# Human Development in the Middle East Region: Past and Future

## Paper for "Transforming Economic Development: Policies and Strategies" conference organized by AERC on November 22-24, 2016


## *Farrukh Iqbal, Director, Institute of Business Administration*


**Introduction**

In an article on child mortality in developing countries published in 1986, a noted social scientist, J.C. Caldwell, found that all eleven of the worst performing countries by his calculations had majority Muslim populations and eight of them were from the Middle East region. He explained this finding as follows: "The central aspect of the relationship between Islam and mortality levels is undoubtedly the separate and distinctive position of women operating partly through their access to education but also in many other ways…evidenced...not only in the low levels of female schooling, but also in low levels of family planning and in limited access to employment outside the household."

In my talk today I will dwell upon some aspects of the portrait of development in the Middle East region that is conveyed by the quotation I have just read out to you. Caldwell's description was not unique three or four decades ago. Many external observers, as well as some from within the Middle East, described the achievements and prospects of development in the region in similar terms, invoking as explanatory mechanisms one or the other facet of the Islamic religion or Muslim culture. Econometric studies usually found a variable called "Proportion Muslim" to be statistically significant in an adverse direction more often than not!

I am going to talk today about a sub-domain of development in the Middle East, the sub-domain that deals with human development. By human development I mean the improvement in the capacity of individuals to lead a fulfilling life. This is, of course, a very elastic concept so I shall define it somewhat narrowly in order to pin it down. In my narrow definition, I shall link the concept of human development to the health and education of individuals. Of course, there is more to human development than health and education but it helps to agree that health and education are important elements of whatever larger set of attributes it is that properly defines this concept. I will also assume that human development occurs when the health and education of individuals improve. For convenience and consistency, the specific empirical concepts on which I will focus in my talk are the child mortality rate and the years of education completed, measured at the country level.

These measures are also of interest because child mortality and education were among the eight major goals adopted as Millennium Development Goals by the international development community for the period 1990-2015. Considerable effort and resources were devoted to defining the measures and collecting data on them. As a result, we have decent data with which to work and from which to learn.

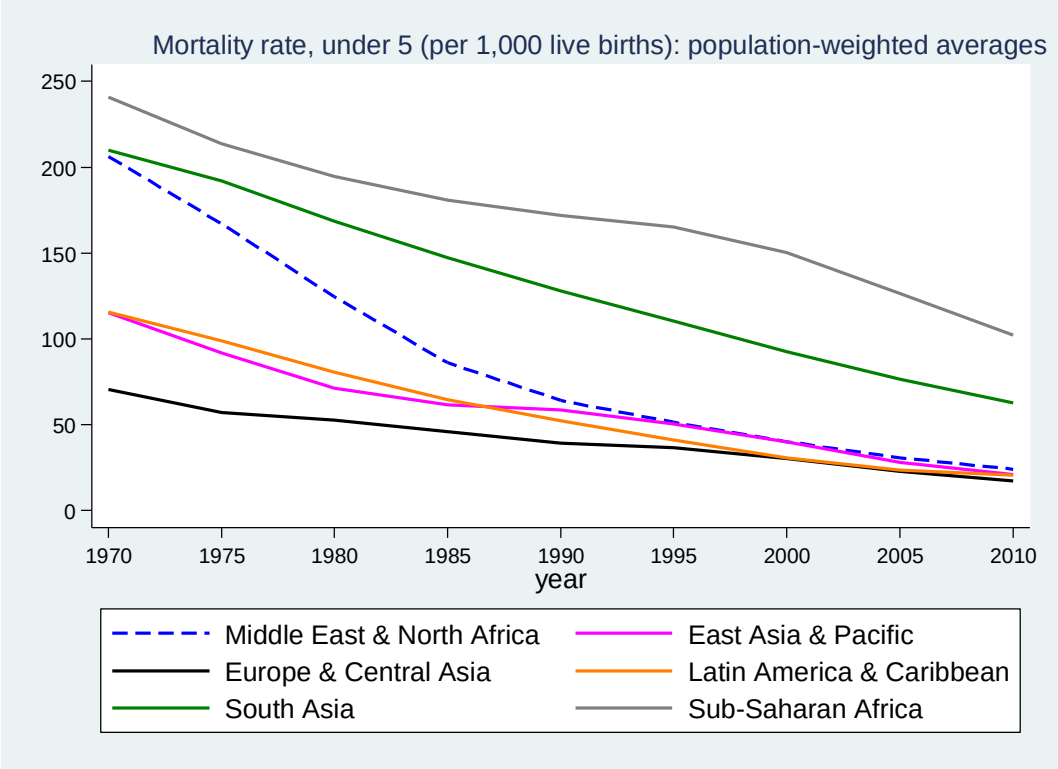
I will begin by looking at the data on progress in child mortality and education. Was Caldwell right? Have the countries of the Middle East done poorly with regard to child mortality? And further, what has been the region's record with respect to education in general and female education in particular?

### A. Comparative performance of Middle East in reducing child mortality and increasing education

Let us look at the experience over a period of 40 years (1970-2010) with child mortality rates. The specific measure I consider is the mortality rate of children under 5 per 1000 live births.

The following chart shows what happened to child mortality rates in 6 developing country global regions:

***Figure 1: Evolution of child mortality across developing country regions, 1970-2010***



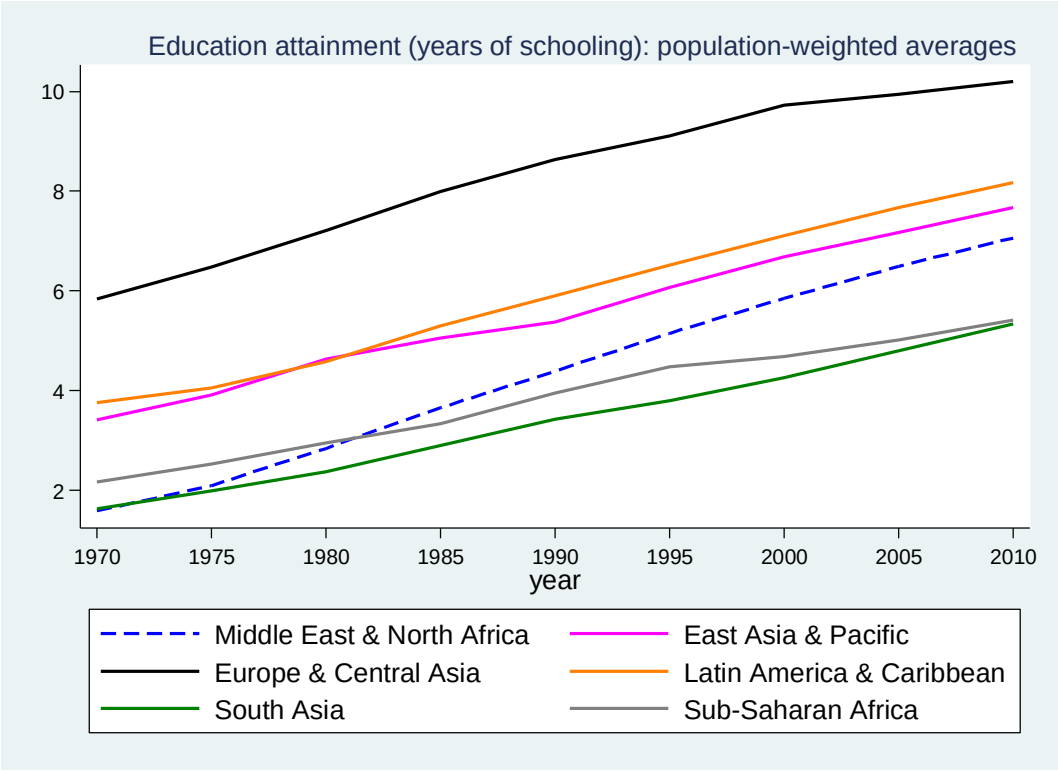

The dashed line represents the population-weighted average of MENA countries. It is clear that MENA was clustered with the high mortality rate regions of SA and SSA in 1970 (average rates above 200). But it broke away from this cluster and had joined the relatively lower rate region of EAP by the mid-1990s and LAC and CA by 2010 (average rates under 50). In doing so, it reduced child mortality at the fastest rate among all developing country regions over the full period.

Now let us look at education attainment. The measure refers to number of years of education completed per person above the age of 15 and has been published and updated for the last thirty years or so by Professors Robert Barro of Harvard University and Jong-Wha Lee of Korea University.

The education chart reveals a pattern similar to the child mortality chart. The MENA region started off with the low education cluster of SA and SSA in 1970. In fact, it was even worse off than SSA in 1970. Then it broke away from this group during the decade of the 1970s and began to approach the high

education cluster of LAC and EAP by 2010. In doing so, it grew at the fastest rate among all developing country regions in the world over the 40 year long period from 1970 to 2010.

***Figure 2: Evolution of education attainment across developing country regions, 1970-2010***

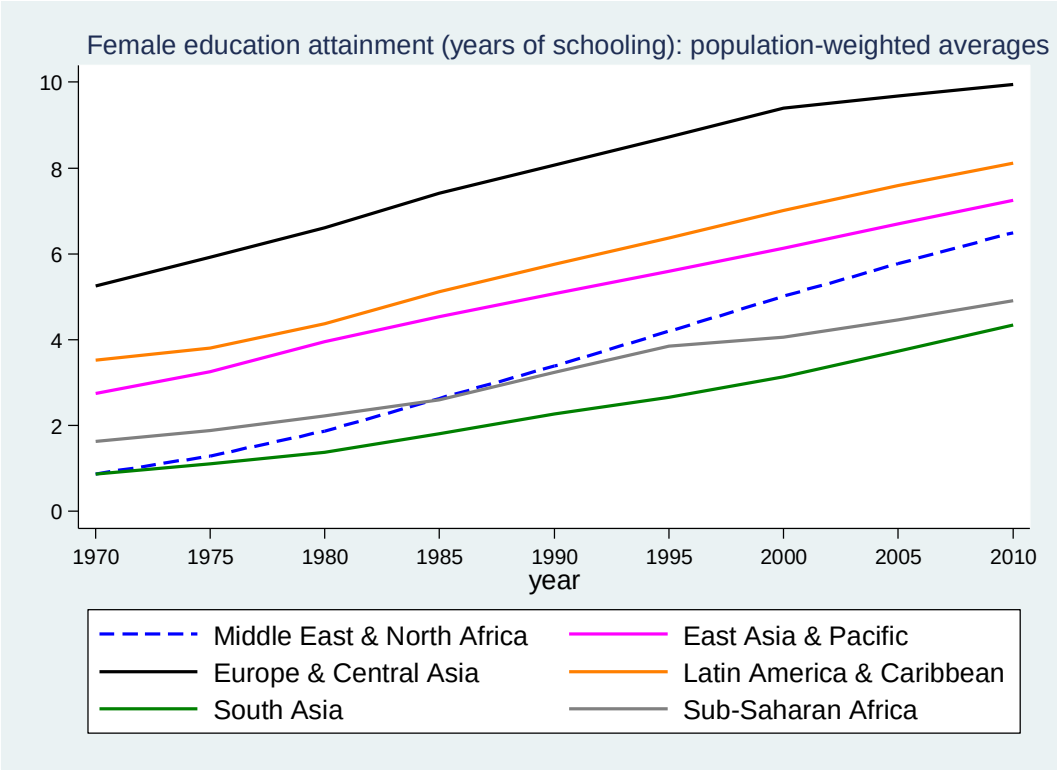



Similar patterns exist for other measures of human development such as life expectancy and secondary school enrolment rates. And they hold even when the data are disaggregated by gender. I will show you one more chart, this one relating to female education attainment, because this was often a key element in the thinking that lay behind the low expectations held by many regarding the region.

Once again, while MENA had among the lowest levels of female education attainment in 1970, its performance in the next forty years was the best in the developing world!

This finding is of special interest in view of the common view that Arab and Muslim cultures had a particular problem with female education. It is true that the MENA region had a low rate of female education in 1970 but it has since then improved at the fastest pace among developing regions.

***Figure 3: Evolution of female education attainment across developing country regions, 1970-2010***



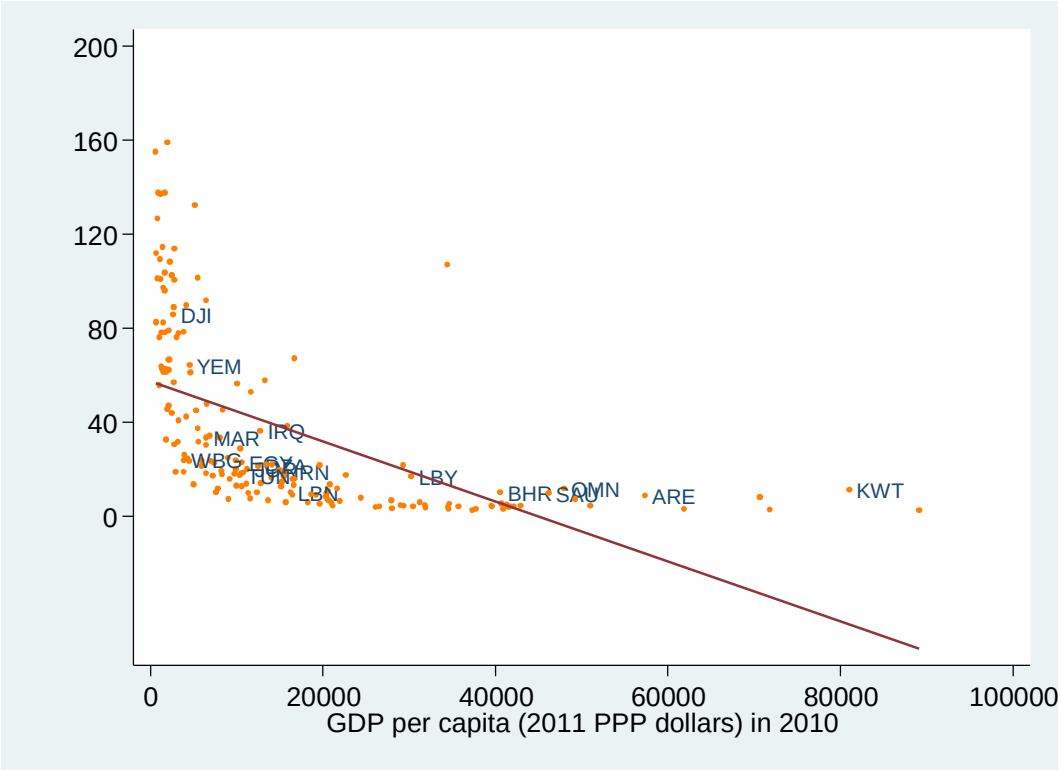

**B. Why was this stellar performance not seen and acknowledged earlier?**

One reason why the stellar performance of the region was not seen and acknowledged earlier was the focus on levels rather than changes. Let me illustrate this point with reference to the Caldwell paper that I have mentioned earlier. Caldwell compared the rankings of 99 developing countries in terms of child mortality levels with their rankings in terms of their per capita income. His assumption was that the higher the income level the lower should be the child mortality rate. He found several countries whose child mortality ranks were much worse than their income ranks. The eleven worst were all Muslim majority countries, including eight from the Middle East.

Caldwell's data pertained to the year 1982. If you do the same type of comparison today, you find results similar to Caldwell's. Take a look at the following chart that shows a scatter plot with the 2010 level of child mortality on one axis and the 2010 level of per capita income on the other.

More than half of the MENA (10 out of 16) countries are found to be at or to fall below the bivariate regression line that shows the best linear fit between the two plotted variables. This suggests that the majority of MENA countries did not have a level of child mortality in 2010 that was commensurate with the level of their per capita income.

***Figure 4: GDP per capita (2011 PPP dollars) in 2010 and level of child mortality in 2010***




But the *level* of child mortality is not the concept we should use if we wish to measure progress over time. Nor is this the right concept if we wish to measure the impact of policy or investment efforts over time. To measure progress, we should use the *change* in the child mortality rate. This is the same as comparing growth rates as a measure of performance rather than per capita income levels.

We do this in the next chart, replacing the level of child mortality in 2010 with the percentage change in child mortality over the period 1970-2010.

The results are dramatically different. Now only 3 out of 16 MENA countries fall below the regression line; for the remaining 13, the actual change in their child mortality rates between 1970 and 2010 exceeded what would have been predicted for them from their per capita income levels.

***Figure 5: GDP per capita (2011 PPP dollars) in 2010 and change in child mortality over 1970-2010***


We can run the same exercise for education attainment, to make sure that what we have found is not confined to the case of child mortality. The next chart shows the results of regressing 2010 per capita incomes with 2010 levels of education attainment.

As was the case with child mortality, when we use levels of education attainment, MENA countries appear to be underperforming. Most of them are below the regression line.

***Figure 6: GDP per capita (2011 PPP dollars) in 2010 and level of education attainment in 2010***


But now consider what happens when we look at changes in education attainment or the growth over 40 years in the number of years of education completed. Almost all MENA countries are now above the line. The actual percentage change in the number of years exceeds what would have been predicted for them based on their current per capita incomes.

The tendency to compare levels rather than changes over time is, I believe, one of the main reasons why the good performance of the MENA region in the domain of human development has been routinely overlooked.

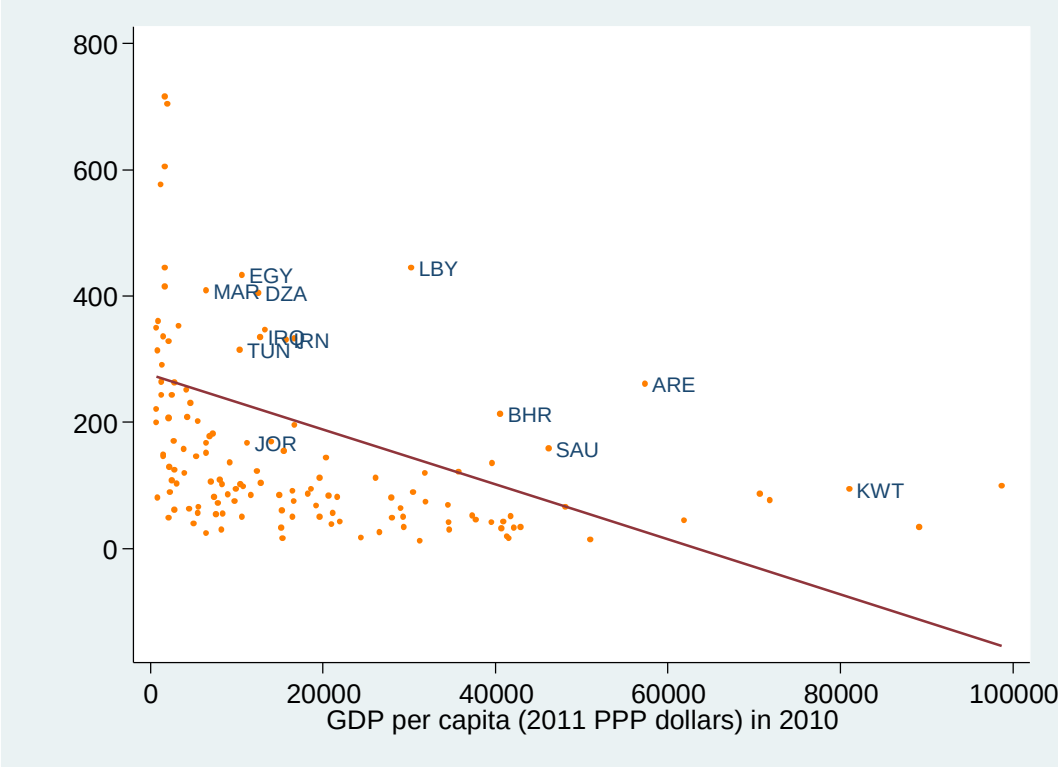
Let me offer a more recent example of this tendency. I googled "Child Mortality and Muslim Countries" a week before coming here. The very first item on the list that came up was headlined: ***High mortality and malnutrition affects Muslim children the most***. This turned out to be a news release (dated 21 September 2005) from the UN News Centre reporting on a report issued by UNICEF. The first line of the story announced the following: "Islamic States account for the world's highest child mortality rates where 60 percent of children who die from disease and malnutrition never make it to their first birthday." Later on in the story it is also noted that "Primacy school attendance is also very low in OIC countries."

http://www.un.org/apps/news/story.asp?NewsID=15924

The information provided in the story is accurate but it is reporting on levels and therefore tends to give a misleading impression about progress over time and policy efforts over time. The casual reader may

form a very misleading impression of progress if he or she is mostly exposed to these sorts of news releases.[1]

***Figure 7: GDP per capita (2011 PPP dollars) in 2010 and (log) change in education attainment over 1970-2010***



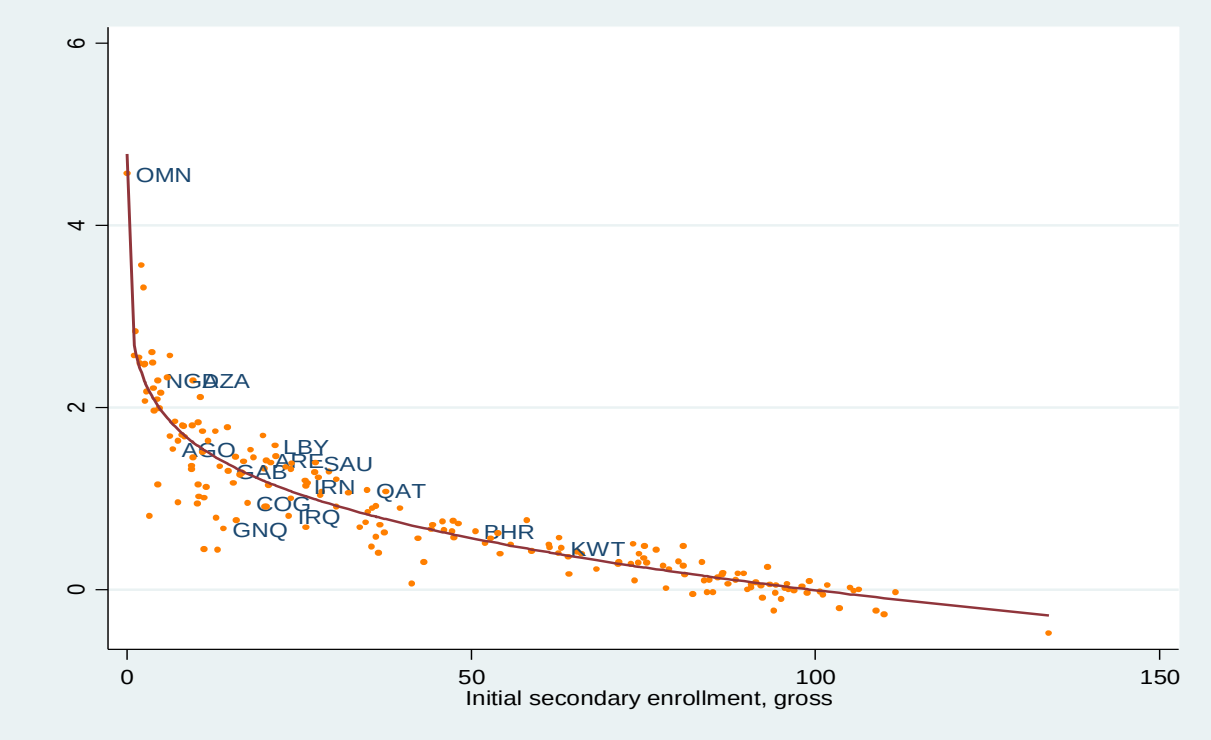

### C. What accounts for the region's good performance?

Now that we know that the Middle East region did rather well in improving child mortality and education attainment, let us consider some of the reasons for its good performance. Links between outcomes and inputs or policies can be assessed through econometric analysis. We have conducted some work along these lines and have the following main conclusions:

First, we find the strongest effect to have come from a convergence process. It may be easiest to appreciate this through the following chart which shows the link between initial education status in 2010 and the rate of change in education attainment over the next forty years.

[1] A second reference on the same Google page was to an article in the Eastern Mediterranean Health Journal entitled "Health disparities between Muslim and non-Muslim countries." Relying on a comparison at a single point in time, this 2011 study finds infant mortality rates to be twice as high in Muslim majority countries than in non-Muslim majority countries. Studies and reports like this that focus on stocks or levels are unable to discern the progress that has been made over time and so provide a misleading picture of the link between culture and outcomes.

**Figure 8: Change in gross secondary school enrolment rates relative to initial levels**




The picture shows very clearly that countries with the worst education status in 1970 tend to improve the most or the fastest in subsequent years, all other things being equal. This is what I am referring to as convergence and we find it to operate not only for education but also for health indicators such as the child mortality rate. As initial conditions get better and better, the rate of progress gets slower and slower. This is implied by the hyperbolic shape of the graph.

Why does this sort of convergence happen? Consider, for example, a country with close to 100% enrolment. In this case, most of the children who are unenrolled are likely to be the difficult cases who may be living in remote locations or constrained by individual health or disability problems or influenced by family-specific beliefs or culture. Meanwhile, at the opposite extreme of very low enrolment rates, small investments in school buildings and teachers may elicit large gains in enrolment from the relatively large population with unmet educational demand.

A similar "economies of scale" case can be made for child mortality improvements. One would expect that, all other things being equal, the application of public and private resources should have a bigger impact in countries that had high rates of child mortality to begin with since the resources would be applied to larger pools of potentially treatable cases. Roughly speaking, the same fixed cost (reflected in medical facilities and personnel) can be used to tackle a larger number of cases in high initial mortality environments than in low mortality environments.

Note that convergence has been observed in the growth rate behavior of countries as well. Countries with low initial incomes tend to grow much faster than countries with high incomes. On average,

developing countries grow much faster than high income countries and so global incomes per capita have been converging.

Because MENA had relatively poor initial conditions in health and education indicators in 1970, it benefitted from the convergence process and was able to improve very fast relative to some other regions. It may help to review the first chart again in this regard.

But Africa and South Asia also started from very low education levels and high child mortality rates. Why did they not improve at the same pace or better? This is where the role of other factors comes in. Two other variables that turn out to be statistically important for improvement in health and education indicators are public spending and caloric sufficiency. And in both of these the Middle East did much better than Africa and South Asia.

Take public spending on education for example. We find that the higher the public spending on education per capita the faster the improvement in education levels. This is found in other studies as well though the relevant dependent variable they have used is level of education attainment. The Middle East region spends a lot on education. The average level of public spending per capita per year between 1980 and 2010 was $252 (in 2005 PPP dollars). This is the highest among developing country regions. By comparison, Africa spent only $37 per capita per year and South Asia spent only $8.4 per capita per year. No wonder that these regions were unable to capitalize on the convergence mechanism. They did not choose to or were unable to find the resources to spend on schools, teachers and related education facilities.

**Table: Cross-regional differences in significant determinants of education attainment**

| Regions | Initial education stock in 1970 | Public spending per capita per year | Undernourishment (%) |
|---|---|---|---|
| Middle East and North Africa | 2.1 | 252.3 | 7.0 |
| East Asia and Pacific | 3.9 | 74.8 | 15.6 |
| Europe and Central Asia | 6.0 | 197.4 | 7.8 |
| Latin America and Caribbean | 4.4 | 219.6 | 11.8 |
| South Asia | 2.4 | 8.4 | 21.9 |
| Sub-Saharan Africa | 1.9 | 37.3 | 27.5 |

Finally, let us consider another factor that econometric analysis reveals as important: food or caloric sufficiency. We use a measure supplied by the WHO that shows the proportion of the population whose food intake is insufficient to meet minimum dietary energy requirements continuously. In our econometric analysis, this is a robust significant determinant of the change in child mortality and increase in education attainment across countries. Caloric sufficiency is also an area where the Middle East has been much better off than other developing regions. For example, only 7% of the population in the Middle East is recorded as food or calorie insufficient (on average during 1990-2010). This compares with 21.9 percent insufficient in South Asia and 27.5 percent in Africa.

Why has the Middle East been better off in this regard? One possibility might be that most countries in this region have for long operated universal food subsidy programs. These have been fiscally costly and inefficiently targeted but they have provided a basic minimum level of calories to the population.

Now I am personally somewhat ambivalent about this finding. The reason is that while food subsides may have allowed the region to enable its citizens to obtain a minimum level of calories, it is harder to demonstrate that these were good calories, calories that promoted good child nutrition. This is because the food subsidies often applied to bread, rice, oil and sugar. More research is likely needed on this point.

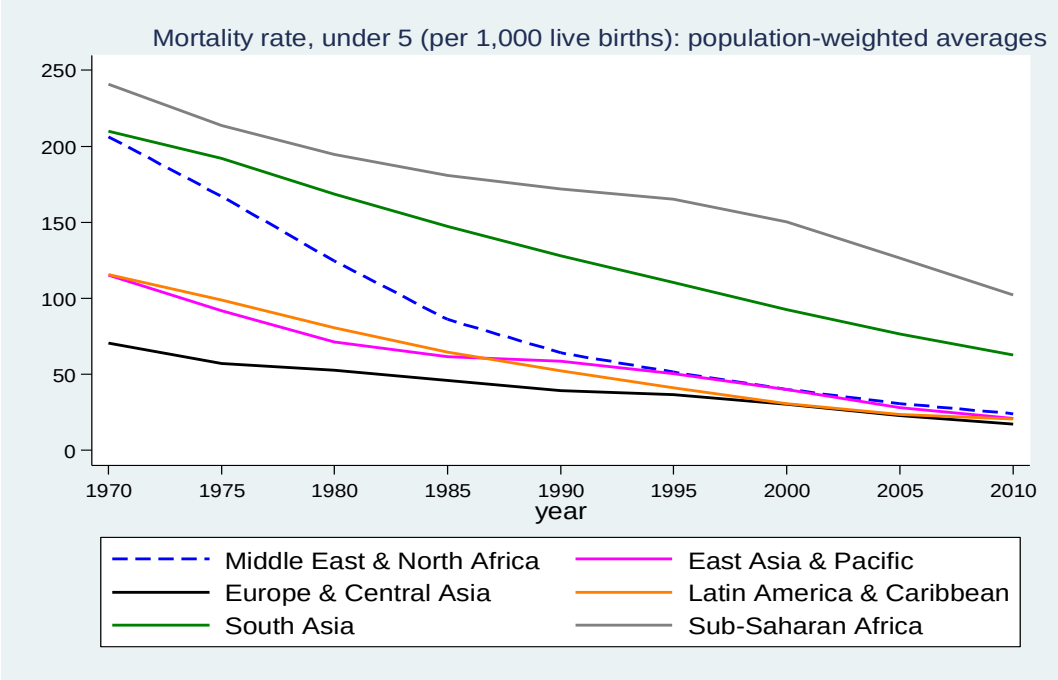
I also do not wish to leave the impression that with these three variables we have exhausted the causative factors. There may have been other factors that we are unable to measure; or whose effect we are unable to isolate econometrically; this must be left to future research and, as some professor has undoubtedly said somewhere, that is why God created graduate students.

D. **How important will these factors be in the future?**

Let me bring this talk to a conclusion by speculating on the future of health and education improvement in the Middle East region.

Let me start with the three factors I have just highlighted as having been important to the story in the past: convergence, calories and public spending.

***Figure 9: Evolution of child mortality across developing country regions, 1970-2010***

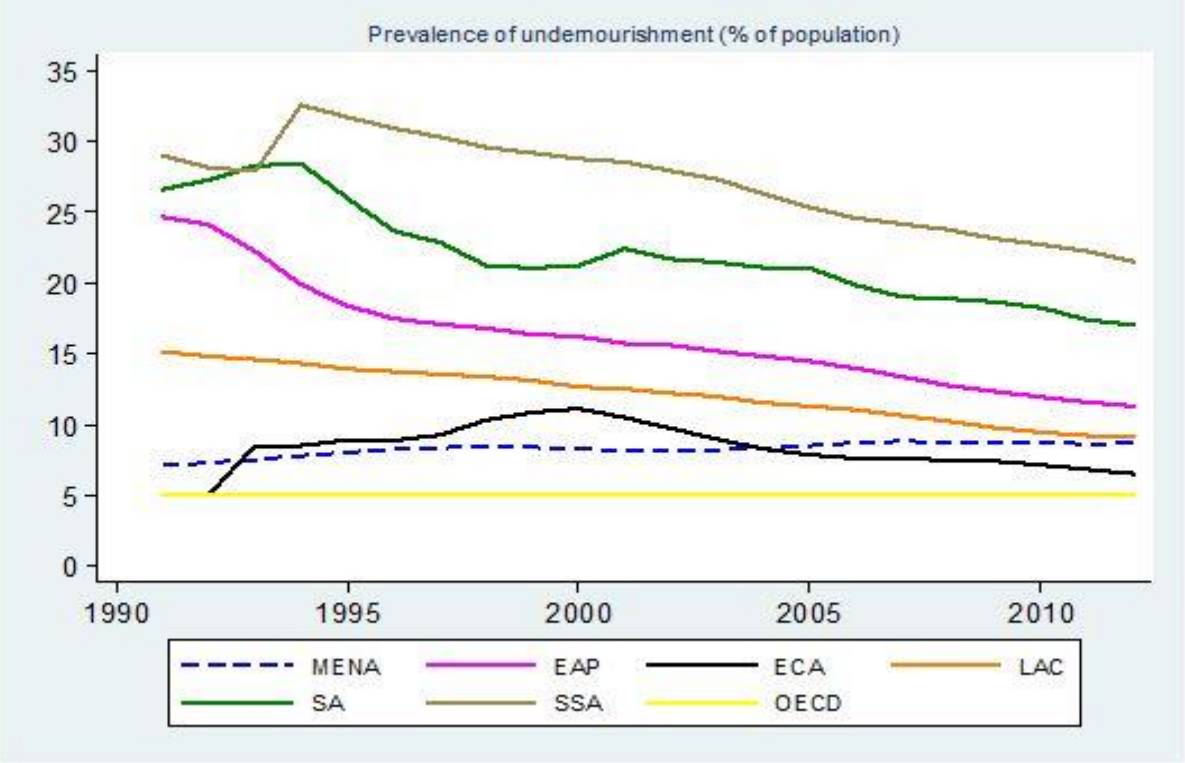



I believe the benefits of convergence have been substantially achieved already and much less should be expected from this source in the future, especially in the case of child mortality. To appreciate this, take a look again at the chart showing the evolution of child mortality rates in the past. The Middle East region had substantially converged with the Latin America, East Asia and Europe/Central Asia regions by 2010 and should not expect much more by way of a boost from this source in the future.

In the case of education, some convergence has taken place already but there is room for even more in the future. Still, the relative role of convergence for the Middle East will likely be less important in the future than it has been in the past.

Now let us take a look at what has been happening with regard to caloric sufficiency. The following chart may be useful here.

**Figure 10: Trends in undernourishment among regions (1990-2014)**




The chart shows that the Middle East region has been at a low level of undernourishment for about 25 years now. This suggests that it is unlikely that the calorie indicator will show substantial improvements in the future. So we should not expect this to be a significant determinant of future trends in child mortality and education.

Note also that the trend has been deteriorating somewhat in the past 25 years. A disaggregation of the data by country reveals that this deterioration of the regional average is due entirely to deteriorating trends in three countries: Iraq, Yemen and Palestine. Each of these is a special case as you well know. And now there will very likely be a deterioration as well in Syria.

Public spending will continue to be important but in education it must focus on quality now; show poor results for quality versus spending; and in health it must focus on factors that will reduce the incidence of lifestyle diseases (spend more on prevention; public education about diet and exercise)

I do not propose to go into this in detail today but it is important to bring in issues of quality when we talk about the future of health and education in the region. In the past, as I hope I have shown today, the region has done very well with respect to the quantity of health and education as measured by such indicators as child or infant mortality levels and school enrolment levels or years of education completed.

But the region has not done so well in terms of the quality of health and education. With regard to health, while the incidence of communicable diseases has fallen a lot, the incidence of non-communicable lifestyle diseases such as hypertension and diabetes has risen a lot. Urbanization, dietary changes and the increase in sedentary lifestyles has quickly led to an increase in rates of obesity, heart disease and diabetes. People are living longer but not necessarily a lot better as new diseases have begun to take hold.

With regard to education, while more and more youth are completing secondary school and going on to tertiary levels as well, there are deep concerns about the quality of learning that is being imparted and the mismatch with what is required in the workforce. International tests of education quality (such as the TIMSS) routinely find MENA countries clustered in the bottom half of world rankings. Not enough MENA countries have conducted such tests over a long enough period of time for us to say anything definitive about trends in the quality of education but the average level is disappointing.

Many observers have commented on the poor quality of education in MENA. The most influential opinion on this has probably been that of the UN, which drew attention to the quality problem as far back as 2002 when it issued the first Arab Human Development Report.

Public spending will have to focus on these concerns in the future.

Now let me take up one final issue and that is the role of private spending. In econometric work, income levels or income growth can be used as a proxy for private spending. In my own work, income growth does show up as a statistically significant determinant of health and education improvements, though it is less important than the other factors I have already spoken about.

Moreover, the Middle East region did not stand out in the past with regard to its per capita income growth performance. It has been in the middle of the pack, with regions such as East Asia and South Asia having done much better. But this could change in the future if countries in the Middle East region undertake structural reforms to provide more room for private sector led growth. Just because a factor has not been critical for the region in the past does not mean it could not be important in the future.

This brings me to the end of my talk. My conclusion is that while the region has done very well in the past, the future is likely to be very different. The objectives of human development in the future should emphasize health and education quality considerations much more. And the drivers of improvement in these areas will likely be different as well.

For human development in the Middle East, the past should not be thought of as prologue!