Failure of Participation "Missing Women" in South Mediterranean Economies

Driouchi, Ahmed

Institue of Economic Analysis Prospective Studies Al Akhawayn University

15 December 2009

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By:

Ahmed Driouchi

Institute of Economic Analysis & Prospective Studies (IEAPS),

Al Akhawayn University, Ifrane, Morocco

&

PO Box 104, Avenue Hassan II, Ifrane, 53000, Morocco

Phone: +212535862003 Fax: +212535862444

Email: A.Driouchi@aui.ma

Abstract:

This paper aims at showing that women are "missing" because also of their limited participation in development. It also intends to show that market mechanisms as well as limited alternative institutions are among the factors that negatively affect access to health, to education and to economic opportunities. The emphasis is placed on South Mediterranean countries.

The results attained and the evidence mobilized consistently show the interdependencies of health, education and poverty and the potential gains that can be transversally achieved with the promotion of the roles of women and children.

Keywords: Interdependencies, Health, Education, Poverty, missing women, children, South Mediterranean Countries.

JEL: D_{63}-I_1-I_2-I_3

Introduction

The contribution of Sen, A. (1992) that relates "missing women" to discrimination and “neglect of women and girls” is still having meaningful explanatory power after the attempt to overweight the role of health factors (Oster, 2005). More recently, Klasen, and Wink (2003), Das Gupta, (2005) and Gang and Oster (2008), confirmed that socio-economic factors still provide the explanation for the "missing" females. Contributions to measurements accounting for different forms of mortality and death of women and girls have been suggested in relation to thresholds based on sex ratios in different countries and regions. This study expands the notion of “missing women” to females that are still living at different ages but are implicitly excluded from the basics, including limited access to health. The existence of important interdependencies among health, education and economics can reveal the central roles of women and children in the process of human development and their central roles in ensuring higher levels of development. Their implicit and explicit exclusion generate losses related to these missing segments of the population.

The overall evolutions of the economies in this region, with important urbanization trends and the persistence of rural segments in some countries, are also important risks and opportunities that can affect the process of participation and inclusion of women and children. Given the importance of human development deficits, and given the risks faced, women and children, mainly the poorest ones, appear as missing as they are not fully participating and not included in the process of development.

This research covers, respectively, three major issues after a literature review. The first one deals with the nature of the interdependencies of health, education and poverty in the South Mediterranean area with emphasis placed on the role of women and children. The second looks at how women and children can be said to be missing from participation to

development as they occupy central roles in the existing human development deficits. The last issue concentrates on the factors that have been constraining the participation of women and children such as those related to the urban-rural connections, the disabilities and the supply of health in relation to brain drain of medical doctors in the countries of the region. The central contribution of this paper is that markets have not fully succeeded nor failed in providing further access to health, education and economic opportunities for poor women and children. This paper shows that markets do provide opportunities but also create constraints that limit the role of women in development under the existence of inefficient, failing and fragile social institutions. Furthermore, the on-going financial and economic crisis is likely to worsen the situation of poor women and children. These central findings are mainly related to the case of South Mediterranean economies.

I. Literature Review

The debate, as well as the facts related to the "missing women", was initiated with Sen (1992). The recent version of this discussion ended up emphasizing the role of socio-economic variables in different economies in shaping up the stocks and flows of missing women (Gang and Oster, 2008). But all these contributions focused on the mortality of women at different ages and its impacts on the sex ratios in different countries. Further investigations, including those of Sen (2002) and others (Klasen and Wink, 2003; Das Gupta, 2005; Gang and Oster, 2008), have provided more explanations and new ways of looking at the issue of "missing women". This contribution recognizes the reality of "missing women" as first introduced by Sen (2002), but includes girls and children besides other losses that account for the limited participation of women to development. This situation is directly

related to market failures but also to some market successes that impose constraints and reduction of the role of women.

The debate on “missing women” (Sen, 2002) has aimed at demonstrating the consequences of unbalanced sex ratios, mainly through higher mortality rates of women and mothers. In relation this literature, “missing women” are not missing only because of mortality, as related to lower access to health, to education and to economic opportunities, but also because of limited inclusion and participation in development.

The former contribution that relates "missing women" to discrimination and “neglect of women and girls” still has meaningful explanatory power as other authors, such as Klasen, S. and Wink (2003), Das Gupta (2005) and Gang and Oster (2008), have confirmed that socio-economic factors are the most important determinants of the "missing" females.

Human trafficking (Van Den Anker, 2006) is an informal transaction that allows markets to merchandise women and children and, thus, contributes to the increase the stock of “missing women” in a given economy. On the other hand, access to health, education and new economic opportunities have not been enlarged by globalization and market mechanisms (Atun and Fisk, 2008; UNRISD, 2006). For some authors (Glavan, 2007), there are poverty traps that are exacerbated by market mechanisms that need further coordination. Other difficulties are related to the economic structure as related to the access to property and entitlement, as developed in Razavi (2006).

Contributions to measurements that account for different forms of mortality and death of women and girls have been suggested in relation to thresholds based on sex ratios in different countries and regions. But, indirect measures can be also provided by the availability of empirical evidence about the extent of interdependencies between health, education and economic attainments in different socio-economic contexts.

The existence of major interdependencies of health, education and economic conditions besides the large interconnections between current and future status of women (Osmani and Sen, 2005) are major elements for the understanding of the role of markets and social institutions and their respective performances. Non market mechanisms and mainly the roles of human communities have been viewed as undermined by markets (Marglin, 2008), but in this research, markets are considered to have failed in generating participation but have also succeeded in imposing constraints to human development. Similar evidence about market failures is reported in the earliest work of Mayer-Foulkes (2003) for the case of health and education investments in Mexico.

Further contributions are those by Osmani and Sen (2005) where the authors analyze the interconnections between gender inequality and maternal deprivation on the health of coming generations. Women's deprivation in nutrition, healthcare and others at any age negatively affects society in the form of ill-health of current and future children, but also of future adults. Maternal deprivation "adversely affects the health of the fetus, which in turn leads to long-term health risks that extend not just into childhood but into adulthood as well". Differences have been identified in the ways children and adults experience the consequences through fetal deprivation. According to the authors, gender inequality leads to a double loss that aggravates both regimes of diseases and, thus, raises the economic cost of "overlapping health transition". The overall model underlying this view is as shown by Osmani and Sen (2003).

Another contribution took the same avenue through focusing on why "Nutrition of Women and Adolescent Girls" matters (Elder and Ransom, 2003). According to these authors, malnutrition, as both under-nutrition and deficiencies related to absence of micronutrients, is

an ill health caused by poor food regime intake and its interactions with infectious and other poor health and social conditions. Malnutrition is affecting the well-being of millions of women and adolescent girls around the world. Although the effects of malnutrition on this group have been recognized for decades, there has been little measurable progress in addressing the specific nutritional problems of women and adolescent girls. The authors add that ignorance about the symptoms of malnutrition, such as the lethargy and depression caused by iron deficiency, may be dismissed as "normal" or unimportant and, thus, further exacerbating the problem. Adequate nutrition is especially critical for women because it affects not only the own health of undernourished women, but also that of their children. Children of malnourished women are more likely to face cognitive impairments, short stature, lower resistance to infections, and a higher risk of disease and death throughout their lives. Women, in general, express higher levels of health vulnerability relative to men. As reported by Elder and Ransom (2003) this vulnerability is higher under poverty and absence of education. According to the above authors, socio-cultural biases and gender disparities increase women's chances of being malnourished. They also report that fifty percent of all pregnant women are anaemic, with 120 million women in less developed countries being underweight.

Even though there are major positive changes in both maternal and child mortality in the region of study, the current levels relative to other countries needs further improvement. These elements are shown in a series of reports and documents produced by different international and regional organizations. The Arab Human Development reports (UNDP, 2002, 2003, 2004 and 2005) have revealed important information and trends related to infant and maternal mortality.

In the context of South Mediterranean countries, markets, institutions and other mechanisms have not always provided improved access to better health, enhanced education and higher economic standards for the poorest segments of the population, even though recent developments have been observed. Poor women and children are still suffering from higher mortality rates but also from implicit exclusion in these economies. In that sense, large proportions of women and children are increasingly missing.

The overall evolutions of the economies in this region, with important urbanization trends and the persistence of rural segments in some countries, are also important risks and opportunities that affect the process of participation and inclusion of women and children. Given the importance of human development deficits and given the risks faced, women and children, mainly the poorest ones, appear as missing as they are not fully participating and not included in the process of development. Both market and social institutional mechanisms have been failing to ensure their inclusion.

The major findings related to this literature review demonstrate that women, children and especially girls play important roles in the overall process of development. This central role is directly related to the interdependencies existing between health, education and the prevailing economic conditions. Poor women and children are likely to play even further roles in development. This is shown in the following sections through the assessment of the interdependencies that exist between health, education and poverty in the South Mediterranean countries. It is also emphasized when showing how poor women and children are almost missing and hidden in this region of the world. Furthermore, the loss and non participation of women and children is constrained by the environmental socio-economic conditions where urbanization in relation to rural development, the existence of disabilities and the limitations of health supplies play key roles.

II. Methods of Investigation & Data

These are based on assessing the importance of interdependencies related to access to health, education and to other socio-economic dimensions. Descriptive analysis is also conducted on some variables and indices. These assessments are also based on regression analysis using the available data on health, education and economic performance. The data mobilized are from three major sources.

The first source is from international organizations, such as World Health Organization (WHO), United Nations Development Programs (UNDP) and World Bank (WB), covering health, education and other variables. These data cover a large set of South Mediterranean countries. The education indicators used are the primary school enrolment ratio 2000-2006- net male, primary school enrolment ratio 2000-2006- net female, primary school attendance ratio (2000-2006) net male, drop out % rate primary, youth (15-24 years) literacy rate 2000-2006 (Female), primary school enrolment (% gross), secondary school enrolment (% gross) and percentage of central government expenditures (1995-2005) on education.

The second set covers indicators and data from Morocco. These data are related to the drop out rate from primary (per year, 6 years), secondary (per year, 3 years) and tertiary schools (per year, 3 years) per region for female and total (Ministry of Education, Morocco, 2006).

The third set is composed of different data sources that have also been used to assess different variables related to consanguinity, handicaps, medical brain drain, rural migration and urbanization rates. The levels of participation of women and the situation of children have also been obtained from diverse sources (UNDP, 2007; World Economic Forum, 2008 and UK, Save the Children, 2008).

III. Health, education and poverty: The central roles of women

The recent UN data, accounting for maternal and infant mortality deaths besides that on urbanization rate as introduced in the appendix, show the high level attained by the mortality rates for both mothers and children. Urbanization rates for these countries appear to be generally high, except for Yemen, Mauritania, Egypt, Syria and Morocco. The major question addressed here is how these variables are interconnected and how preliminary levels of interdependencies can be observed.

This is achieved using regression analysis, with the results introduced and discussed below.

From the regressions shown in the table below, it is easy to see that 1% change in urbanization produces a similar level of realization in births attended by skilled medical staff. Urbanization and infant mortality also appear to be inter-related, seeing as a 1 point reduction in maternal mortality rate leads to a 0.44 reduction in infant mortality. Otherwise, the maternal and infant mortality rates that are still high in the region are negatively affected by the urbanization rate. The increasing rate of urbanization can drastically reduce maternal and infant mortality rate in these countries. Mortality rates are then assumed to be higher under low urbanization rates, as it appears in table 1.

While the above results confirm the important role of women in the determination of different health, education and other socio-economic deficits, the case study of Morocco using aggregate data on drop out rates from different school levels, does underline the magnitude of global interdependencies. This is, again, strengthened using cross section data on South Mediterranean countries. In these two exercises, data from different sources are used. In terms of nutrition, the variables selected stand for the percentage of children under-five (2000-2006) suffering from underweight- moderate and severe, Vitamin A supplement coverage rate (6-59 months) 2005- at least one dose (%), Vitamin A supplement coverage

rate (6-59 months) 2005- full coverage (%), percentage of children (2000-2006) who are breastfed with complementary food (6-9 months), percentage of infants with low birth weight 1999-2006 and percentage of households consuming iodized salt 2000-2006. Concerning health, the indicators used are the percentage of the population using improved drinking-water sources 2004 (urban and total), percentage of newborns protected against Tetanus, one-year-old children immunized (2006) against Tuberculosis, infant mortality rate (per 1,000 live births), maternal mortality ratio (per 100,000 live births), life expectancy at birth- total (years), general government expenditure on health as a percentage of the total expenditure on health (% health), total expenditure on health as a percentage of the gross domestic product (Health exp) and total fertility rate 2006 (per woman). This report also uses a Moroccan local indicator which is the distribution of the number of diseases subject to vaccination per region, (2006) published by the "Direction de l'Epidémiologie et de la lutte Contre les Maladies (DELM)", Ministry of Health, Morocco. This indicator represents the incidence rate per 100,000 inhabitants related to the most important epidemics. The average number of cases per disease and per region is then used in the regressions.

The education indicators used are the primary school enrolment ratio 2000-2006- net male, primary school enrolment ratio 2000-2006- net female, primary school attendance ratio (2000-2006) net male, drop out % rate primary, youth (15-24 years) literacy rate 2000-2006 (Female), primary school enrolment (% gross), secondary school enrolment (% gross) and percentage of central government expenditures (1995-2005) on education. Other indicators related to the drop out rate from primary (per year, 6 years), secondary (per year, 3 years) and tertiary schools (per year, 3 years) per region for female and total (Ministry of Education, Morocco, 2006).

Concerning the explanation of drop out rates in the case of Morocco, regression results (table 2) clearly show the relationships between the rate of failure and drop out from schools and the levels of poverty and health. The first set of outputs explains the drop out rate at the level of primary schooling. Children leave school because of health problems (measured by average frequency of diseases in a region) and poverty (measured by region). The elasticity of loss relative to health is 0.81 meaning that a one percent change on average disease leads to 0.81% change in drop out. Otherwise, to decrease the drop out rate by 0.81%, health needs to be improved such that the frequency of diseases is reduced by one percent. Similarly, a one percent change in poverty leads to 0.56% change in drop out, meaning that reduction of poverty by one percent reduces the drop out from primary school by 0.56%. In case of simultaneous health and poverty improvements, the result is 1.37% reduction in drop out. Girls appear to have the leading role in this process because the corresponding elasticities are higher. These results are again confirmed when looking at the effect of age. It seems that health conditions and poverty affect the drop out rate at all levels of primary school, with poverty only affecting the drop out rate of girls in their 2nd and 3rd years. For the college level, poverty seems to have an important influence on the drop out rate for both males and females. In general, the effects of poverty are getting lower, and for females especially, implying that other factors do affect the drop out rate.

The third set of regression results (table 3) confirms the role of health, and mainly that of women, on education. In this context, health has been measured by weight, nutrition, vaccination, maternal mortality and health expenditures. All of these variables show their appropriate links with dependent variables related to different dimensions of education. These include school enrolment, female literacy, drop out rate and public expenditures on education. Different regression results are introduced in the following table (table3).

IV. Signals of Market Failures, "Missing Women" and Children

Women, girls and children are still among the most vulnerable segments in any economy and society. The poor segments of these groups are exposed the most to different forms of discriminations. It has been recognized over time that families in poor areas may consider increasing their chances of survival through increasing the number of children, either to ensure an excess supply of labor for domestic use and or to enhance the levels of their revenues (Becker and Tomes, 1976). These practices have often encouraged children to early access of labor markets against the alternative of going to school (Dagenais et al., 2001). Other children can leave school earlier to join the labor markets (Fares and Raju, 2007). The drop out rate of children from schools can be also related to the economic and social situation of parents (Dagenais et al., 2001). In such contexts, even marriage at early ages for girls can be explained in relation to the willingness of parents to reduce their expenditures and to enhance their revenues, meaning increasing resource availability to the family members remaining in the household (Becker and Tomes, 1976). Rural emigration, and also emigration to other countries, mainly of women and children, can be supported by similar economic and social factors (Dottridge, 2008). Furthermore, the displacement of children and women, besides the other effects of conflicts and of natural hazards, increases the burden of humanitarian aid and interventions nationally and internationally as expressed through the number of organizations dealing with these issues (USAID, 2007; UNICEF, 2008; World Bank, 2008; UNDP, 2008).

The results of interdependencies between different dimensions of health, education and poverty, as expressed above for the region of study, clearly show the levels of interconnections between the central roles of women and children in the process of human

development. The high levels of mortality of poor women and poor children, either at birth or later in life, ensure the level of women and children that become missing from the economies. The difficult situations of girls within these economies place them at risk, as they are vulnerable future mothers and future participants to economic and political life. The levels of school drop outs at different schooling stages, as they relate to health status and nutrition, do affect, on short and medium runs, the real existence of women and children. Furthermore, the highest impacts on girls relative to boys do also place emphasis not only on the current situation but also on the future of these economies. This strengthens the fact that cultural and social exclusion of women and children is undermined with deeper mechanisms that generate irreversible and further exclusion. The on-going institutional arrangements appear to be implicitly more biased against women and children, even though the previous analysis showed that discrimination avoidance could lead to further opportunities of full participation through ensuring access to better health and education to women and children.

The above interdependent concerns underline the implicit exclusion and the high mortality of poor women and children, in relation to the threats originating from limited access to health, to education and to decent living conditions. Other factors for non participation are directly related to the functioning of the current administrative, political and economic mechanisms. These contribute to further exclusion and imply that large shares of the population of poor women and children are outside the social and economic processes.

Different indices, developed mainly by international institutions and by some non-governmental organizations, show the low levels of participation of women in political, business and economic activities in their countries in the region. Besides this limited and absence of participation, objective health and education factors constrain women from full

engagement in a series of activities. They are directly hidden and implicitly constrained from access, in general.

Gender Empowerment Measure (GEM), as developed by United Nations Development Program (UNDP), has been revealing consistently lower values for its various components that measure the participation of women (parliament, management and administration, technical and professional jobs). In 2002, the GEM values for Morocco, Mauritania, Turkey and Egypt were respectively 0.421, 0.410, 0.312 and 0.260. During the same year, the GEM of Norway and Finland attained 0.837 and 0.803. The highest values attained by this index in 2007/2008 were 0.325, 0.129, 0.263 and 0.298 for Morocco, Yemen, Egypt and Turkey respectively (table 4).

This low level of women's participation is confirmed with the values attained by the Global Gender Gap Index (GGGI) as shown in table 5.

The level of these indices indicates that women are not fully engaged in their respective economies. This is an important signal of the limited social, political and economic inclusion for most of the women in the countries of this region. While improvements in women's social and familial status were promoted in Tunisia, and more recently in Morocco, most women, and mainly those in poor neighbourhoods and in rural areas, suffer from poor health, limited education and poverty.

Based on World Health Organization (WHO) data on some health related variables, the estimated relationships have shown that urbanization is an important driver for the enhancement of medically controlled births of children.

Poor children and mainly girls, besides those related to poor families and households, are also missing and are hidden as they cannot usually fully access health and education. The

importance and extent of the issues related to children in the region are discussed here in relation to the new index related to the child development indicator.

The Child Development Index (CDI), produced by "Save the Children UK", is composed of three indicators covering the wellbeing of children in 88, 118 and 137 countries respectively for the periods 1990-94, 1995-99 and 2000-06.

The components included in the CDI measure deprivation in health, nutrition and schooling. Within a scale of 0-100, the lowest values signify low levels of deprivations while higher scores indicate serious levels of deficits. These components include health, nutrition and education components. The health dimension is based on the under-five mortality rate (the probability of dying between birth and five years of age, expressed as a percentage on a scale of 0 to 340 deaths per 1,000 live births). The nutrition component accounts for the percentage of children under-five, who are moderately or severely underweight. Education includes the percentage of primary school-aged children who are not enrolled in school.

The overall CDI is the simple average of the three components for each period under review and for each country. Table 6 introduces the levels of CDI for countries in the study region for the three successive periods.

For the period of 1990-94, the highest value of 50.12 is observed in Mauritania with the lowest of 8.17 for Jordan. For the period 1995-99, the highest and lowest values are Yemen and Bahrain respectively (42.03 and 5.76). The highest value for the period 2000-06 is 33.32 for Yemen, while the lowest score is for Bahrain and Tunisia (4.51 and 4.54). All these countries have had a decrease of their CDI. The means for all countries are respectively 21.87, 14.36 and 11.13, while the corresponding standard deviations are 13.70, 9.50 and 8.47. The maximal values are 50.12, 42.03 and 33.32, while the minimal are 8.01, 5.76 and 4.51.

This shows that the levels of CDI in the region are still high in comparison with developed economies, but large variability in this index characterizes the region, even though a decreasing trend is observed for each country and overall.

V. Effects of Market Constraints on "Missing Women"

Besides the above signals related to market failures and that translate into lower rates of participation of women as well as the neglect of children, there are major constraints that are market driven and that also reduce the stock of women available for development. Informal and information trafficking in women and children are market driven processes that constrain the number of women in each economy of origin. The brain drain is also induced by market and other incentives. It contributes to lowering the local skills needed for development. Many examples can be provided to show the existence of a series of trends. The following sections introduce cases of constraints that are not always contributing to higher human development.

1. The effects of Rural and Urban interconnections:

At the exception of Bahrain, Kuwait and Qatar that are mainly urban, the other countries, including Saudi Arabia, Jordan, Lebanon, United Arab Emirates and Oman, have lower but intermediate urbanization rates. The remaining countries, including Mauritania, Yemen, Libya, Tunisia, Algeria, Morocco, Egypt and Turkey, still have significant rural populations and economies. The socio-economic situation in these latter countries is exacerbated by the deficits originating from rural areas. These deficits are expressed by the limited availability of infrastructure and the difficulties of access to basic facilities. Rural emigration can be understood as the consequence of the socio-economic deficits prevailing in rural areas, but also among the causes of urban degradation and poverty.

The socio-economic degradation of rural areas, with its consequences on both rural and urban population, has been extensively discussed in a series of publications. The role of adverse macroeconomic policies has been discussed by Krueger et al. (1988) and Schiff and Valdes, (1987). Liberalization policies have not often generated major changes in the direction of biases affecting rural areas (Boussard et al., 2005; Anderson et al., 2006). Other contributions have placed emphasis on the role of agricultural market imperfections and their effects on prices and revenues (Dutta and Mishra, 2004). Such pressures on agriculture and rural areas do accelerate rural migration and intensify the level of poverty (Ravallion, 2006).

Within the above framework, South Mediterranean countries, and mainly those with significant rural areas and population, are pursuing agricultural liberalization policies with focus on larger reduction of government intervention. Rural development in this region, and in particular, North Africa, Egypt and Turkey, is the central component of any strategy that leads to improved living conditions and the well-being of these societies. The significance of agricultural reforms in these countries is not only related to the need to reduce poverty, (estimated 70% of poverty is in rural areas when those areas cover about 43% of the population) but also from the need to increase the attractiveness of rural regions.

Tunisia, Lebanon, Egypt, Turkey and Morocco are intensively engaged in policies of liberalisation and reduction of trading barriers. Some sector models have been indicating that these policies have not often been in favor of rural areas. Producers of cereals and livestock products in the region could suffer significant losses from trade liberalization (Chaherli and El-Said, 2000). This characterizes the processes of degradation of rural areas with an increase of urban poverty. Health, education and other basic needs are consequently affected and a more general situation of deprivation is observed.

The following table (table 7) is devoted to characterizing the predominance of rural versus urban living conditions and styles in the region. The first column of data is based on the estimated rate of rural migration as calculated over 1990-2006. It is the change in rural population adjusted for natural rural population growth and reported total population for each country.

The second column shows that the urbanization rate is generally between 0.3 and 0.7 for the North African region and for Syria and Turkey. Otherwise, this rate is around and above 0.8, as is the case of Kuwait, Bahrain and Qatar. The highest rates for rural migration are in Jordan, Sudan and Yemen. Mauritania and Egypt, with both relatively low rural migration and low urbanization, show the predominance of rural living conditions. North African countries express intermediate figures for both rural and urbanization rates.

2. The Aggravating Effects of disabilities

Among the important sources dealing with handicaps and disabilities in the region, there is a study by the World Bank. From this study, the data reported are based on the information provided by Metts, R.L. (2004) and used in the World Bank study. This information about the disabled population in the region is not precise and may concern 10 to 27 million people in 2002 for a total population of 250 million. Egypt and Iran seem to have the highest figures in the region (table 8).

The literature on the relationship between poverty and disability in developing countries tends to be limited but seems to clearly be stating that poverty and disability are well related in the region. Also, disability appears to be an important source that can lead to poverty. It is also clearly established that the vulnerable segments of the population are likely to be suffering more from disabilities. Children, elderly people and women, especially in poor and rural areas, are expected to suffer more from disabilities and handicaps.

Accidents, different hazards, and the prevalence of marriages contracted between close family members within the limits imposed by religion, appear to be the major sources of physical and mental disabilities and handicaps.

The causes of disability in the region are also related to the "socio-economic and demographic changes, including aging populations, work-related injuries, accidents, increases in non-communicable diseases, and stress-related mental health problems" (Nour, 2005). These disabilities are major sources for the development of distressed living conditions in different countries in the region. Different types of accidents including those on roads and those related to smoking and other practices, have led to individual and group difficulties, as the family impact can be observed quickly. It is certain that the on-going conflicts in the region are also among the sources of current observed handicaps. Studies from Yemen and Egypt indicate higher rates of disability for boys than girls (Abu-Habib, L., 1997, cited in Nour, 2005). The UNDP site indicates that the disability rate in the region varies from 0.5% to 4.4% and is higher for males than for females. However, these figures are outdated, so further monitoring of disabilities is needed.

Other studies have attempted to reveal the extent of consanguinity in the region. While this is pervasive in other places in the world, the likely implied burden of this practice is apt to be dominating among the poor households. Further investigations are needed to clarify the causal relationships between consanguineous marriage, disabilities and poverty.

The available literature shows that the extent of consanguinity in the region is not to be neglected even though sound economic, cultural and social reasons are behind it. But, these patterns are likely to affect, to some extent, the level of disability and its social and economic

consequences. As indicated in different sources* , the rate of first cousin marriage varies from the lowest, 18% and 20%, (Lebanon, Morocco and Egypt respectively) to the highest, 41% to 43%, (Saudi Arabia Libya, and Mauritania respectively). The other countries show rates that are between 20% and 34%.

Among the investigations devoted to the issues of consanguinity in the region, Alali and Bener (2004) dealt with the case of Qatar. They found that the degree of consanguinity between each female and her spouse in the studied sample was high (54%), and that the dominant type of consanguineous marriage was between first cousins (35%). Furthermore, the consanguinity rate in Qatar appeared to have increased from 42% to 54% in one generation. Another study looked at the case of Turkey (Fisiloglu, 2002). This investigation showed that consanguineous marriage was preferred, as important social and economic benefits are ensured to the family and to the group. Other studies (Donbak, 2004) have looked at the consanguinity problem in the region of Turkey. The main results are that the region is experiencing a high rate of consanguinity, about 31% on average, and that there are needs for reduction to benefit the health quality of the population.

The following table (table 9), as introduced by Schoumaker and Tabutin (2005), shows that consanguinity cannot be neglected when observing the relationships of marriages in South Mediterranean countries. The table shows that marriage between first cousins attains a

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League of Arab States, Pan-Arab Project for Child Development: Arab Mother and Child Health Surveys (Lebanon and Libya 1995, Morocco 1996/97) and Pan-Arab Project for Family Health (Syria and Tunisia 2001, Algeria Djibouti 2002, Morocco 2003/2004, and Yemen 2003); Council of Health Ministers of GCC States, Gulf Family Health Surveys (Bahrain, Oman, and United Arab Emirates 1995, Kuwait and Saudi Arabia 1996, Qatar 1998); ORC Marco, Demographic and Health Surveys (Mauritania 2001/2002, Jordan 2002, and Egypt 2003) and Palestinian Central Bureau of Statistics' special Tabulations of the 2004 Palestinian Demographic and Health Survey. H.Rashad, M.Osman, and F.Roudi-Fahimi, 2005. Marriage in the Arab World. Population Reference Bureau (PRB).

maximum of 36% in Saudi Arabia and a minimum of 15% in Turkey. The other countries have varying rates from 22% in Algeria (2002) to 35% in Egypt (1995).

Marriages between other relatives is less prevalent but still present with a maximum of 36% in Palestine (1995) and a minimum of 4% in Egypt (1995) and Iran (1995). The rates in the other countries vary between 6% in Yemen (1997) and 23% in Kuwait (1987).

In Morocco, this type of marriage also exists, as shown in Talbi, J. et al., (2007). Another study (Noujai and Lfarakh, 1999) has already shown the role played by consanguineous marriages in the determination of socio-economic characteristics of families in Morocco. Further studies are needed to show the links between types of marriages, health and eventually handicaps.

3. Migration of Medical Skilled Labor and its negative impacts on education and health

The "Medical Brain Drain" is a new panel data on physicians' emigration rates (1991-2004). This dataset is recognized by the authors as a product of the Trade Team - Development Research Group which is part of a larger effort in the group to measure the extent of the brain drain as part of the International Migration and Development Program. According to this database in 2004, the South Mediterranean countries have shown high levels of emigration of medical doctors. The main countries of destination are UK, USA, France, Canada, Germany, Belgium, Australia, Italy, Sweden, Switzerland and Austria.

The emigration rates of medical doctors in 2004 for different countries of the region are shown in the following table (table 10). The total emigration rate related to all destinations ranges from 0.1% to 12%. The lowest rates occur in Oman, Saudi Arabia and Mauritania, while the highest levels are attained by Iraq, Lebanon, Syria, Sudan and Morocco. Intermediate levels are recognized for the remaining countries with values between two and four percent.

Even though the rate in 2004 appears to be high, the trends expressed over the period 1991-2004 appear to be promising (constant or decreasing) for most of the countries in the region. The countries displaying increasing rates are Algeria, Iraq, Libya and Bahrain. All other countries have either constant or decreasing annual trends. The decreases, even if statistically significant, are still low. Lebanon, Syria, Jordan and Egypt have revealed an important reduction in their rates of emigration of physicians. The following graph introduces the country comparisons.

Table 11 confirms the 1991-2004 trends expressed by each country included in the sample. The first observation is that the decreases are low. The second observation is that these trends are obtained from net emigration rates and may also be related to other factors that are outside the willingness of these countries to retain their medical doctors.

The emigration rate needs to be viewed with the domestic availability of medical doctors. When this latter variable is measured by the number of physicians per 1,000 people for each country, large variations appear. These data show how Lebanon has been leading both annually and throughout the study period of 1991-2004 with almost 3.5 doctors per 1,000 people. It is followed by Egypt which attains a level above two doctors per 1,000 people. The other countries are largely below two doctors per 1,000 people with most of them being between one and 1.5.

The most important element in this analysis is the trend pursued by each country with regard to the domestic availability of doctors. Table 12 shows the annual trends for each country. These trends are usually statistically significant, except for Sudan and Mauritania, where both have low annual trends. Iraq is also an exception as it shows a negative annual trend. The highest rate of annual improvement is attained by Lebanon (0.16). It is followed by United Arab Emirates (0.10), Qatar (0.09), Egypt (0.08), Jordan (0.06), Kuwait (0.06), Oman

(0.05), Syria (0.05) and Bahrain (0.04). The other countries have lower and slower annual changes ranging from zero (Saudi Arabia and Libya) to 0.03 (Turkey). The remaining countries have annual rates of 0.01 (Tunisia, Mauritania and Sudan) and 0.02 (Algeria and Morocco). The estimated rate for Yemen is 0.005. Furthermore, all the countries in the sample have statistically significant intercepts that are generally high, with the exception of Yemen, Sudan and Mauritania.

From the above descriptive statistical analysis, it can be inferred that there are variations among countries in the South Mediterranean region with regard to the likely effect of medical brain drain. All these countries have significant emigration rates of physicians. In 2004, countries such as Iraq, Syria, Lebanon, Libya Jordan, Sudan, Morocco and Jordan had emigration rates of physicians higher than seven percent. At the exception of Mauritania (0.6%), Oman (0.13%) and Saudi Arabia (0.8%), the other countries in the sample have rates that are between two and four percent. However, over the period from 1991-2004, the annual trends estimated for the rate of emigration and for the number of physicians per 1,000 people, displayed different signals.

Conclusion

This study focused on the role of women and children in South Mediterranean countries. The concept and reality of missing women, as initiated and developed in previous publications, has been expanded to include the limited participation to the economies under investigation. The magnitude and extent of interdependencies of health, education and poverty show the levels of the likely gains that can be achieved with the further inclusion of women through improvements in health and education. However, the outcomes attained by these countries are such that markets have failed to provide these needs. On the other hand, markets have

generated incentives that are behind brain drain and limited supplies of human development services. This says that under lack of weak alternative mechanisms of provision, markets fail to create new conditions for women's participation and to reduce access to health and to education for both women and children. Besides the existing structural risks faced by the population, other constraints are imposed; these include the supply of adequate health care under the pressure of limited human resources. These limitations are emphasized when focusing on the role of women and children with their central economic and social contributions in different economies. Under the pressure of rural versus urban pressures, both men and women suffer relatively from higher levels of deficits in rural areas, but urbanization does not reduce the deficits when inclusion policies are absent. While handicaps originate not only from genetic concerns, the latter appear to be important and require further identification and communication with the poorer segments of the population. Further improvements are needed in relation to the inclusion of women in these economies and societies given the potential gains that each country can attain. These improvements include the roles of markets but also those of other local and global institutions.

References

Abu Habib, L. (1997). Gender and disability: women's experiences in the Middle East (Oxfam).

Anderson, K., Martin, W. and Van Der Mensbrugghe, D. (2006). Would Multilateral Trade Reform Benefit Sub-Saharan Africans. The World Bank, Policy Research working Paper Series, N° 3616.

Alali, K.A. and Bener, A. (2004). Consanguineous Marriage in a Newly Developed Country: The Qatari Population. *Journal of Biosocial Science*, 38(2), 239-246.

Atun, R. and Fisk, N.M. (2008). Market Failure and the Poverty of New Drugs in Maternal Health. Institute of Obstetrics and Gynecology Trust, registered charity number 292518.

Becker, G.S. and Tomes, N. (1976). Child Endowments and the Quantity and Quality of Children. Working paper 123, Center of Human Behavior and Social Institutions, NBER.

Beine, M., Docquier, F. and Rapoport, H. (2001). Brain Drain and Economic Growth: Theory and Evidence. *Journal of Development Economics*, 2001, 64 (1), 275-289.

Boussard, J.M., Gérard, F., Piketty, M.G. (2005). Libéraliser l'agriculture? Théorie, modèles et réalité (CIRAD).

Chaherli, N. and El-Said, M. (2000). The WTO and MENA Agriculture Economic research forum and the World Bank. The Third Mediterranean Development Forum (MDF3).

Chakraborty, D. (2006). Education, Growth, and Redistribution in the Presence of Capital Flight. Discussion papers on Entrepreneurship, Growth and Public Policy, Max Planck Institute of Economics, Group for Entrepreneurship, Growth and Public Policy.

Chen, H.J. (2006). International migration and economic growth: a source country perspective. *Journal of Population Economics*, 19(4), 725-748.

Dagenais, M., Montmarquette, C. and Viennot-Briot, N. (2001). Dropout, School Performance and Working while in School: An Econom tric Model with Heterogeneous Groups. *Scientific Series* (CIRANO-Montreal).

Das Gupta, M. (2005). Explaining Asia's Missing Women: A New Look at the Data. *Population and Development Review*, 31 (3), 529-535

Docquier, F. and Rapoport, H. (2007). The Economics of Migrants Remittances. Institute for the Study of Labor **(**IZA), Discussion Paper N°1531.

Docquier, F., Lohest, O. and Marfouk, A. (2007). Brain drain in developing regions (1990-2000), IZA, Discussion Paper.

Docquier, F. and Sekkat, K. (2006). Brain Drain, What Do We Know? Working Paper No.31, Agence française de développement.

Donbak, L. (2004). Consanguinity in Kahramanmaras city, Turkey, and its medical impact. *Saudi Medical Journal*, CABI Abstract, 25(12), 1991-1994.

Dottridge, M. (2008). Child Protection. Innocenti Working papers, 2008-05.

Driouchi, A., Baudassé, T., Boboc, C. and Zouag, N. (2007). New Economics of Brain Drain and Risk Aversion: Theory and Empirical Evidence. Laboratoire d'Economie d'Orléans**,** N° 2007-17

Dutta, I and Mishra, A. (2004). Corruption and Competition in the Presence of Inequality and Market Imperfections. Working papers 123, Center for Development Economics, Delhi School of Economics.

Elder, L.K. and Ransom, E.I. (2003). Nutrition of Women and Adolescent Girls: Why it matters. Washington, D.C., Population Reference Bureau [PRB], 2003 Jul. [14] p.

Fares, J. and Raju, D. (2007). Child Labor across the Developing World: Patterns and Correlations. The World Bank Policy Research, Working Paper 4119.

Fisiloglu, H. (2002). Consanguineous Marriage and Marital Adjustment in Turkey. *The Family Journal*, (9)2, 215-222, Middle East Technical University, Ankara.

Gang, C. and Oster, E. (2008). Hepatitis B Does Not Explain Male-Biased Sex Ratios in China. NBER Working Papers Series no. 13971; Cambridge: National Bureau of Economic Research. Retrieved from
http://www.nber.org/papers/w13971.

Glavan, B. (2007). Coordination Failures, Poverty Traps, "Big Push" Policy and Entrepreneurship: A Critical View. MPRA Paper 5757, University Library of Munich, Germany.

Klasen, S. and Wink, C. (2003). Missing Women: Revisiting The Debate, Feminist Economics. *Taylor and Francis Journals*, 9(2-3), 263-299.

Krueger, A.O., Schiff, M. and Valdes, A. (1988). Agricultural Incentives in Developing Countries: Measuring the Effects of Sectoral and Economy Wide Policies. World Bank Economic Review, 2:255-72.

Marglin, A. (2008). The Dismal Science: How thinking like an economist undermines community, *Harvard University Press*, pp. 359.

Mayer-Foulkes, D. (2003). Market Failures in Health and Education Investment for the Young. Mexico 2000, Centro de Investigacion y Docenia Economicas, Carretera México-Toluca 3655, Lomas de Santa Fé.

Metts, R.L. (2004). Background paper prepared for the disability and development research. Agenda Meeting in the World Bank.

Noujai, A. and Lfarakh, A. (1999). Enquête Nationale sur la Santé de la Mère et de l'Enfant, Ministère de la Santé, Direction de la Planification et des Ressources Financières, Service des Etudes et de l'Information Sanitaire, Royaume du Maroc.

Osmani, S. and Sen, A. (2005). The Hidden Penalties of Gender Inequality: The fetal origin of ill-health. *Journal of Economic Biology*, 1(1), 105-21.

Oster, E. (2005). Hepatitis B and the Case of the Missing Women. *Journal of Political Economy*, 13(6), 1163-1216.

Ravallion, M. (2006). Looking beyond averages in the trade and poverty debate. World Development, *Elsevier*, vol. 34(8), 1374-1392.

Razavi, S. (2006). Agrarian Change, Gender and Land Rights, in Legal Empowerment: A Way out of Poverty. *Mona Elizabeth Brother and Jon-Andreas Solberg* (eds.), Norwegian Ministry of Foreign Affairs, Issue No.1.

Schiff, M. and Valdés, A. (1992). A synthesis of the economics in developing countries. In A. Krueger, M. Schiff and A. Valdés (eds.), *The political economy of agricultural pricing policy.* John Hopkins Press for the World Bank, Baltimore, Maryland.

Sen, A. (1992). Missing women. *British Medical Journal,* 304, 587–588.

Sen, A. (2002). Rationality and Freedom. *Harvard University Press*.

Schoumaker, B. and Tabutin, D. (2005). *La démographie du monde arabe et du Moyen-Orient des années 1950 aux années 2000. Synthèse des changements et bilan statistique*. Institut National d'Etudes Démographiques, Population 2005/5-6 - 60e année, 25-26.

Talbi, J., Khadmaoui, A., Soulaymani, A. and Chafik, A. (2007). Study of Consanguinity in Moroccan population. Influence on the profile of health. *Antropo*, 15, 1-11.

UK Save the Children (2008). The Child Development Index Holding governments to account for children's wellbeing, by St John's Lane London EC1M 4AR UK.

UNDP Arab Human Development Reports (2002). Creating Opportunities for Future Generations, United Nations Development Program, Arab Fund for Economic and Social Development.

UNDP Arab Human Development Reports (2003). Building a Knowledge Society, United Nations Development Program, Arab Fund for Economic and Social Development.

UNDP Arab Human Development Reports (2004). Towards Freedom in the Arab World, United Nations Development Program, Arab Fund for Economic and Social Development, Arab Gulf Program For United Nations Development Organizations.

UNDP Arab Human Development Reports (2005). Towards the Rise of Women in the Arab World. United Nations Development Program, Arab Fund for Economic and Social Development, Arab Gulf Program for United Nations Development Organizations.

UNICEF (2008). The State of the World's Children 2008: Child survival. Editorial, Design and Publications Section.

United Nations (2007). The Millennium Development Goals Report. Retrieved from http://www.un.org/millenniumgoals/pdf/mdg2007.pdf. Accessed 18 December 2007

UNRISD (2006). Gender Equality: Striving for Justice in an Unequal World. Geneva ISBN: 92-9085-052-3.

USAID (2007). Human Capital Survey, Results Report, United States Agency for International Development.

Van Den Anker (2006). Trafficking for Forced Labour in Europe, Forced Labour. Anti-Slavery International with la Strada Czech Republic, Dublin City University, Migrant Rights Centre Ireland, APAV Portugal.

World Economic Forum (2008). World Economic Forum on the Middle East: learning from the future. Egypt, May 2008.

World Bank (2008). The road not traveled. Education reform in Middle East and Africa. MENA Development Report.

APPENDIX I: TABLES

Table 1: Overall relationships of fertility, urbanization and mortality

Regressions	**R^2**	**Observations**
BASHP= 0.16 + 0.96 URB (2.52) (7.82)	0.78	19
IMR= 1.94 + 0.44 MMR (7.31) (4.62)	0.56	19
TFR= 1.95 + 0.14 LRMD (8.27) (3.54)	0.42	19
MMR= 4.49 + 1.02 LRMD – 1.10 TFR (16.03) (35.94) (-8.53)	0.99	19
MMR= -3.90 -1.88 URBR + 0.75 IMR (-13.17) (-2.59) (2.38)	0.69	19
IMR= 2.71 + 0.35 LRMD (2.75) (2.56)	0.59	19
BASHP= 0.49 – 0.19 IMR – 0.49 TFR (2.18) (-2.06) (-2.23)	0.56	19

Definition of variables: BASHP: Births attended by skilled health personnel %; IMR: Infant mortality rate per 1,000; MMR: Maternal mortality rate 1 per 10,000; LRMD: Lifetime risk maternal death 1 in; TFR: Total fertility rate; URBR: Urbanization rate %.

Table 2: Drop Out from Primary, Poverty & Health Morocco (R^2 and number of observations as given)

$\underset{}{\text{Ln}}\left(\text{Total primary drop out, M \& F}\right) = \underset{(-2.99)}{-0.81}\left[\text{Ln}\left(\text{Average Diseases}\right)\right] + \underset{(3.97)}{0.56}\left[\text{Ln}\left(\text{Poverty rate}\right)\right]$	0.63	15
$\underset{}{\text{Ln}}\left(\text{Total primary drop out, Female}\right) = \underset{(-3.32)}{-0.92}\left[\text{Ln}\left(\text{Average Diseases}\right)\right] + \underset{(4.56)}{0.66}\left[\text{Ln}\left(\text{Poverty rate}\right)\right]$	0.69	15
$\underset{}{\text{Ln}}\left(\text{Drop out from 1st year, primary, M \& F}\right) = \underset{(2.68)}{0.48}\left[\text{Ln}\left(\text{Poverty rate}\right)\right]$	0.38	15
$\underset{}{\text{Ln}}\left(\text{Drop out from 1st year, primary, Female}\right) = \underset{(2.78)}{0.56}\left[\text{Ln}\left(\text{Poverty rate}\right)\right]$	0.45	14
$\underset{}{\text{Ln}}\left(\begin{matrix}\text{Drop out from 2nd} \\ \text{year, primary, M \& F}\end{matrix}\right) = \underset{(-2.17)}{-1.03}\left[\text{Ln}\left(\text{Average Diseases}\right)\right] + \underset{(3.02)}{0.84}\left[\text{Ln}\left(\text{Poverty rate}\right)\right]$	0.56	14
$\underset{}{\text{Ln}}\left(\text{Drop out from 2nd year, primary, Female}\right) = \underset{(3.43)}{1.04}\left[\text{Ln}\left(\text{Poverty rate}\right)\right]$	0.56	14
$\underset{}{\text{Ln}}\left(\text{Drop out from 3 rd year, primary, M \& F}\right) = \underset{(2.42)}{0.57}\left[\text{Ln}\left(\text{Poverty rate}\right)\right]$	0.45	14
$\underset{}{\text{Ln}}\left(\text{Drop out from 3 rd year, primary, Female}\right) = \underset{(3.03)}{0.60}\left[\text{Ln}\left(\text{Poverty rate}\right)\right]$	0.48	15
$\underset{}{\text{Ln}}\left(\text{Drop out from 4 th year, primary, M \& F}\right) = \underset{(-2.83)}{-0.99}\left[\text{Ln}\left(\text{Average Diseases}\right)\right]$	0.46	15
$\underset{}{\text{Ln}}\left(\begin{matrix}\text{Drop out from 4 th} \\ \text{year, primary, Female}\end{matrix}\right) = \underset{(-2.70)}{-1.12}\left[\text{Ln}\left(\text{Average Diseases}\right)\right] + \underset{(2.49)}{0.54}\left[\text{Ln}\left(\text{Poverty rate}\right)\right]$	0.48	15
$\underset{}{\text{Ln}}\left(\begin{matrix}\text{Drop out from 5 th} \\ \text{year, primary, M \& F}\end{matrix}\right) = \underset{(-3.67)}{-0.98}\left[\text{Ln}\left(\text{Average Diseases}\right)\right] + \underset{(2.52)}{0.35}\left[\text{Ln}\left(\text{Poverty rate}\right)\right]$	0.58	15
$\underset{}{\text{Ln}}\left(\begin{matrix}\text{Drop out from 5 th} \\ \text{year, primary, Female}\end{matrix}\right) = \underset{(-3.56)}{-1.03}\left[\text{Ln}\left(\text{Average Diseases}\right)\right] + \underset{(2.74)}{0.41}\left[\text{Ln}\left(\text{Poverty rate}\right)\right]$	0.58	15
$\underset{}{\text{Ln}}\left(\begin{matrix}\text{Drop out from 6 th} \\ \text{year, primary, M \& F}\end{matrix}\right) = \underset{(-2.06)}{-0.96}\left[\text{Ln}\left(\text{Average Diseases}\right)\right] + \underset{(3.80)}{0.93}\left[\text{Ln}\left(\text{Poverty rate}\right)\right]$	0.57	15
$\underset{}{\text{Ln}}\left(\begin{matrix}\text{Drop out from 6 th} \\ \text{year, primary, Female}\end{matrix}\right) = \underset{(-2.28)}{-1.07}\left[\text{Ln}\left(\text{Average Diseases}\right)\right] + \underset{(4.24)}{1.04}\left[\text{Ln}\left(\text{Poverty rate}\right)\right]$	0.62	15
Drop Out from College & Poverty		
$\underset{}{\text{Ln}}\left(\text{Drop out from college, Total, M \& F}\right) = \underset{(-2.01)}{-0.93} + \underset{(4.37)}{0.35}\left[\text{Ln}\left(\text{Poverty rate}\right)\right]$	0.60	15

$$\text{Ln}\left(\text{Drop out from college, Total, Female}\right) = \underset{(-2.41)}{-1.02} + \underset{(4.03)}{0.30}\left[\text{Ln}\left(\text{Poverty rate}\right)\right]$$ 0.57 15

$$\text{Ln}\left(\text{Drop out from 1 st year, college, M \& F}\right) = \underset{(4.53)}{0.55}\left[\text{Ln}\left(\text{Poverty rate}\right)\right]$$ 0.61 15

$$\text{Ln}\left(\text{Drop out from 1 st year, college, Female}\right) = \underset{(4.79)}{0.60}\left[\text{Ln}\left(\text{Poverty rate}\right)\right]$$ 0.64 15

$$\text{Ln}\left(\text{Drop out from 2 nd year, college, M \& F}\right) = \underset{(3.11)}{0.81}\left[\text{Ln}\left(\text{Poverty rate}\right)\right]$$ 0.45 15

$$\text{Ln}\left(\text{Drop out from 2 nd year, college, Female}\right) = \underset{(-2.36)}{-1.50} + \underset{(2.68)}{0.30}\left[\text{Ln}\left(\text{Poverty rate}\right)\right]$$ 0.37 15

$$\text{Ln}\left(\text{Drop out from 3 rd year, college, M \& F}\right) = \underset{(4.10)}{0.25}\left[\text{Ln}\left(\text{Poverty rate}\right)\right]$$ 0.59 15

$$\text{Ln}\left(\text{Drop out from 3 rd year, college, Female}\right) = \underset{(-2.30)}{-0.75} + \underset{(3.29)}{0.19}\left[\text{Ln}\left(\text{Poverty rate}\right)\right]$$ 0.50 15

Drop Out from High School & Poverty

$$\text{Ln}\left(\text{Drop out from High School, Total, M \& F}\right) = \underset{(2.61)}{0.41}\left[\text{Ln}\left(\text{Poverty rate}\right)\right]$$ 0.35 15

$$\text{Ln}\left(\text{Drop out from High School, Total, Female}\right) = \underset{(2.08)}{0.26}\left[\text{Ln}\left(\text{Poverty rate}\right)\right]$$ 0.25 15

$$\text{Ln}\left(\text{Drop out from 3 rd year of High School, M \& F}\right) = \underset{(2.05)}{0.39}\left[\text{Ln}\left(\text{Poverty rate}\right)\right]$$ 0.27 15

$$\text{Ln}\left(\text{Drop out from 3 rd year of High School, Female}\right) = \underset{(2.00)}{0.52}\left[\text{Ln}\left(\text{Poverty rate}\right)\right]$$ 0.26 15

Table 3: Interdependencies in the South Mediterranean Region (R^2 and number of observations as given)

$$\underset{}{\text{Ln}}\left(\begin{array}{l}\text{Primary school enrolment}\\ \text{ratio (2000- 06), net Male}\end{array}\right) = \underset{(12.12)}{7.19} - \underset{(-4.57)}{0.21}\left[\text{Ln}\left(\begin{array}{l}\text{Underweight}\\ \text{moderate \& severe}\end{array}\right)\right] - \underset{(-4.14)}{0.65}\left[\text{Ln}\left(\begin{array}{l}\text{Vitamin A supplement}\\ \text{at least one dose (\%)}\end{array}\right)\right] \qquad 0.62 \qquad 20$$

$$\text{Ln}\left(\begin{array}{l}\text{Prim. sch. enrolm. ratio}\\ \text{(2000- 06), net Female}\end{array}\right) = \underset{(8.51)}{6.82} - \underset{(-4.31)}{0.27}\left[\text{Ln}\left(\begin{array}{l}\text{\% under 5 (2000- 06) suffering}\\ \text{from underweight mod. \& sev.}\end{array}\right)\right] - \underset{(-2.46)}{0.53}\left[\text{Ln}\left(\begin{array}{l}\text{Vitamin A supplement}\\ \text{at least one dose (\%)}\end{array}\right)\right] \qquad 0.53 \qquad 20$$

$$\text{Ln}\left(\begin{array}{l}\text{Prim. sch. enrol. ratio}\\ \text{(2000- 06), net Male}\end{array}\right) = \underset{(32.62)}{3.97} + \underset{(7.84)}{0.34}\left[\text{Ln}\left(\begin{array}{l}\text{Vitamin A}\\ \text{supplement Full}\end{array}\right)\right] - \underset{(-3.38)}{0.10}\left[\text{Ln}\left(\begin{array}{l}\text{Underweight}\\ \text{mod. \& sev.}\end{array}\right)\right] \qquad 0.83 \qquad 20$$

$$\text{Ln}\left(\begin{array}{l}\text{Prim. sch. attendance ratio}\\ \text{(2000- 2006), net Male}\end{array}\right) = \underset{(2.16)}{0.25}\left[\text{Ln}\left(\begin{array}{l}\text{Improved Drinking-}\\ \text{water sources}\end{array}\right)\right] + \underset{(4.18)}{0.65}\left[\text{Ln}\left(\begin{array}{l}\text{Immun. vaccines}\\ \text{"BCG"}\end{array}\right)\right] \qquad 0.80 \qquad 20$$

$$\text{Ln}\left(\begin{array}{l}\text{Prim. sch. attendance ratio}\\ \text{(2000- 2006), net Male}\end{array}\right) = \underset{(2.35)}{0.33}\left[\text{Ln}\left(\begin{array}{l}\text{Improved Drinking-}\\ \text{water sources}\end{array}\right)\right] + \underset{(3.58)}{0.59}\left[\text{Ln}\left(\begin{array}{l}\text{Immun. vaccines}\\ \text{"BCG"}\end{array}\right)\right] \qquad 0.81 \qquad 20$$

$$\text{Ln}\left(\text{Infant mortality under 5}\right) = \underset{(5.40)}{19.53} - \underset{(-2.09)}{1.82}\left[\text{Ln}\left(\text{Female literacy}\right)\right] - \underset{(-2.57)}{1.90}\left[\text{Ln}\left(\text{Nb Tetanos}\right)\right] \qquad 0.59 \qquad 17$$

$$\text{Ln}\left(\text{Drop out}\right) = \underset{(3.39)}{16.72} - \underset{(-2.45)}{1.89}\left[\text{Ln}\left(\text{Health expenditures}\right)\right] - \underset{(-3.23)}{3.15}\left[\text{Ln}\left(\text{\% Health}\right)\right] \qquad 0.56 \qquad 13$$

$$\text{Ln}\left(\text{\% Enrolment secondary}\right) = \underset{(2.30)}{4.29} - \underset{(-2.51)}{0.05}\left[\text{Ln}\left(\text{Maternal mortality (100000 births)}\right)\right] \qquad 0.72 \qquad 19$$

$$\text{Ln}\left(\text{\% of children (2000- 2006) breastfed with complementary (6- 9 months)}\right) = \underset{(3.10)}{1.98} \qquad 0.37 \qquad 20$$
$$+ \underset{(2.28)}{0.46}\left[\text{Ln}\left(\text{Gov.Exp. on Education}\right)\right] + \underset{(2.67)}{0.18}\left[\text{Ln}\left(\text{Household Iodized Salt Consump.}\right)\right]$$

$$\text{Ln}\left(\text{Health Exp}\right) = \underset{(3.82)}{5.34} + \underset{(3.14)}{0.33}\left[\text{Ln}\left(\text{\% Education}\right)\right] - \underset{(-3.99)}{0.95}\left[\text{Ln}\left(\text{\% Health}\right)\right] \qquad 0.72 \qquad 14$$

Table 4: Gender Empowerment Measure

MENA Countries	1998	2004	2006	2007
Algeria	0.241	..	0.311	0.312
Bahrain	..	..	..	..
Egypt	0.258	0.262	0.262	0.263
Iran	0.261	0.326	0.326	0.347
Jordan	0.211	..	..	..
Kuwait	0.345	..	..	..
Lebanon	..	..	..	..
Libya	..	..	..	..
Morocco	0.302	..	..	0.325
Oman	..	..	..	0.391
Palestine	..	..	..	..
Qatar	..	..	..	0.374
S.Arabia	..	0.242	0.242	0.254
Syria	0.319	..	..	..
Tunisia	0.345	..	..	..
Turkey	0.281	0.289	0.289	0.298
UAE	0.247	0.353	0.353	0.652
Yemen	..	0.128	0.128	0.129

GEM, source: Human Development reports

Table 5: The Global Gender Gap

MENA Countries	2006	2007	2008
Algeria	0.6018	0.6068	0.6111
Bahrain	0.5894	0.5931	0.5927
Egypt	0.5786	0.5809	0.5832
Iran	0.5803	0.5903	0.6021
Jordan	0.6109	0.6203	0.6275
Kuwait	0.6341	0.6409	0.6358
Lebanon	..	..	..
Libya	..	..	..
Morocco	0.5827	0.5676	0.5757
Oman	..	0.5903	0.596
Palestine	..	..	..
Qatar	..	0.6041	0.5948
S.Arabia	0.5242	0.5647	0.5537
Syria	..	0.6216	0.6181
Tunisia	0.6288	0.6283	0.6295
Turkey	0.585	0.5768	0.5853
UAE	0.5919	0.6184	0.622
Yemen	0.4595	0.451	0.4664

The Global Gender Gap Index, source: World Economic Forum

Table 6: Child Development Index 1990-2006

Country	Child Development Index		
	1990–94	**1995–99**	**2000–06**
Algeria	13.55	12.63	6.57
Bahrain	..	5.76	4.51
Egypt	16.94	12.66	7.61
Iraq	11.18	17.52	..
Jordan	8.01	8.17	6.84
Kuwait	..	9.1	9.89
Lebanon	..	8.9	10.23
Mauritania	50.12	32.03	29.69
Morocco	26.35	19.62	11.01
Oman	21.44	14.25	15.7
Qatar	..	6.83	5.16
S. Arabia	..	9.1	9.89
Syria	10.73	9.66	6.4
Tunisia	..	7.7	4.54
Turkey	20.01	15.25	7.12
U.A.E.	..	12.94	9.61
Yemen	40.37	42.03	33.32

Table 7: Rural migration and urbanization rate

Country	Rural Migration	Urbanization Rate
Jordan	0.014	0.823
Libya	0.005	0.848
Lebanon	0.003	0.866
Yemen	0.006	0.273
Algeria	0.004	0.633
Tunisia	0.002	0.653
Syrian	0.004	0.506
Oman	0.004	0.715
Morocco	0.003	0.587
Turkey	0.003	0.673
Egypt	0.001	0.428
Mauritania	0.001	0.404

Table 8: Disabled Population

Disabled Population Estimates, 2002		
	Low Estimate	**High Estimate**
Algeria	1,158,100	3,098,700
Djibouti	7,000	69,300
Egypt	2,608,500	6,979,500
Iran	2,519,700	6,741,900
Iraq	725,200	1,940,400
Jordan	196,100	524,700
Lebanon	133,200	356,400
Morocco	1,113,700	2,979,900
Syria	510,600	1,366,200
Tunisia	358,900	960,300
West Bank & Gaza	125,800	336,600
Yemen	193,000	1,910,700
Total	9,649,800	27,264,600

Source: Metts R.l. (2004).

Table 9: Relationships of marriages in South Mediterranean Countries

Country	Date of the Survey	First Cousins	Other Relatives	No Link	Total
Algeria	1970	23	9	68	100
	1986	27	11	62	100
	2002	22	11	67	100
Saudi Arabia	1987	36	22	42	100
Egypt	1991	31	7	62	100
	1995	35	4	61	100
	2000	32	6	62	100
Iran	1991	25	4	71	100
Jordan	2002	26	17	57	100
Kuwait	1987	30	23	47	100
Palestine	1995	30	36	34	100
Tunisia	1995	28	12	60	100
Turkey	1993	15	8	77	100
Yemen	1997	34	6	60	100

Sources: national country reports

Table 10: Emigration rates of physicians in South Mediterranean Countries 2004

	Physicians' emigration rates in %											
COUNTRY	**Total**	**USA**	**UK**	**CAN**	**FRA**	**GER**	**BEL**	**AUS**	**ITA**	**SWE**	**SWI**	**AUT**
Algeria	0.0423	0.0011	0.0001	0.0008	0.0323	0.0004	0.0058	0	0.0005	0.0004	0.0008	0
Bahrain	0.0205	0.006	0	0.0086	0	0	0	0.0058	0	0	0	0
Egypt	0.0226	0.0123	0.0008	0.0012	0.0002	0.0008	0.0002	0.0041	0.0009	0.0003	0	0.0005
Iran	0.0633	0.0226	0.0011	0.0014	0.0007	0.0177	0.0007	0.0022	0.0013	0.0103	0.0001	0.0048
Iraq	0.1243	0.0309	0.0084	0.006	0.0007	0.011	0.0008	0.0124	0.0021	0.0292	0.0003	0.0043
Jordan	0.0662	0.0267	0.0021	0.0007	0.0003	0.0168	0.0009	0.0014	0.0146	0.0009	0.0002	0.0017
Kuwait	0.0214	0.0062	0.0003	0.0104	0	0	0	0.0021	0.0003	0.0021	0	0
Lebanon	0.0974	0.0508	0.0001	0.0093	0.0057	0.0054	0.005	0.006	0.0099	0.004	0.0004	0.0008
Libya	0.0794	0.0056	0.0073	0.0091	0	0.0171	0.0008	0.0007	0.0291	0.0013	0.0001	0.0011
Mauritania	0.0058	0	0	0	0	0	0.0033	0	0	0.0025	0	0
Morocco	0.0702	0.0023	0	0.0006	0.0159	0.0043	0.0439	0.0003	0.0016	0.0008	0.0004	0.0002
Oman	0.0013	0.0003	0	0	0	0	0	0.001	0	0	0	0
Qatar	0.0282	0	0	0	0	0	0.0282	0	0	0	0	0
Saudi Arabia	0.0077	0.0012	0.0001	0.0049	0	0.0007	0	0.0002	0.0002	0	0	0.0004
Sudan	0.0971	0.024	0.0141	0.002	0.0005	0.0104	0.0002	0.0077	0.0012	0.0024	0.0002	0.0011
Syria	0.1048	0.0543	0.002	0.0021	0.0076	0.0182	0.0015	0.0019	0.0098	0.0039	0.0001	0.0032
Tunisia	0.0453	0.0019	0.0001	0	0.0065	0.0029	0.021	0	0.0109	0.0011	0.0004	0.0003
Turkey	0.0231	0.0051	0.0002	0.0004	0.0001	0.0092	0.0046	0.0007	0.0003	0.0007	0.0003	0.0012
United Arab Emirates	0.0449	0.0012	0.0002	0.0426	0	0	0	0.0004	0	0.0005	0	0
Yemen	0.0194	0.0014	0.0012	0.0005	0	0.0108	0	0.0026	0.0006	0	0.0002	0.0019

Table 11: Annual trends of emigration rates of physicians

Country	R^2	Intercept	t-stat Intercept	Coeff	t-stat coeff	Observations
Algeria	0.84	0.005	1.860	0.003	8.000	14
Bahrain	0.78	0.008	7.550	0.001	6.590	14
Egypt	0.61	0.033	16.720	-0.001	-4.330	14
Iraq	0.96	0.060	24.960	0.005	17.140	14
Jordan	0.88	0.088	46.880	-0.002	-9.240	14
Kuwait	0.29	0.035	5.600	-0.002	-2.230	14
Lebanon	0.86	0.160	27.210	-0.007	-8.410	14
Libya	0.90	0.050	29.560	0.002	10.370	14
Mauritania	0.39	0.008	12.050	0.000	-2.770	14
Morocco	0.55	0.110	12.410	-0.005	-3.850	14
Oman	0.09	0.002	6.150	0.000	1.200	14
Qatar	0.66	0.053	17.870	-0.002	-4.870	14
Saudi A.	0.34	0.010	12.370	-0.002	-2.470	14
Sudan	0.06	0.094	22.240	-0.001	-0.860	14
Syria	0.64	0.125	29.280	-0.003	-4.630	14
Tunisia	0.17	0.047	35.590	0.000	-1.580	14
Turkey	0.30	0.032	12.810	-0.001	-2.260	14
Emirates	0.71	0.084	13.230	-0.005	-5.390	14
Yemen	0.28	0.025	10.280	-0.001	-2.190	14

Table 12: Country annual trends in number of physicians per 1,000 people

	R squared	Intercept	t-stat constant	Coefficient	t-stat coefficient	Observations
Algeria	0.70	0.84	40.12	0.02	5.31	14
Bahrain	0.58	1.04	13.57	0.04	4.11	14
Egypt	0.71	1.32	12.59	0.08	5.49	14
Iraq	0.79	0.61	86.72	-0.01	-6.80	14
Jordan	0.93	1.38	37.86	0.06	12.60	14
Kuwait	0.35	1.01	5.31	0.06	2.56	14
Lebanon	0.95	1.37	16.97	0.16	15.43	14
Libya	0.02	1.31	49.78	0.00	-0.51	14
Mauritania	0.63	0.08	7.12	0.01	4.51	14
Morocco	0.77	0.24	8.89	0.02	6.40	14
Oman	0.68	0.85	12.27	0.05	5.01	14
Qatar	0.72	1.06	8.84	0.09	5.53	14
Saudi A.	0.00	1.43	33.50	0.00	0.12	14
Sudan	0.77	0.08	11.84	0.01	6.40	14
Syria	0.87	0.87	21.58	0.05	9.09	14
Tunisia	0.35	0.62	23.29	0.01	2.54	14
Turkey	0.48	0.94	14.18	0.03	3.36	14
Emirates	0.87	0.94	10.36	0.10	8.84	14
Yemen	0.33	0.17	10.76	0.005	2.45	14

Appendix II: data used in regression (table1)

Country	Maternal mortality ratio (per 100, 000) [Lower estimate-upper estimate]	Lifetime risk of maternal death. (1 in)	Total fertility rate	Births attended by skilled health personnel (%)	Infant mortality rate (per 1,000)	Urbanization (%)
	MMR	LRMD	FR	BASHP	IMR	URB
Algeria	0.140	0.005	2.500	0.920	3.500	0.633
Bahrain	0.028	0.001	2.500	0.990	0.900	0.965
Egypt	0.084	0.003	3.300	0.694	2.600	0.428
Iran	0.076	0.003	2.100	0.896	3.200	0.669
Iraq	0.250	0.015	4.800	0.721	10.200	0.669
Jordan	0.041	0.002	3.500	0.995	2.300	0.823
Kuwait	0.005	0.000	2.400	1.000	1.000	0.983
Lebanon	0.150	0.004	2.300	0.930	2.700	0.866
Libya	0.097	0.004	3.000	0.944	1.800	0.848
Mauritania	1.000	0.071	5.800	0.569	7.800	0.404
Morocco	0.220	0.008	2.800	0.626	3.800	0.587
Oman	0.087	0.006	3.800	0.947	1.000	0.715
Qatar	0.007	0.000	3.000	1.000	1.000	0.954
Saudi	0.023	0.002	4.100	0.930	2.200	0.810
Syria	0.160	0.008	3.500	0.700	1.500	0.506
Tunisia	0.120	0.003	2.000	0.898	2.100	0.653
Turkey	0.070	0.002	2.500	0.830	2.800	0.673
Emirates	0.054	0.002	2.500	1.000	0.700	0.767
Yemen	0.570	0.053	6.200	0.216	8.200	0.273