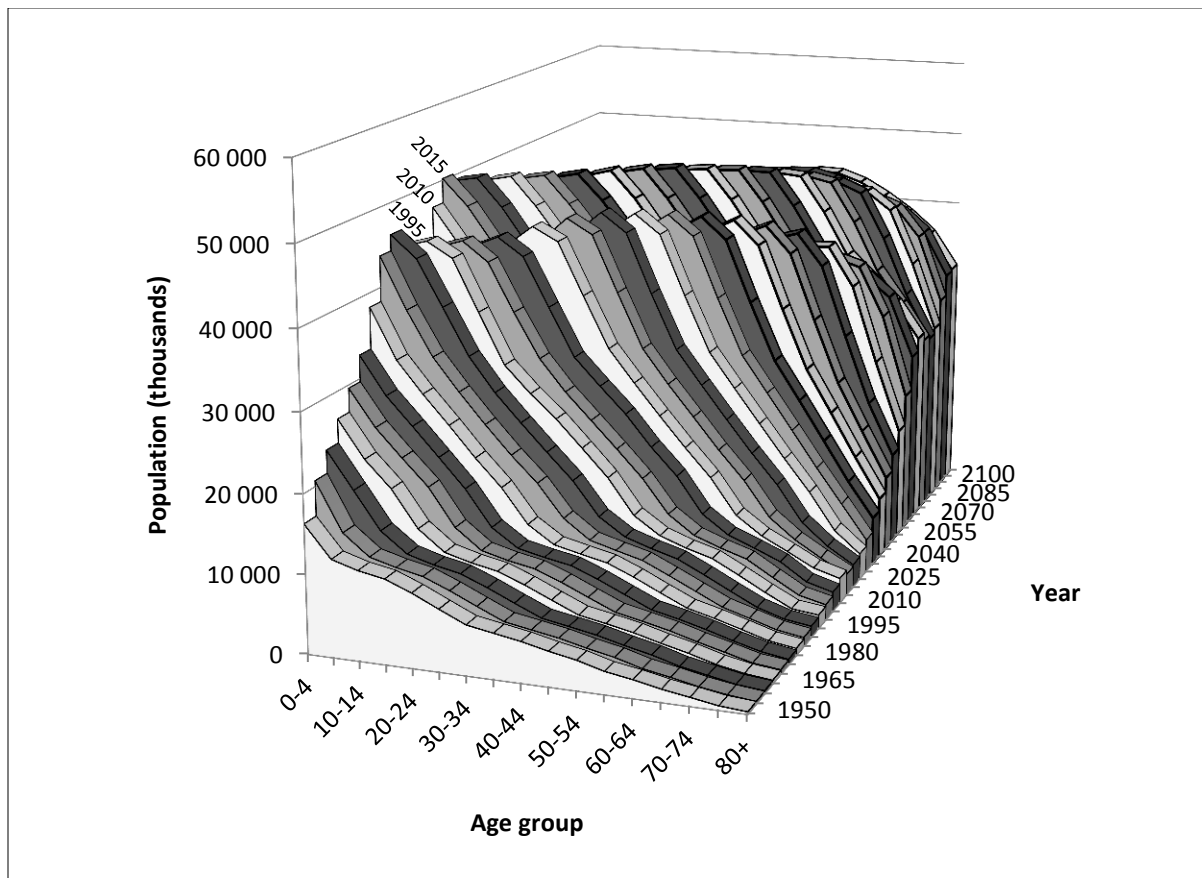
findings will provide more information about the potential economic power of the existing large number of young women in MENA, which is important in designing any development programmes in the region. Failing to fulfil such capabilities hinders the pace of economic growth. But, as importantly, it may lead to further social and political unrests.

Demographic Dividend in MENA

In MENA, the mortality started to fall in the 1950s, but the fertility decline did not generally commence until the last two decades of the twentieth century (see Tabutin and Schomaker 2005, Roudi-Fahimi and Kent 2007). These changes have predictable influences on the age structure of the MENA population.

As shown in Figure 1, there is a decline in the number of children born since the mid-1990s. When the baby-boom generation (those born before the mid-1990s) reaches working ages, the proportion of either young or old population is still low. This allows large savings at the national level, which can speed up the economic growth. This accelerating effect, however, disappears when the baby-boom generation becomes old and a considerable amount of resources is allocated to their needs.

Figure 1 Age distribution of the population, MENA, 1950-2100



Note: For years 2015 onwards, the data are adapted from medium-variant projections.

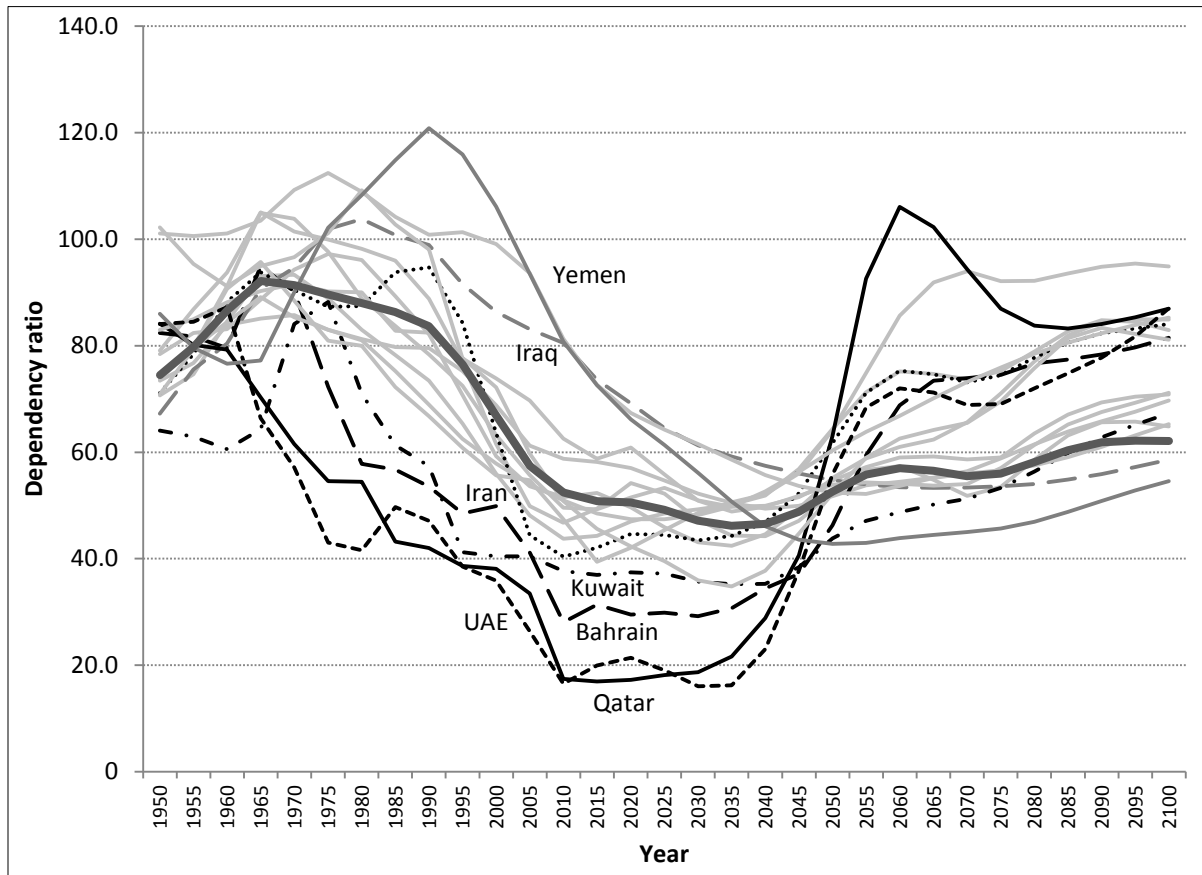
Source: data adapted from United Nations, Department of Economic and Social Affairs, Population Division (2013).

The value of this economic opportunity is enhanced by its uniqueness. Even the population momentum and the birth of succeeding baby-boom generations cannot create such an opportunity because of the existence of large proportions of old people in the population. As shown in Figure 1, the second MENA baby-boom generation is born between 2010 and 2020, when the first baby-boom generation reaches reproductive ages (see the rise in the number of children under the age of 5 in 2010 and 2015). Although the age-structure effects of demographic transition will be observed for several years, the size of succeeding baby booms never exceeds that of the cohort born before the mid-1990s. The shrinking working-age population accompanied by the aging of previous generations and a growing number of old people in the population makes demographic dividend a unique economic opportunity in MENA.

Figure 2 provides a better understanding about age-structure variations in MENA by depicting temporal changes in dependency ratio (DR) in each country and in the whole region. DR is calculated by dividing the total number of dependent population (those under the age of 15 or over the age of 64) to the total number of working-age population (those between ages 15 and 64). The demographic dividend is nothing but an increase in the labor supply and DRs help to capture the period of demographic dividend. The United Nations, Department of Economic and Social Affairs, Population Division (2004: 236-240) considers a country to be in demographic window when its DR is around 50; this means that the number of dependents is nearly half of the number of non-dependents.

Figure 2 shows that the demographic dividend has already commenced in the MENA region (DR in 2010=52.5) and ends in the mid-21st century (DR in 2050=52.6). The maximum economic opportunity, corresponding with the lowest DR, is expected to happen in the mid-1930s (DR in 2035=46.2). Although similar trends are observed in the majority of MENA countries, there are some exceptions. In some Arab states of the Persian Gulf (i.e. Qatar, UAE and Bahrain) the demographic dividend has started earlier, lasts for a longer period and creates more potential for economic growth because their DR reaches very low levels. Qatar is an extreme case, entering the demographic dividend in the early 1980s (DR in 1980=54.4), exiting it before the mid-2050s (DR in 2045=40.6 and in 2050=63.1) and reaching a minimum DR of 17.0 in 2015.

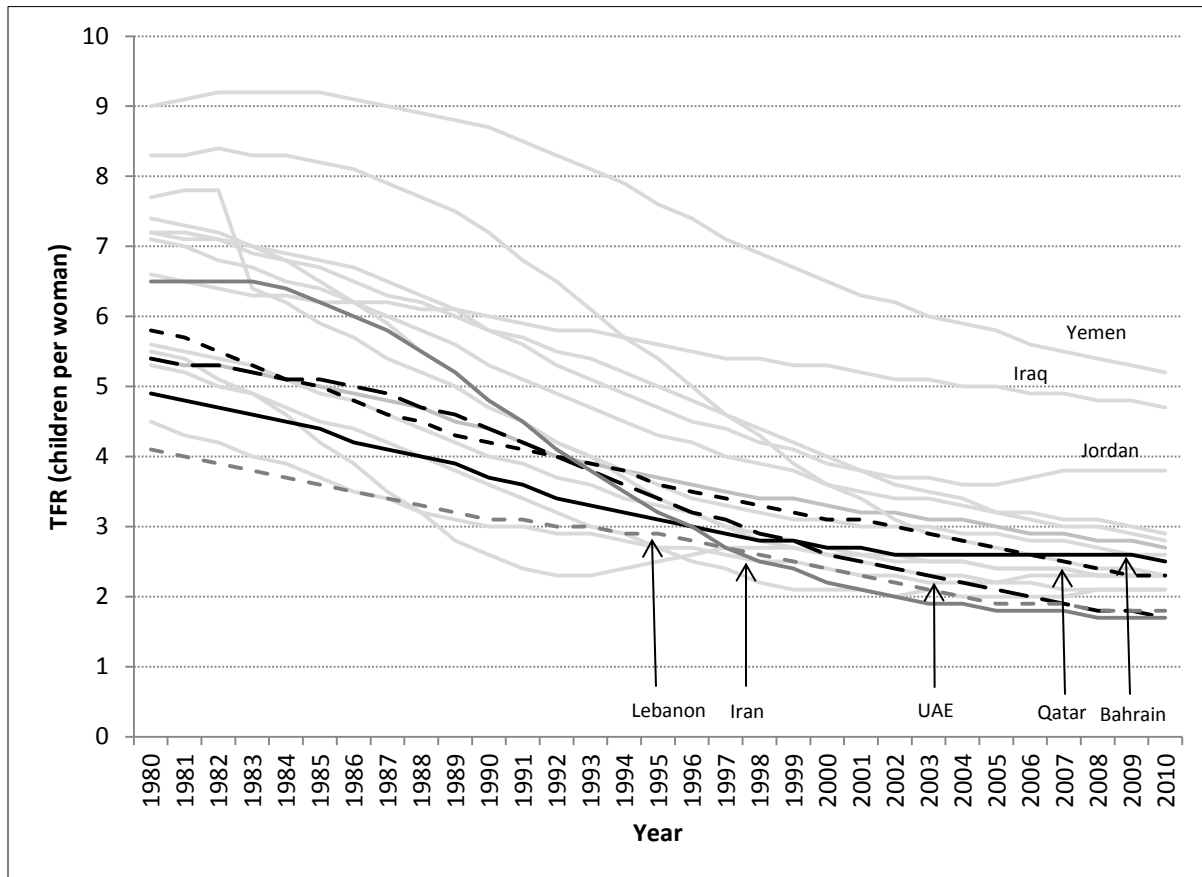
Low levels of DR in these rich oil-producing countries can be resulted from low fertility levels or from high levels of immigration. Fewer children reduces the dependent population (the numerator of DR), while more immigrants who are typically young and in search of better job opportunities increase the nondependent population (the denominator of DR) and both processes lower the country's DR. Both Scenarios are elaborated below.

Figure 2 Dependency ratio (DR), MENA countries, 1950-2010

Note: Dependency ratio is the ratio of population aged under 15 or over 64 to the population aged 15-64. For years 2015 onwards, the data are adapted from medium projections. UAE stands for United Arab Emirates.

Source: data adapted from United Nations, Department of Economic and Social Affairs, Population Division (2013).

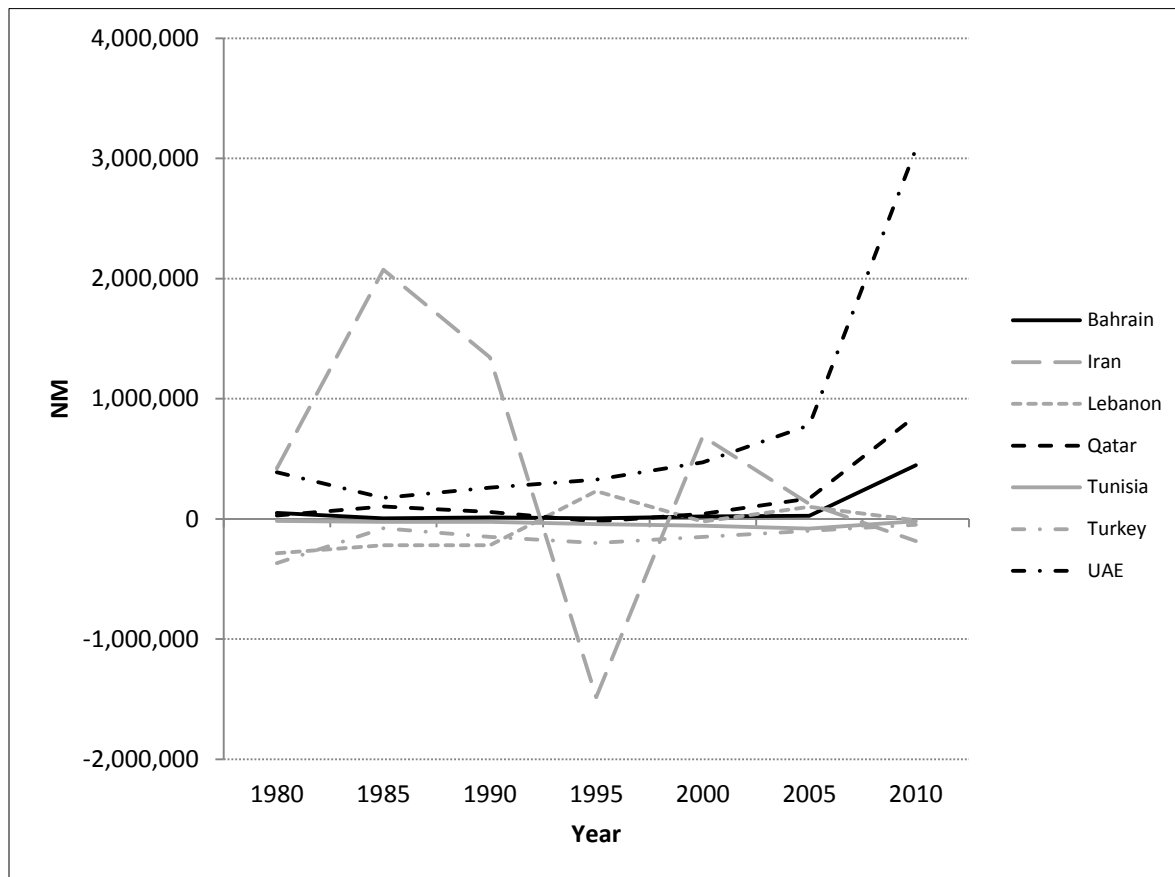
As seen in Figure 3, these countries display low fertility levels. In 2010, the TFR was 2.5, 2.2 and 1.7 children per woman in Bahrain, Qatar and UAE, respectively. There are, however, other countries in the region which display low fertility levels; e.g. the 2010 fertility level was below replacement (TFR < 2.1 children per woman) in Iran and Lebanon and at replacement (TFR = 2.1 children per woman) in Tunisia and Turkey. But DRs in these countries are not as low as those in Bahrain, Qatar and UAE. Thus, lower DRs of the latter should be sought in their migration patterns.

Figure 3 Total fertility rate (TFR), MENA countries, 1950-2010

Note: UAE stands for United Arab Emirates.

Source: data adapted from World Bank (2014).

As shown in Figure 4, these low-fertility countries display very different net migrations (NMs). NM is the net total of migrants, that is, the total number of immigrants minus the total number of emigrants. Over the last three decades, Qatar, Bahrain and, in particular, UAE have had positive NMs, meaning that the total number of immigrants has been larger than the total number of emigrants. This is the period of oil boom and increased oil revenues which resulted in a massive development in Arab oil-producing countries (see Mujahid 2012).

Figure 4 Net migration (NM), selected MENA countries, 1950-2010

Note: Net migration is the net total of migrants during the period, that is, the total number of immigrants less the annual number of emigrants, including both citizens and noncitizens. UAE stands for United Arab Emirates.

Source: data adapted from World Bank (2013). NMR for Lebanon in 2000 is missing in the main data source and derived from the United Nations, Department of Economic and Social Affairs, Population Division (2013).

In Tunisia and Turkey emigrants have outnumbered immigrants, although the difference is not substantial. Lebanon and, in particular, Iran display large NM fluctuations. Both countries have been exposed to political upheavals not only within their national borders but also in the neighboring countries. Iran displays the largest positive NM in the mid-1980s, while the negative migration balance reached its highest level in the mid-1990s. Iran was involved in a war with its neighboring country, Iraq, between 1980 and 1988. Large migration flows from Iraq and especially Afghanistan passed Iranian borders and took refuge from this country during the same period. This played an important role in increasing the annual population growth rate of the country to 3.9% in 1986 (see Abbasi-Shavazi et al. 2002). Repatriations of illegal migrants and post-war economic hardships increased the number of emigrants in the 1990s.

Thus, low levels of DR in Qatar, UAE and Bahrain can be related to their low levels of fertility but more importantly, to considerable inflows of migrants to their national boundaries.

Human Capital and Economic Growth

As discussed in the last section, demographic dividend has already started or will soon start in many MENA countries. But how can this unique possibility be maximized and transferred to economic progress? In the early 1960s, eminent economists such as Theodore Schultz and Garry Becker began to emphasize on human, as opposed to physical, capital as an important determinant of long-run economic growth (see Schultz 1960 and 1961 and Becker 1962 and 1964). Many theoretical and empirical researches have been devoted to the subject of investment in *human capital* ever since (see Hartog and Maassen van den Brink 2007, Savvides and Stengos 2009, Lutz and KC 2011).

The concept of human capital was first identified by investment in formal schooling (see Shultz 1960 and 1961), but then broadened to include both the quantity and quality of formal education, various sorts of training and informal education and the health of the working population (see Becker 1964). As Schultz (1962) pointed out, investment in human capital has important implications for economic growth; this investment not only changes the structure of wages and salaries which is a function of education, health, vocational training, etc. but also increases the amount of earnings relative to other sorts of income (e.g. property income).

Education and health can be considered as the most important forms of investment in human capital because they both increase a person's productivity; education by enhancing skill levels and health by providing the opportunity to transfer capabilities to productivity. Higher individuals' productivity can, in turn, be aggregated and transferred to a nation's prosperity. According to Hartog and Maassen van den Brink (2007: 65), "The wealth of a nation is to a large extent determined by the educational attainment and health status of their population".

Schultz (1961) argues that the economic contribution of education is beyond making knowledgeable and capable citizens; it can explain the amount of increase in national income that is not explained by the growth of inputs. After accounting for annual forgone earnings of formal education, Schultz (1960) suggests that the rate of return to investment in education is higher than that on investment in physical capital. International estimates of rates of return to education lie between 5 and 15 per cent (Hartog and Maassen van den Brink 2007: 8), with the returns being higher in developing countries and for primary education (Psacharopoulos 1985 cited in Hartog and Maassen van den Brink 2007).

This study aims to determine how the economic growth in MENA countries relates to various measures of women's education and health status. This allows us to make a cross-country comparison and understand how investment in women's human capital relates to economic growth. The focus is on women because they comprise nearly half of the region's population and investment in their human capital is expected to have important consequences for economic progress.

It is, however, important to note that comparable investments in human capital do not necessarily translate to similar levels of economic productivity. The final outcome is expected to depend on broad contextual factors, such as the institution of marriage and labor market conditions. For instance, the contribution of women's human capital on economic growth can be conditioned by constraints in women's participation in paid work after marriage and by unequal job opportunities and wages for men and women.

Muslim countries are generally characterized by stratified gender systems, with men being responsible for providing economic resources and women being liable for domestic duties (see Groth and Sousa-Poza 2012). This stratification, however, has not resulted in women's exclusion from the labor market. In Iran, married women constitute 48.9% of women who

participate in the labor market and 56.2% of employed women in 2011 (Statistical Centre of Iran 2013).

Nevertheless, women's participation in the labor market is generally low in the region. In 2012, female labour force participation rate (FLFPR) was higher than 40% only in three rich oil-producing countries of Qatar, United Arab Emirates and Kuwait with large migration inflows, 20-40% in nine countries (Bahrain, Egypt, Lebanon, Libya, Morocco, Oman, Tunisia, Turkey and Yemen) and less than 20% in six countries (Algeria, Iran, Iraq, Jordan, Saudi Arabia and Syria) (World Bank 2014). This can, in part, be explained by the long-standing gender-stratified roles, making the job market more favorable for men. The fact that more unemployed women than men exist in nearly all MENA countries (World Bank 2014) can indicate that the labor market is not conducive to offering men and women equal career opportunities, leaving more women than men searching for jobs.

Wage inequality between men and women is another factor which can influence the economic outcome of human capital investments. According to the latest Global Gender Gap Report (World Economic Forum 2014), men receive higher wages than women for similar work throughout the world. The degree of gender wage gap is quite diverse among MENA countries; the ratio of female to male wage for similar work varies from 0.81 in Qatar, ranked as the third country with the highest value, to 0.56 in Saudi Arabia, ranked as the 108th country of the world. Thus, the wage inequality between men and women can be considered another issue in transforming human capital to economic growth in MENA.

Without overlooking the potential contribution of different socio-cultural influences, this paper highlights the role of women's human capital on economic growth. The question is to what extent the economic growth relates to women's human capital in MENA. The next section tries to answer this question by examining cross-country variations in women's education and health and the associations between GNI per capita and different indicators of education and health.

Women's Human Capital and Economic Growth in MENA

Female education is indicated by measures of literacy and educational attainment of adult population (see Table 1). These measures do not reflect the quality of education, which has been shown to have large and significant effects on economic growth (see Hanushek and Kimko 2000). However, measures of the quantity of education of adult population (e.g. mean years of schooling) have been widely used to identify the impact of human capital accumulation on economic growth, due to limitations in cross-country data on the quality of education (see Savides and Stengos 2009).

As shown in Table 1, high female literacy rates are rather common in the region. Except for six countries (Morocco, Yemen, Egypt, Algeria, Iraq and Tunisia), at least three out of four women in each country are literate. Muslim countries, including those located in MENA, have experienced considerable improvements in female education (Abbasi-Shavazi and Torabi 2012). Different factors have contributed to these improvements, including the influences of western and modernization ideologies, the state's intention to direct socialization through educated mothers and egalitarian expectations and aspirations in the society. For instance, In Iran the Pahlavi monarchy (1925-1979) introduced major social changes to the society, including compulsory schooling for both girls and boys, to stimulate Iran's resemblance to the West and to represent it as a modern country (Abbasi-Shavazi and McDonad 2008). Likewise, Kemalist reforms starting in Turkey in the 1920s aimed at westernizing and modernizing the country and

“the push to increase female education participation was, for the most part, intended to expand the state’s influence in socialization via mother-to-child promulgation of the Kemalist ideology” (Nauck and Kalus 2008: 288). The egalitarian nature of the Islamic Revolution in Iran (1979) and the elimination of cultural sensitivities to girls’ education, such as introducing sex-segregated schools and appointment of teachers of the same sex, have further increased chances of education and led to a marked enhancement in female education in the post-revolutionary Iran (see Abbasi-Shavaiz and McDonald 2008 and Torabi et al. 2013).

Morocco and Yemen display relatively low female literacy rates (43.9 and 44.7%, respectively). High female illiteracy rates in Morocco has been attributed to high rates of absenteeism and drop-outs which have been caused by traditional gender roles, the poor quality of primary education and poverty (Aagnaou 2004). The contributing factors in Yemen include the lack of infrastructure like roads and education facilities in a highly rural society (71% rural population in 2010 according to Population Reference Bureau 2010) as well as the prevalence of a patriarchal and stratified gender system (see Augustin 2012).

There is also a considerable cross-country variation in the attainment of education, among countries for which data are available (see Table 1). Rich Arab countries in the border of Persian Gulf are generally characterized by higher education as indicated by quite low proportion of women who stop education at primary school and relatively high proportions attaining upper-secondary or tertiary level education. Increasing oil revenues since the 1970s have been responsible for massive development in these countries and improvements in education and health services (Mujahid 2012). Iran is also characterized by high levels of female education (47.3% with secondary school and 14.1% with tertiary education). As mentioned earlier, this can be explained by a favorable socio-cultural environment which was created after the Islamic Revolution and resulted in social acceptance of female education.

Table 1 Indicators of female education in the MENA countries, 2010

Country	Adult (15+) literacy rate (%)	Adults (25+) with primary-school education (%)	Adults (25+) with lower-secondary school education (%)	Adults (25+) with upper-secondary school education (%)	Adults (25+) with tertiary education (%)
<i>Middle East</i>					
Bahrain	90.2	9.3	11.0	34.0	11.9
Iran	80.7	35.2	22.5	24.8	14.1
Iraq	69.9	na	na	na	Na
Jordan	88.9	10.3	29.2	14.3	12.7
Kuwait	91.8	6.0	21.5	14.0	11.6
Lebanon	86.0	21.5	20.6	18.2	14.2
Oman	80.9	9.0	8.0	21.9	11.3
Palestine	91.7	36.6	16.4	13.1	18.5
Qatar	92.9	6.1	8.3	18.5	35.2
Saudi	81.1	12.3	10.7	12.8	14.8
<i>Arabia</i>					
Syria	78.0	24.8	9.6	7.7	4.5
Turkey	85.3	44.3	6.1	12.6	8.0
UAE	91.5	7.5	11.0	28.7	25.1
Yemen	44.7	na	na	na	Na
<i>North Africa</i>					

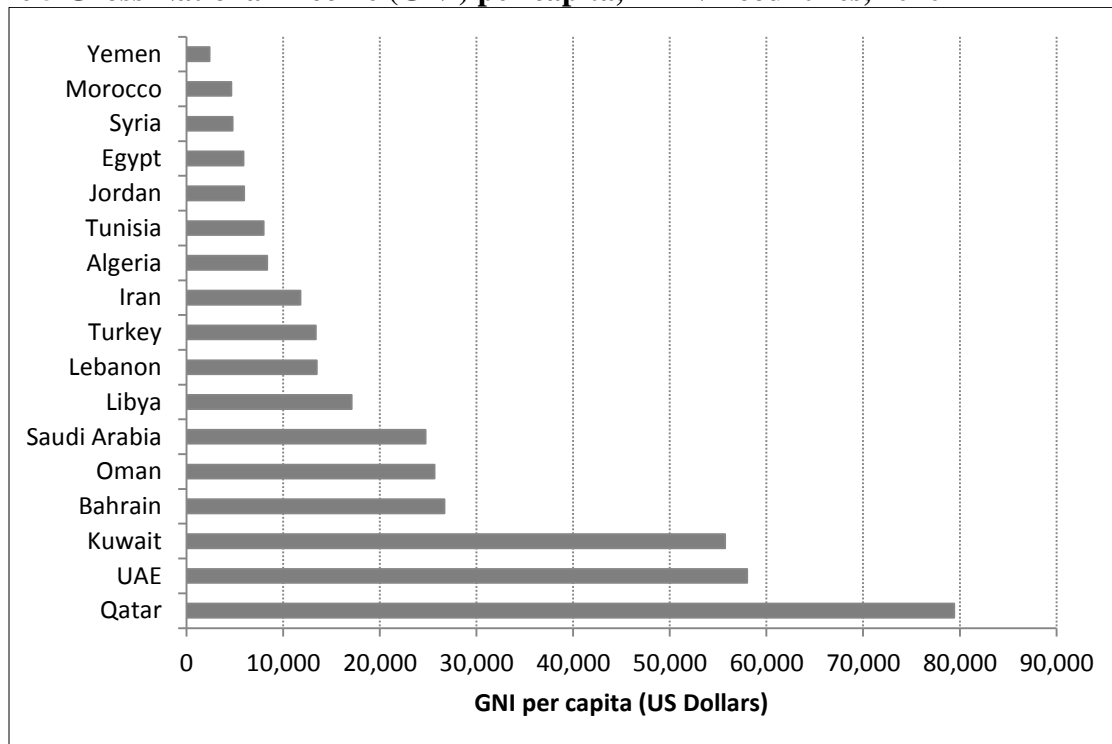
Algeria	63.9	17.5	14.2	6.6	Na
Egypt	57.8	na	na	na	Na
Libya	82.0	na	na	na	Na
Morocco	43.9	na	na	na	Na
Tunisia	71.0	29.8	na	20.5	9.4

Note: The figures presented in the table refer to the closest date to 2010 for which the data are available. UAE refers to United Arab Emirates.

Source: United Nations Educational, Scientific and Cultural Organization Institute of Statistics (2012).

Economic growth widely varies among MENA countries, as indicated by their gross national income (GNI) per capita (see Figure 5). In 2010, the maximum GNI per capita (79,426 US dollars in Qatar) was 33 times larger than the minimum GNI per capita in the region (2,387 US dollars in Yemen). Overall, oil-producing Arab countries in the border of Persian Gulf (Qatar, UAE, Kuwait, Bahrain, Oman and Saudi Arabia) enjoy high income levels; the GNI per capita in these countries exceeded 20,000 US dollars in 2010. Yemen is also located in the Arabian peninsula and exports oil but its trivial annual economic growth is offset by its large population growth (3.0% in 2010 according to Population Reference Bureau 2010) and the country suffers from “large-scale challenges like the effects of the global financial and food crisis, declining donor assistance, water scarcity under conditions of climate change, and security” (Augustin 2012: 152).

Figure 5 Gross National Income (GNI) per capita, MENA countries, 2010

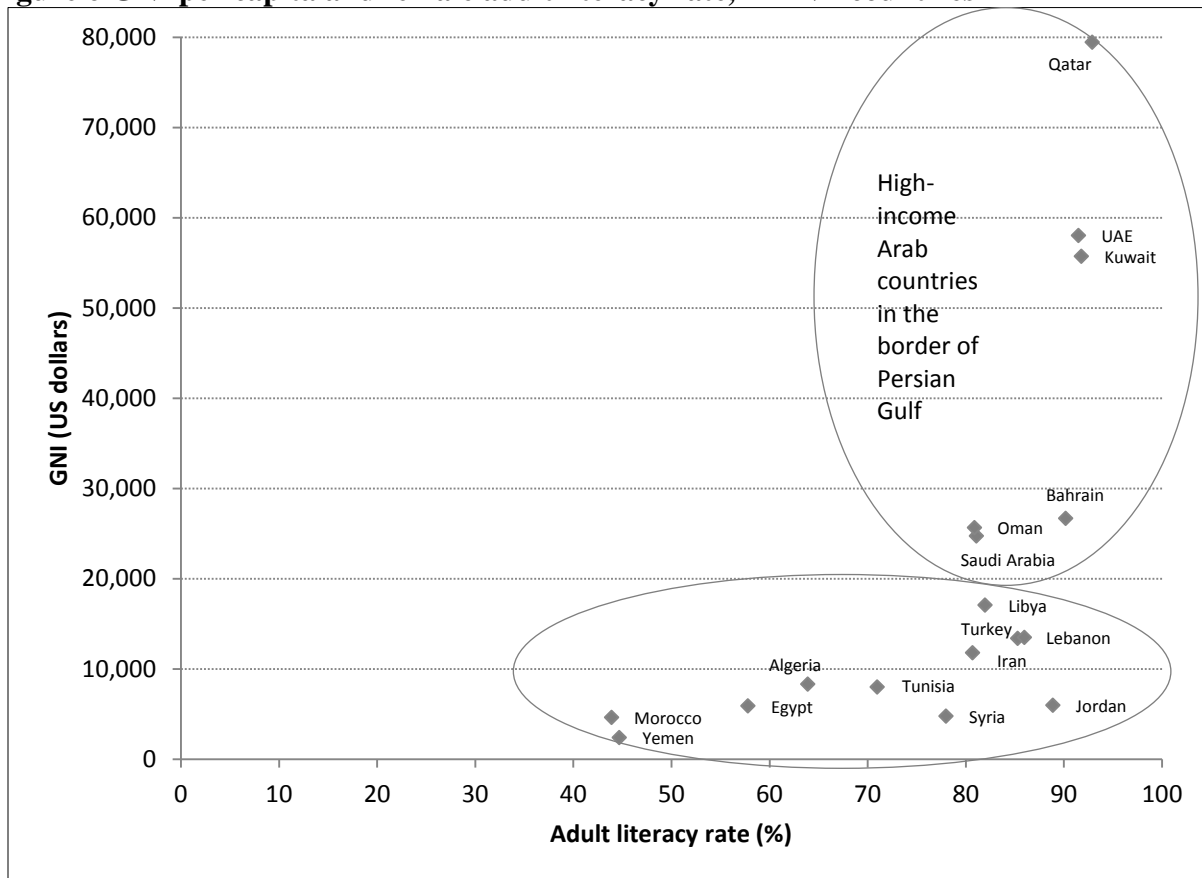


Note: UAE stands for United Arab Emirates.

Source: United Nations Development Programme (2010).

The associations between GNI per capita and female adult literacy rate is displayed in Figure 6. Higher income is generally associated with higher literacy rate and vice versa. The literacy rate in Qatar (92.9%) which is the country with the highest income is twice as large as that in Yemen (44.7%) which is the country with the lowest income. The income-literacy correlation is relatively strong in the region (0.61), but stronger in high-income Arab countries in the border of Persian Gulf, including Qatar, UAE, Kuwait, Bahrain, Oman and Saudi Arabia (0.78) than in other MENA countries (0.66). In the latter group, notable literacy variations are observed among countries with similar income levels. For instance, Jordan and Egypt have similar income levels (GNI per capita of 5,956 and 5,889 US dollars, respectively), but the literacy rate in Jordan (88.9%) is 1.5 times larger than Egypt (57.8%).

Figure 6 GNI per capita and female adult literacy rate, MENA countries



Source: Data for GNI per capita adapted from United Nations Development Programme (2010). For data source of adult literacy rate, see Table 1.

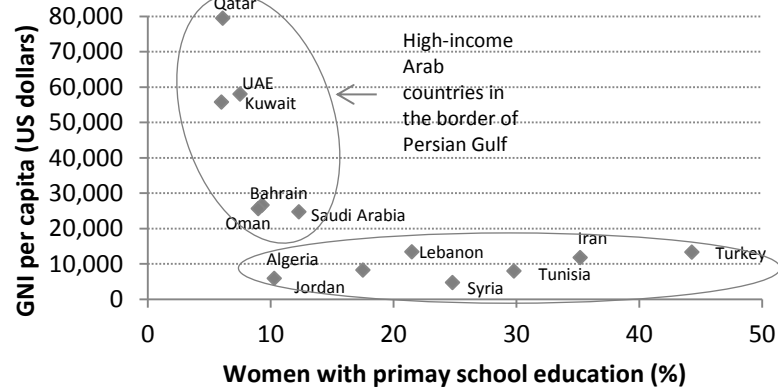
Figure 7 illustrates the associations between GNI per capita and indicators of women's educational attainment. The pattern of this association varies by level of education and between rich Arab countries located in the border of Persian Gulf and other MENA countries. As shown in Figure 7-Panel A, the association between income and primary school education is negative in the former (correlation coefficient: -0.83) but positive in the latter (correlation coefficient: 0.58). In other words, higher income is associated with lower primary school education in rich Persian-Gulf countries but higher primary school education in other parts of the region. In the whole region, this association is negative (correlation coefficient: -0.61).

As shown in Figure 7-Panels B and C, there is no evidence to suggest a notable association between income and secondary school education (either at lower or upper levels) in the rich Arab countries in the border of Persian Gulf but higher income is moderately associated with higher upper secondary school education in other MENA countries (correlation coefficient: 0.46). The income-tertiary education correlation is strong in the region (0.82), but stronger in the former (0.83) than the latter group (0.46).

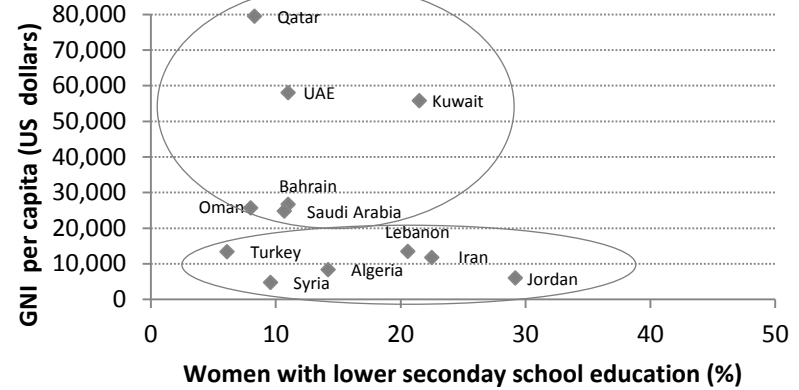
These findings suggest the positive impact of women's literacy and attainment of high levels of formal education on the national-level income in the MENA region. It is worth noting that the cross-sectional associations discussed above do not reveal the direction of casualty; i.e. more education has produced more income or more income has facilitated investment in female education. However, the measures of adult literacy which have been used allow us to assume that the accumulation of human capital in the form of education has resulted in economic growth.

Figure 7 GNI per capita and indicators of female educational attainment, MENA countries

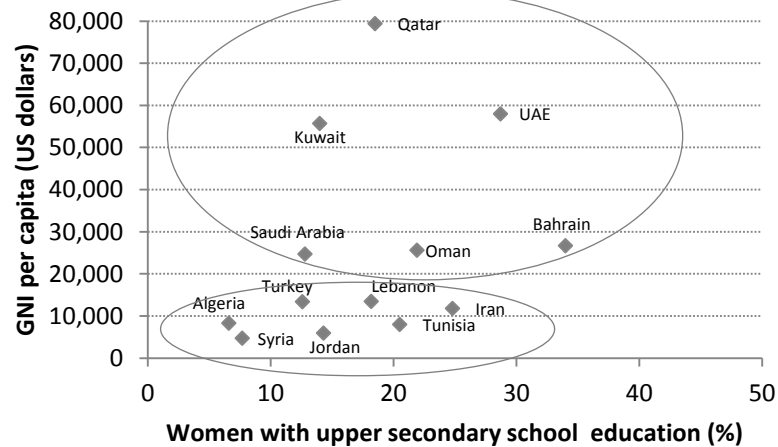
A. Adults (25+) with primary school education



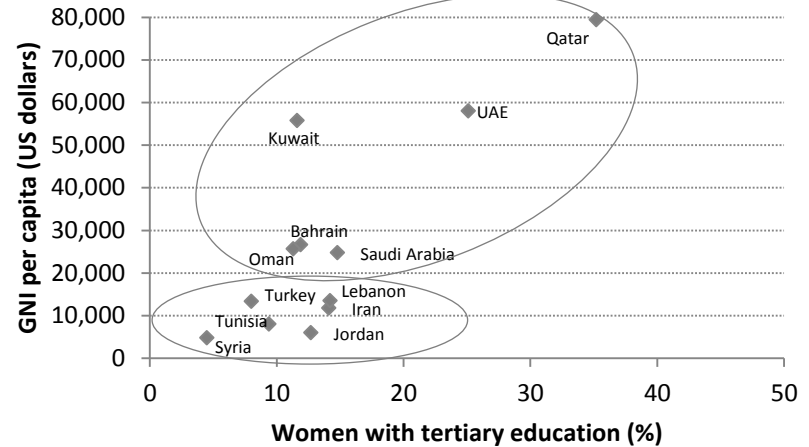
B. Adults (25+) with lower secondary school education



C. Adults (25+) with upper secondary school education



D. Adults (25+) with tertiary education



Source: Data for GNI per capita adapted from United Nations Development Programme (2010). For data sources of indicators of education, see Table 1.

As mentioned in Section 3, education enables human beings to recognize their capabilities, broaden their opportunities and improve their knowledge and skills; but it is good health that enables capabilities to be transferred to productivity. Thus, good health has important economic benefits both at the individual and aggregate levels. Reproductive health is an important determinant of women's overall health. It is defined as "a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and its functions and processes" (United Nations Department of Public Information 1995). In fact, the 1994 International Conference on Population and Development (ICPD) Programme of Action recognized universal access to education, primary health care and comprehensive reproductive health as important elements to achieve sustained economic growth and sustainable development (see United Nations Population Fund 2010: 10). It is clear that women's reproductive health is achieved when they have access to the legal methods of family planning and services that enable them to have a safe pregnancy and childbirth.

Table 2 shows different indicators of female health in MENA countries. In 13 out of 18 countries, for which data are available, at least half of married women use contraception. The highest level of contraceptive use is observed in Iran (74%), followed by Turkey (71%). The high prevalence of contraception in Turkey has been achieved in around five decades of implementation of an anti-natalist population policy (Solak and Hancioglu 2005) but Iran has fluctuated between pro- and anti-natalist policies during the same period, establishing its latest anti-natalist policy in 1989. Thus, Iran has accomplished its high contraceptive use in a much shorter period by means of a strong family planning program, implemented through a nationwide health system and highly approved by religious and political leaders (see Abbasi-Shavazi et al. 2002). On the contrary, the lowest contraceptive use is observed in Saudi Arabia (24%), followed by Yemen and UAE (28%). This has been attributed to limited access to health care and its poor quality, especially in rural areas, as well as girls' early involvement in gender roles, as obedient daughters and wives, limiting their decision-making power (see Augustin 2012).

In most parts of the region, modern contraceptives, which are more likely to be available through family planning services, are more common. In Libya, displaying the lowest contraceptive use in North Africa (42%), and Bahrain both methods are almost equally used. Egypt is an extreme case where 97% of contraceptive devices being used are modern. In other North African countries, modern contraceptives are around 6 times more common than other types of contraception. In Middle East countries the difference is narrower; modern contraceptives are between 1 and 3 times more prevalent than traditional contraceptives.

Childbirth attendance by skilled personnel is generally high in the region: In 14 out of 18 countries at least 90 per cent of births are attended by skilled personnel. The four countries with lower rates of professional birth attendance include Morocco (63%) and Egypt (79%) in North Africa and Yemen (36%) and Iraq (80%) in Middle East.

Maternal mortality is quite diverse in the region. Maternal mortality ratio (MMR) ranges from 7 (Qatar) to 200 deaths per 100000 live births (Yemen). The three lowest MMRs (7, 12 and 14 deaths per 100000 live births) belong to the three richest MENA countries (i.e. Qatar, UAE and Kuwait). The next five countries with the lowest MMR (20-25 deaths per 100000 live births) are Bahrain, Turkey, Iran, Saudi Arabia and Lebanon, also located in Middle East. The North African MMRs are generally high, ranging from 56 and 58 deaths per 100000 live births (Tunisia and Libya, respectively) to 66 deaths per 100000 (Egypt) and 97 and 100 deaths per 100000 live births (Algeria and Morocco, respectively). The long-standing low levels of MMRs in Tunisia

have been attributed to provision of family planning services and maternal and child health care via a network of clinics (Obermeyer 1994).

Finally, female life expectancy at birth is only 64 years in Yemen but ranges between 72 (Iraq) and 80 years (Kuwait) in the rest of the countries. The six highest female life expectancies belong to rich Arab oil-producing countries either in the border of Persian Gulf (i.e. Kuwait, UAE, Saudi Arabia, Bahrain and Qatar) or in North Africa (Libya). In addition, notable differences between female life expectancy and healthy life expectancy at birth indicate that the number of years that women can expect to live in sickness is generally high in the region. This difference is between 9-11 years in 13 out of 18 countries for which the data are available. It is lower in Turkey and Oman (7 years) and higher in Egypt, Iraq and Saudi Arabia (13 years in the first country and 14 years in the second and third countries).

Table 2 Indicators of women's health, MENA countries

Country	Contraceptive use, all methods (%)	Contraceptive use, modern methods (%)	Births attended by skilled health personnel (%)	Maternal mortality ratio (per 100000 live births)	Healthy life expectancy at birth (years)	Life expectancy at birth (years)
	2010	2010	2010	2010	2007	2010
<i>North Africa</i>						
Algeria	61	52	95	97	63	74
Egypt	60	58	79	66	62	75
Libya	42	20	100	58	66	77
Morocco	63	55	63	100	63	73
Tunisia	60	52	95	56	67	76
<i>Middle East</i>						
Bahrain	62	31	97	20	66	77
Iran	74	56	97	21	62	73
Iraq	50	33	80	63	58	72
Jordan	59	42	99	63	64	74
Kuwait	52	39	100	14	69	80
Lebanon	58	34	98	25	64	74
Oman	na	na	100	32	67	74
Palestine	50	39	na	na	na	73
Qatar	43	32	100	7	66	77
Saudi Arabia	24	na	100	24	64	78
Syria	58	43	95	70	65	76
Turkey	71	43	91	20	67	74
UAE	28	24	100	12	68	79
Yemen	28	19	36	200	55	64

Note: UAE stands for United Arab Emirates. The figures for contraceptive use (all methods and modern methods) for Bahrain and United Arab Emirates relate to the year 2008. The figures for births attended by skilled personnel relates to the closest date to 2010.

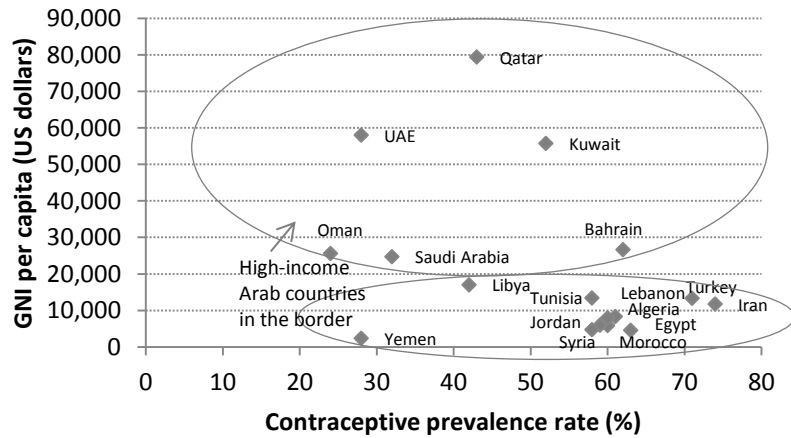
Source: Data for contraceptive use (all methods and modern methods), and life expectancy adapted from Population Reference Bureau (2008 and 2010). Data for maternal mortality ratio adapted from World Health Organisation (2012). Data for births attended by skilled personnel from World Health Organisation (2011). Data for healthy life expectancy at birth from World Health Statistics (2010).

Figure 8 shows the association between different indicators of women's health and the GNI per capita. Contrary to our expectation, GNI per capita is negatively associated with contraceptive use in terms of both all methods (correlation coefficient: -0.39) and modern methods (correlation coefficient: -0.38); thus, the higher is the country's income the lower is the use of contraception and vice versa. In Arab oil-producing countries in the border of Persian Gulf, there is almost no association between the country's income and total contraceptive use (correlation coefficient: 0.08), but a moderate positive association between income and modern contraceptive use (correlation coefficient: 0.39). In other MENA countries the income-contraception association replicates that of the whole region: a moderate negative correlation.

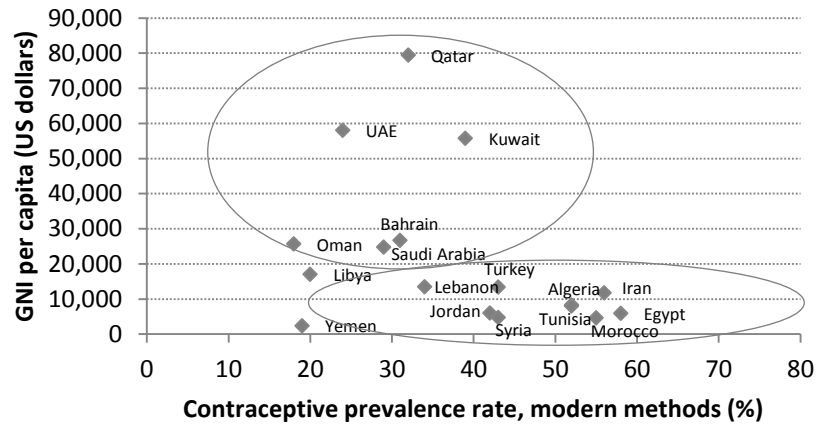
The association between GNI and other indicators of women's health is in line with our expectation. Higher income is positively and moderately associated with more coverage of professional birth attendance both in the rich Persian-Gulf countries (correlation coefficient: 0.39) and in the rest of the region (correlation coefficient: 0.55). The same pattern is observed in the whole region (correlation coefficient: 0.41). The GNI-MMR association is moderately negative in the whole region (correlation coefficient: -0.58), strongly negative in the rich Persian-Gulf countries (correlation coefficient: -0.90) and moderately negative in the rest of the countries (-0.61). Income is positively and moderately associated with both life expectancy and healthy life expectancy at birth. The GNI-life expectancy and GNI-healthy life expectancy correlation coefficients are, respectively, 0.57 and 0.54 in the whole region, 0.41 and 0.40 in the rich Persian-Gulf countries and 0.36 and 0.61 in the rest of the region. Thus, in the latter group the positive implications on economic growth of longevity are not as important as having a long healthy life.

Figure 8 GNI and indicators of women's health, MENA countries

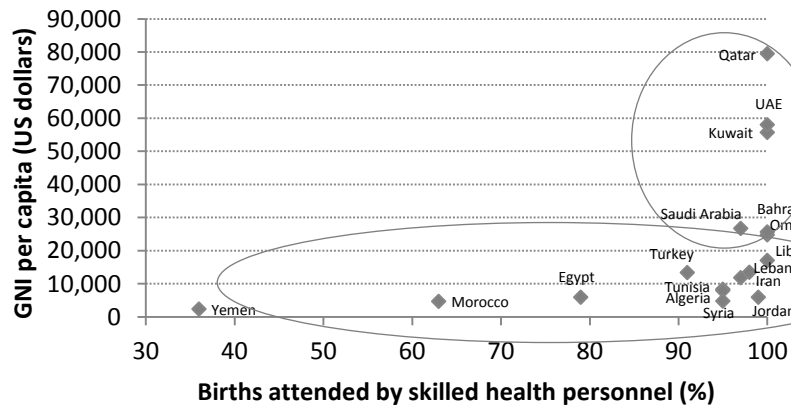
A. Contraceptive use, all methods



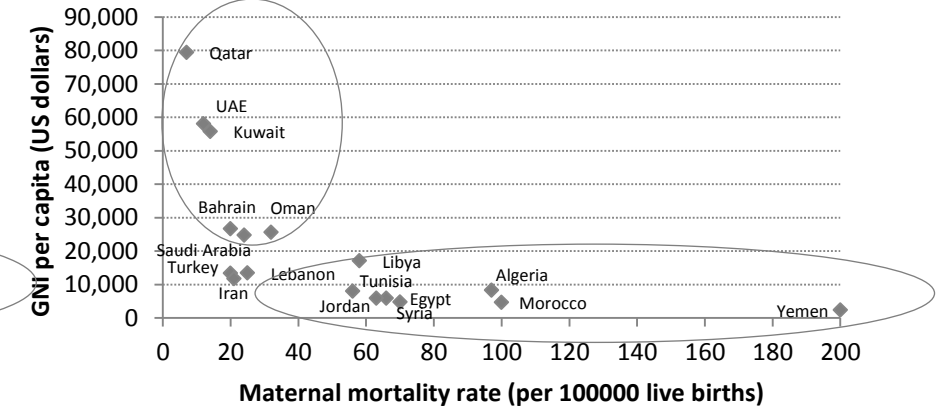
B. Contraceptive use, modern methods



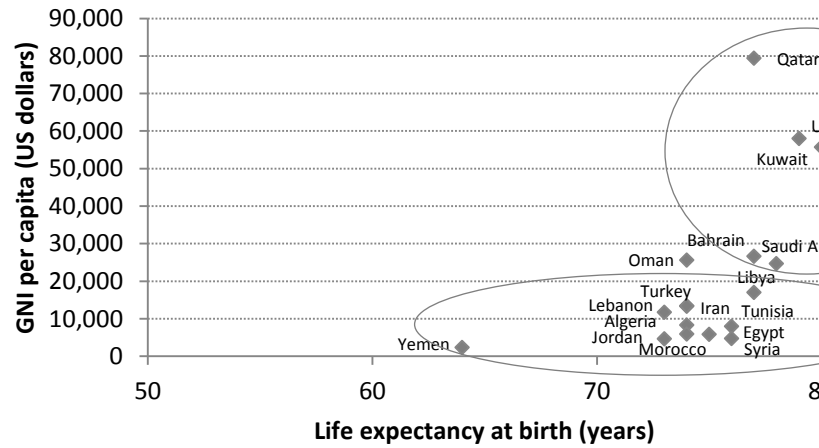
C. Births attended by skilled personnel



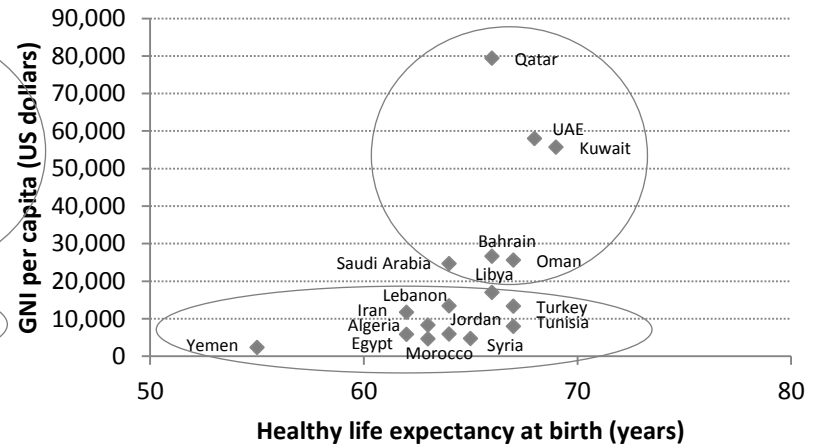
D. Maternal mortality ratio



E. Life expectancy at birth



F. Healthy life expectancy at birth



Source: Data for GNI per capita adapted from United Nations Development Programme (2010). For data sources of indicators of education, see Table 2.

Summary and Conclusion

This paper began by showing that demographic dividend starts in MENA in the second decade of the 21st century and lasts until the middle of the century. Then, it was argued that investment in women's human capital has important implications for long-run economic growth and can help to maximize the unique economic opportunity created by demographic dividend. The paper applied a range of data sources to create indicators of human capital and determine how the economic growth of MENA countries relates to women's human capital.

The findings show a considerable cross-country variation in economic growth (measured by GNI per capita), women's human capital (measured by measures of adult education and health) and the associations between these two. This can be explained by different social, cultural and political environment in which human capital is accumulated and translated to economic productivity. Being Muslim has not led to homogeneity among MENA countries because of the existence of different legal systems influenced from various schools of jurisprudence and customary laws from pre-Islamic eras as well as the operation of different political systems in which behaviours are formed (see Obermeyer 1992 and 1994). Furthermore, investment in human capital depends on other institutional factors such as inheritance of property income and differences in opportunities (Becker and Chiswick 1966), which are not identical among MENA countries. An examination of the contribution of these contextual factors is beyond the scope of this paper but is instrumental in understanding the pathway of the influence of investments in women's human capital on economic progress.

In particular, the findings suggest positive associations between the national-level income and women's literacy as well as attainment of high levels of formal education throughout the region. In addition, the GNI per capita was found to be associated with women's better health (lower maternal mortality as well as higher professional childbirth attendance, life expectancy at birth and healthy life expectancy at birth). However, GNI per capita was not found to be associated with higher use of contraception in the region. Thus, the correspondence between development and contraceptive use does not apply to MENA. The reason could be sought in prevailing gender systems which may undermine women's autonomy to seek contraception or in their limited access to family planning services, but future studies are needed to provide more insight about this contradictory finding.

Although women's education and health status is now promising in many MENA countries, women's situation needs to progress in some countries such as Yemen in Middle East and Morocco in North Africa. Both countries are marked by low income levels and strong patriarchal and stratified gender roles (Agnaou 2004, Augustin 2012). There is also a long way to increase women's employment rates to comparable levels to their education and health status. The prevailing socio-cultural barriers to female employment, the on-going competition for employment between large working-age populations in Muslim countries and over-education are responsible for the existing low levels of female participation in the labor market in MENA (see Abbasi-Shavazi et al. 2002; Jones 2012; Hartog and Maassen van den Brink 2007). Over-education, defined as "the growth in the supply of better-educated people outpaces the growth in demand" (Hartog and Maassen van den Brink 2007: 101) can be an important contributing factor, especially in countries where a large number of women obtain high levels of education (i.e. rich countries in the border of Persian Gulf and Iran). In these countries the labour market should be ready to absorb the increasing number of better-educated women. In other countries (e.g. Yemen, Morocco and Egypt) where women's education is relatively low, gender gaps in

education can reduce women's competition power in the labour market, especially in urban areas.

This paper showed the positive impact of women's education and health on economic growth, but higher participation of women in the labor market can certainly accelerate MENA's economic growth. Based on the global experience, Bloom, Canning and Sevilla (2003) argue that the critical policy areas needed to transfer demographic dividend to a sustained period of economic growth include *public health, family planning, education and efficient economic policies that promote labor-market flexibility, openness to trade, and savings*. These policies not only allow making the best use of a qualified and healthy labor force, but also transfer the individual economic earnings to a rapid collective economic growth. This study provided cross-sectional information about the association between women's human capital and economic growth. Future research can benefit from utilizing longitudinal data to investigate how changes in the age structure of the population and in local policies mediated the contribution of investment in human capital on economic productivity.

It is also worth noting that education creates not only economic but also social and political advantages for women and for the society. Education can increase women's confidence to engage in social and political activities (Lutz, Cuaresma and Abbasi-Shavazi 2010) and change women's attitude towards childbearing by shifting the importance of the quantity to the quality of children (Abbasi-Shavazi, McDonald and Hosseini-Chavoshi 2009). Thus, improvement in female education in MENA is likely to gradually alter the existing gender norms, leading to further changes in women's economic, social and political standing in the future. To conclude, failing to account for the capabilities of women not only hinders the pace of development, but, as importantly, it may lead to further social and political unrests in the region.

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