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# The Impact of Socio-Economic Factors on Human Capital Investments A comparative study of the MENA Region

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**Abstract**

The MENA region needs to diversify and move towards building knowledge-based economies so that their participation in the human capital of the world can be improved. At present, despite an above average allocation of public spending on the education sector, the returns in terms of jobs and educational quality are not seen. Several challenges like unemployment, poor quality of education, lack of private sector jobs, inability to leverage on technology for increasing the scope of education, war and immigrant crises, and centralized control over education are acting as barriers in the improvement of efficiency of educational systems and hence, the human capital. This paper provides an overview of the current status of key indicators in the region regarding the subject and examines possible relationships between the proxies. This study aims at examining critically how education systems have contributed to downturn in socioeconomic development in the MENA region. It also suggestsa framework based on possible solutions that can allow the region to finally realize the returns on its investments in the education sector. The dependent variable of this study was Human Quality Investment in MENA region while the explanatory variables were; use of technology in learning, centralized control, regional threat, common language, information technology in education, unemployment rate and quality of education.

**Keywords:** MENA, Human Capital, Higher Education, Structural changes, EdTech, Human Capital Index.

## Introduction

Education has always been a vital sector for the MENA region to enable themaintenance of their independence, preserve their national identity, and ensure the well-being of their population. However, despite an increased investment in education, the region is yet to enjoy socio-economic benefits to improve the quality of its human capital(Assaad et al., 2018; Psacharopoulos & Patrinos, 2018). An unstable economic situation, downturn in the global oil market and ongoing threats to peace following the Arab Springs, have all contributed to set demands to develop human capital in order to face these challenges(Kaphahn & Brennan, 2017). The current outlook is that the potential of youth needs to be realized to make the region globally competitive and enable it to participate in the landscape of fast-changing global markets(Ismail et al., 2018).

The MENA region still faces several constraints in maintaining the balance between tradition and modernity, credentials and skills,discipline and control. As the governments have been the major employers within the countries historically, the acquisitionofdiplomas and higher number of years of studies could most of the time prevail over gaining necessary skills. Behavioral patterns and ideological polarization among the society members haveshaped the delivery of public goods like education which are provided free of cost to the general public by the state.These factors have caused lack of translation of investment in education into a real impact on human capital.

In 2018, nine countries in MENA benefited from the Human Capital Project at the World Bank(Kraay, 2018). Tunisia was the first country in the MENA region to seek funding for higher education back in 1960's in order to buildits education system. In terms of modernizing the school programs, the initiatives are very frequently questionedby the traditionalists who associate the changes with setting up Western models. Earlier start for children in the modern educational set-up is also frowned upon.

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Taking enough time to design the project thoroughly and evaluation of the project implementation and management capacities can reinforce the accountability of universities. However, this issue always needs to be considered in the scope of renewing school programs and adjusting them withthe contemporary labor market needs.

In comparison, high performing education systems around the world —such as those in Japan, Korea, and Singapore—are good examples of strong education pacts across stakeholders. These countries have adopted a unified vision for education and have consistently and coherently instituted reforms to achieve human capital–driven economic growth(Wong, 2017). Building ties with the industries and their associations in these countries can also reap rich dividends. The Saudi-Japanese Automotive High Institute (SJAHI) was established in 2003 with the aim oftraining auto technicians(Alasmari, 2012). Its success did not take long to show, as the Japanese Automobile Manufacturers' Association supported the graduates to get on-the-jobtraining and facilitated their recruitment with member companies after graduation.

One of the challenges of the education system in MENA is to create a competitive system which can promote aculture of excellence, flexibility, and creativity in the learning processes. The system should further have the potential to forwardthe national vision and lead to the country's development as a whole. The society will stand responsible for creating such a framework that boosts human capital.

**Problem Statement**

Despite the efforts by MENA countries governments to modernize the education system so as to suit the emerging technological evolution and needs in the job market, traditionalists who associate these changes to westernization have been so adamant in adopting them. These reforms aimed at improving service delivery and increasing productivity level which in turn boost the GDP of these countries. This study aims at examining critically how education systems have contributed to downturn in socioeconomic development in the MENA region. Though there is plenty of research on the topics of socio-economic factors which impact various elements of development, there is a dearth of information regarding the subject available from the MENA region. Particularly, there exists little research on the subject of Human Capital Investments and how socio-economic factors may be correlated to it. The findings of this paper will be impactful in that they provide insight on the mentioned matter and give suggestions to policy makers on appropriate measures to improve the situation.

**Human Capital Index in MENA**

In 2018, the World Bank released a Human Capital Index as a measurement of economic success(The World Bank, 2018). The HCI is defined as the expected human capital for a child born in 2017 by the time, he or she reaches the age of 18. As a measure, HCI considers the prevailing health and education scenario in the host country with a belief that it will impact the child's productivity and opportunities. The main aim was to make governments more responsible for investing in health and education. Lange et al. (2018)have reported that an assessment of the HCI for 147 countries shows that theMENA region offers the least share of human capital's contribution to the world's combined wealth. As the World Bank takes its next action steps to accelerate the support for the countries investing in human capital based on the HCI, this is a concerning scenario.

For the education criteria, the HCI takes into account the expected enrollment years of education fora child till the age of 18 and the unified test scores from major international test programs. The HCI calculates the Index for each country as a percentage point of a maximum value of 1. Israel is the only country which stands ahead of this ranking demonstrating a remarkable success in the field of education (SOURCE). It is included among the top 20 countries in the HCI whereas, in the North African states, gender gap and unemployment level among the graduates remains worryingly high, preventing the positive trend of utilizing human capital potential for the future.

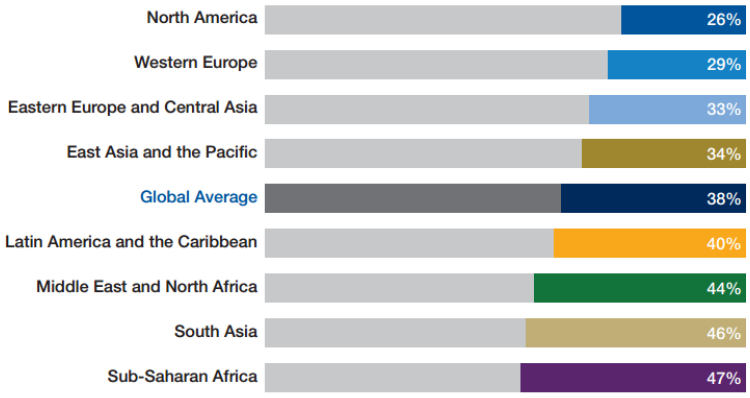


Figure 1: Gap in Human Capital Development according to region
Source: (World Economic Forum, 2017a, p. 7)

According to the Global Human Capital Report of 2017, MENA countries can be distinguished into three main groups according tothe education level oftheir society and the human capital development index(World Economic Forum, 2017a). These countries are grouped based on the final value achieved on a scorecard measuring their capacity, deployment, development, and know-how in education.

1. Gulf states, comprising of the United Arab Emirates (0.649), Bahrain (0.632) and Qatar (0.626)
2. Saudi Arabia (0.584) andKuwait (0.628),
3. North African states Algeria (0.629), Tunisia (0.651), Morocco (0.598), Egypt (0.608), andYemen(0.516).

What we can conclude from the above ranking is that the GDP and income level of the country does not always translate into a better performance. For example, Egypt, where the income level is not veryhigh, is making progress in terms of know-hows and a diversified labor market. However, its staff training and education quality has reduced its overall score. On the contrary, Kuwait, with a several times higher GDP than Egypt, has a poor performance in developing its human capital making it score nearer to Egypt. This shows that only considering economic conditions can mask several other development criteria and show an incomplete picture with the quality of human capital being one of the decisive factors.

Kuwait University is the country's only public higher educational institution.Recently, it has faced a high demand in applications due to an increase in populationforcing it to make its admission process stricter. Alternatively, Kuwait government has also initiated reforms making more room for private HEIs since the year 2000(The Oxford Business Group, 2017). The private system has started to appeal to the students only by 2006 when it began offering a wide range of scholarship for enrollment.

To sum up, the establishment of efficient and flexible educational institutions can stimulate creativity and spur high performance.Each MENA state has its own strengths and weaknesses, as well as,its experience, which can all contribute to the boost of its human capital.

**Stakeholders of Education**

The opinion about who are the beneficiaries and the policy makers in education remains conflicted.Some proponents suggestthat the society benefits by having higher-educated individuals(Tilak, 2008; Wolbers et al., 2001), which is why it needs to invest in each and every single individual,and hence, raise the overall skills and knowledge base of the human capital(Kilpi-Jakonen et al., 2014). Better educated countries are able to contribute more to knowledge generation, make the move towards building a knowledge economy, find better flexibility in the supply of labor, can increase the overall literacy of their populace, build a higher status of living with better aesthetics and a richer cultural presence, and participate fully in the political process (Chevaillier & Eicher, 2002).

The other view supports the argument that education should be a service available to all citizens and those who wish to attain higher educational levels should be able to find opportunities and realize their aspirations (Levinson, 1999; Tomasevski, 2003). Theyshould also be able to get back the yield for the years they have invested in learning. As a result of population growth and higher involvement rates in HEIs in MENA, as well as, inSouthern Asia countries, some governments have been forced to create more favorable conditionsto facilitate the entry of private universities and colleges.

The premise behind the privatization of education was that the cream of the society which form the upper third of the wealth of the nation should be paying for education so that the low-income families can be protected against being overburdened with higher state and national taxes to pay for their education (Harris, 1964).

Families and individuals invest in education in the hopes of benefiting from betterwork opportunities in the labor market, but in MENA (except the oil producer countries) such returnsfrom the labor market are among the lowest in the world(Patrinos, 2016).Some of the achievements over the last fiftyyears have beenthe significant investments in the sphere of Education reaching 4.5% of their national income on an average and a greater degree of gender parity(Dandan & Marques, 2017; Psacharopoulos & Patrinos, 2018). It is pertinent to mention here thatthe lower and middle income countries allocate, on an average, 4.5% of their GDP and 15.2% of their total public spending to education, as seen in figure 2 (Galal & Kanaan, 2010). However, the developed world average spending on education is between 6 to 8% of GDP. It should be noted that the education gained at schools and universities does not always convert into real benefits for the personal, social, and economic progress. This gap needs due attention to identify the barriers that prevent the returns from education from reaching the beneficiaries.

Moreover, discrimination is evident and exists based on age, gender, disability and the class of the learner. Globally, it is estimated that the rate of girls drop out to boys is 131.7 to 131.3 million respectively (Hattar- Pollara, 2019).
Gender discrimination in most cases affect female both within and outside the education system. Within the school system, inequalities existing includes the school curriculum, learning materials, teaching methodology, assessment and monitoring procedure which do not favor girl child. The second barrier is the poverty level in the MENA region which poses a challenge in having full completion of education level. This factor acts as a hindrance in three ways; the education cost which is increasingly becoming expensive. The cost of paying the institution and ancillary fees cannot be raised by many. Child labor is the second factor and it deprives children of the rights to education. Most of the poor families involve their children in such activities as they seek to earn extra income for survival. Lastly, economic migration which separates children from going to school as families seek to find better economic conditions elsewhere. Thirdly is the lack of proper infrastructure in this region. The lack of sufficient capacity in schools, lack of electricity and internet connectivity in the learning facility possess a challenge in accommodating many learners in school. Another barrier is the lack of adequate resources in developing and delivering quality education needed in the job market. Lack of enough human capital in the education sector such as teachers and support staffs has impacted on the quality of education. This has led to quack graduates who do not meet the required standards in the market.

Pertinent questions arise like how did the region whose educational excellence over five centuries drove innovation in science and social development and the region that became a catalyst for the European Renaissance and scientific revolution become one of the worst performers in educational outcomes today? (Overbye, 2001). So, how can the societies in MENA emerge from this situation and make a breakthrough in education and science again. The answer lies in developing their human capital.

Kuwait has recently introduced an Integrated Education Reform Program, which completely transforms the curricula and grading system(Crystal, 2016). Its main focus is targeted at the students, in building their learning capabilities, and delivering applied knowledge.Though Kuwait has always prioritized education; it had the biggest education budget in Arab countries in 1960 and its constitution guaranteed education as a right, it still ranks 85$^{th}$ globally for higher education and even lower for its quality (Murad & Al Awadhi, 2018), Moreover, there is a clear preference among bright students to leave for universities abroad for their higher education leading to brain drain (The Oxford Business Group, 2017).

In Figure 2 below, Egypt, Syria, Lebanon, Tunisia and Morocco and the low-income countries, public spending on education as a percentage of GDP is 4.0, 4.0, 4.9, 3.1, 7.4, 5.9 and 4.5 respectively. According to these figures, Tunisia and Morocco spend the highest percentage of their GDP in boosting the education sector in their countries. This translates to very good education system that match the emerging needs in the market which in turn improve their production and economic growth. Also, public spending as percentage on education show that Morocco and Tunisia lead with 27.2% and 23.4% respectively. Unlike many other countries, the cost of education in these countries is slightly lower compared to the other countries in figure 2 since the government spends quite a higher percentage of public resources on education. As a result of this, quality education s realized by most of its citizens and thus increasing technological know-how which increases production, economic growth and GDP.

On gender parity index, Tunisia, Lebanon and Jordan lead with 1.44%, 1.17% and 1.13% respectively. Since majority of these MENA countries are Islamic nations, there is a huge gender parity in terms of education of a girl child. Unlike many Western countries where education is for both genders, MENA countries still battles with the discrimination of the girl child in favor of the boy child. This vice is attributed to cultural beliefs and religion.

| Indicator | Egypt | Jordan | Syria | Lebanon | Tunisia | Morocco | Lower-Middle Income |
|---|---|---|---|---|---|---|---|
| Public spending on education as (%) of GDP | 4.0 | 4.0 | 4.9 | 3.1 | 7.4 | 5.9 | 4.5 |
| Public spending on education as (%) of public spending | 12.0 | 10.8 | 16.7 | 8.8 | 23.4 | 27.2 | 15.2 |
| Public spending on higher education as (%) of GDP | 1.0 | 0.77 | 1.04 | 0.5 | 2.04 | 0.99 | 1.0 |
| Private spending on higher education as (%) of GDP | 0.5 | 3.0 | - | 3.0 | - | - | - |
| Public spending on higher education as (%) of public spending | 2.9 | 1.96 | 3.57 | 1.5 | 6.45 | 4.3 | - |
| Public spending on higher education as % of public spending on education | 28.0 | 18.2 | 21.34 | 17.5 | 28 | 16.77 | - |
| Expenditure per student in higher education as (%) of per- capita GDP | 23.4 | 98.2 | 53 | 84 | 55.8 | 89.7 | 55.7 |
| Gender Parity Index | 0.67 | 1.13 | 0.98 | 1.17 | 1.44 | 0.87 | - |
| Current expenditure as a % of total spending on higher education | 78 | 88 | 85 | 99.6 | 75 | 92.2 | - |
| Private returns to higher education (%) | 8.0 | 10.4 | 4.5 | 3.5 (private) 7.0 (public) | 10.1(M) 10.5 (F) | 9.0 | - |
| Unemployment rates among university graduates (%) | 26.8 | 15 | 27 | 11.1 | 19 | 20.8 | - |
| Share of private enrollment in tertiary education as % of total enrollments | 16.5 | 24.7 | 3.4 | 49.3 | 1.1 | 5.1 | - |
| GDP per capita (PPP $), 2004 | 4088.7 | 5120 | 3604.6 | 5422.4 | 7872.5 | 4397.2 | - |

Figure 2: Main indicators for Higher Education Finance

Source:(Galal & Kanaan, 2010, p. 4)

On the current expenditure as a percentage of the total spending on higher education, Lebanon, Morocco, Jordan and Syria leads by 99.6%, 92.2%, 88% and 85%respectively. These figures show that education is very expensive in these nations and one needs to dig deeper in to their pockets to acquire education which would have otherwise be a free service to all citizens. This creates a huge gap between the haves and the have nots since the poor population will not be able to acquire education. Due to this disparity, the economic status and the GDP will not be likely to improve since majority of the citizens will lack employment due to illiteracy. However, unemployment of university graduates is very high in Syria, Egypt and Morocco with 27%, 26.8% and 20.8% respectively. Due to government spending on education in these countries, it translates to high influx of graduates in the job markets. To correct this anomaly, governments need to boost both private and public industrial sector so as to create enough job opportunities to match the amounts of graduates who complete their studies yearly.

**Research Significance**

Research Objectives

1. To discuss the effects of modernization of education system in the MENA region
2. To determine if there are any relationships between socio-economic factors and Human Capital Investment indicators
3. To provide recommendations to remedy the situation

**Implications Inmena Region**

**Unemployment**

The youth in MENA havea better access to education in comparison to their parents, however, the acquisition of higher education does not open new opportunities, especially for fresh graduates. Educational attainment and income mobility are strongly correlated in most other regions and within the world's high-income countries, but not in MENA(Narayan et al., 2018). So, the unemployment rate is still rather high among students who have invested and acquired higher education(Brixi et al., 2015; Narayan et al., 2018).

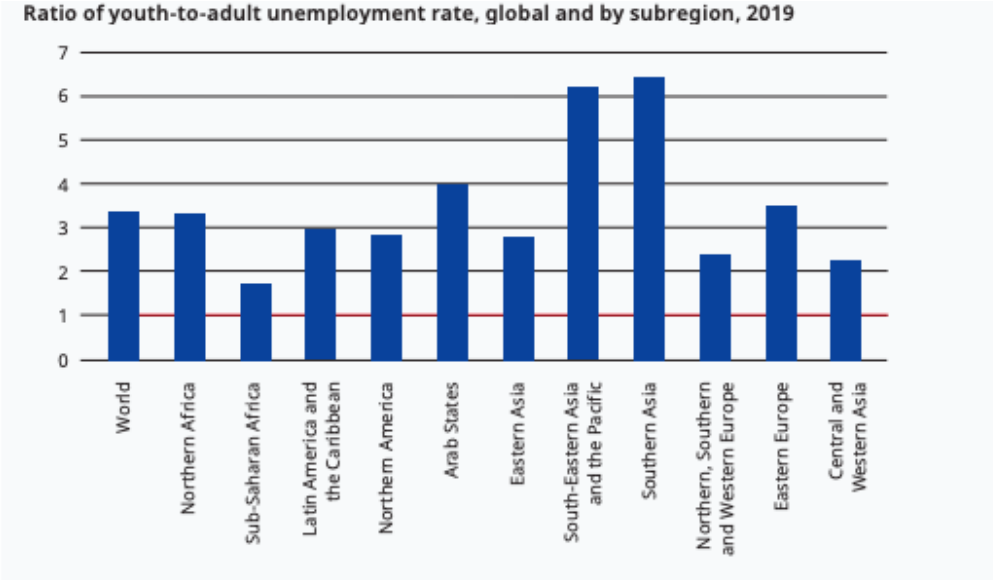


Figure 3: Rate of unemployment among the youth compared to adults globally
Source:.(International Labour Organization, 2020, p. 35)

**Quality of Education**

The poor quality of education in MENA is measured as being equivalent to approximately three lost years of education (The World Bank Group, 2019). As the world education shifts to teaching problem solving and critical thinking, students in MENA are more likely to be asked to memorize text and remain obedient in classrooms.

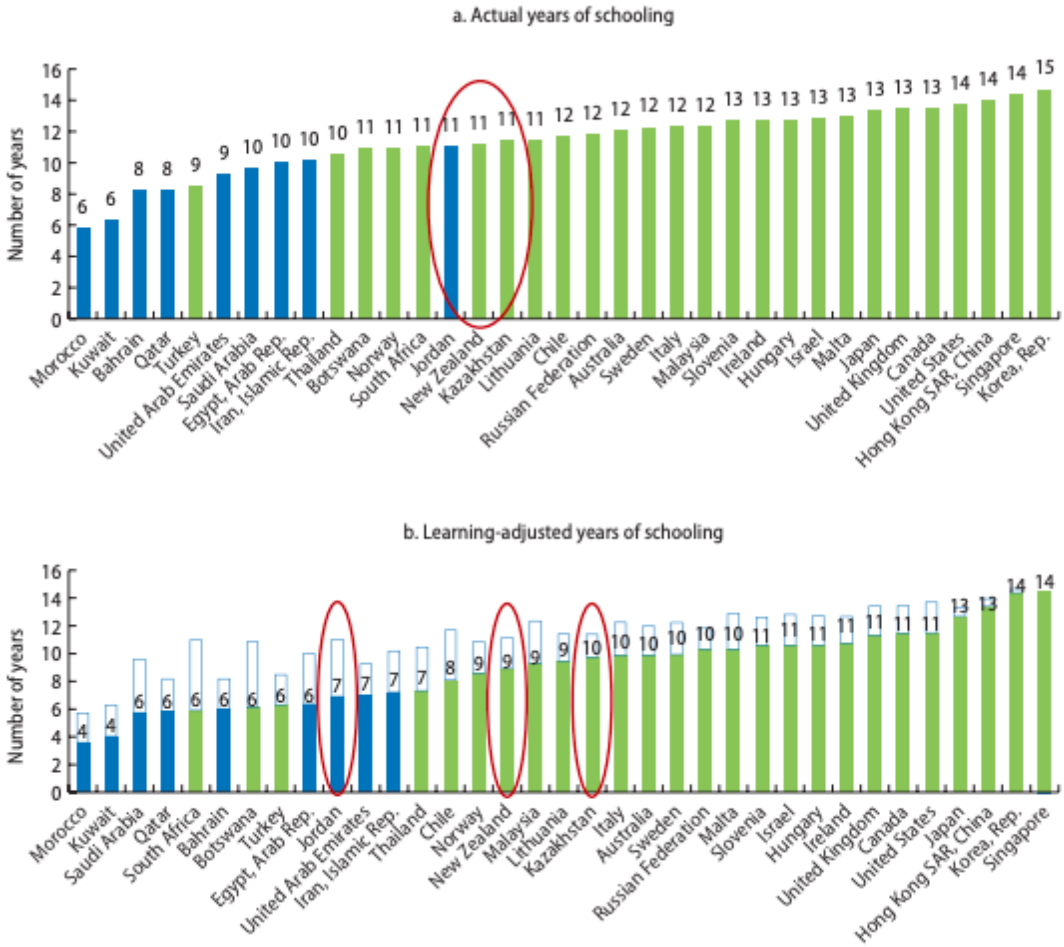


Figure 4: Drop in years of schooling in MENA when adjusted for learning
Source: (The World Bank Group, 2019, p. 14)

According to theProgram for International Student Achievement (PISA) assessment, an average eighth grade student in Algeria, Jordan, Lebanon, Qatar, Tunisia, and the UAE is 2 to 4 years behind the school program in applied sciences, reading and Mathematics compared to an OECD country (PISA, 2016). One of the reasons behind this is the high level of discipline aimed at memorization which leadsto apassive performance from thestudents. Encourage students to conduct enquiry and active reflection on classroom teaching could, in turn, stimulate critical thinking and help in acquiring life skills.

**EdTech**

EdTech is the fusion of Information and Communication Technology (ICT)with the education processes which increases its reach and convenience(Weller, 2018). The current technological advances are continuously increasing the quality of EdTech and today it is possible for a person to be sitting anywhere across the world with a smartphone and an internet connection and watch lectures by eminent tutors on most subjects. From 107 mobile subscriptions per 100 persons in 2016 to almost 100 million active social media users in 2017, mobile and internet usage in the MENA countries is on an upswing(Radcliffe & Lam, 2018).

EdTech is leveraged adequately only when the teachers also possess the necessary expertise to use the advancements of the technology in the classroom settings(Burns, 2011). The blend of ICT with the curriculum, digital textbooks, and even mobile apps, make the learning processes more entertaining and motivating.

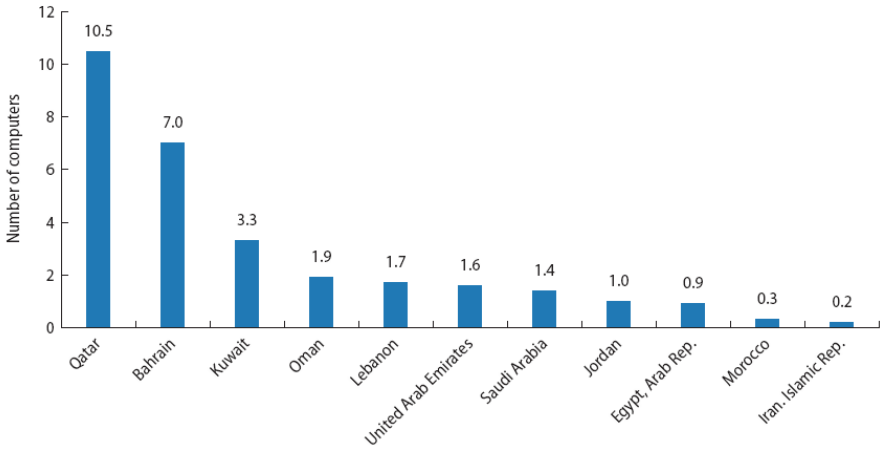


Figure 7: Availability of computers in MENA states
Source: (The World Bank Group, 2019, p. 35)

The adoption of these e-learning technologies has improved education coverage since it is cheap and can be accessed by students all over the globe. Even in warzones and countries faced with political instabilities where attending a physical class may be a challenge, the students can easily acquire education through online platforms which in turn makes them competitive in the job market as well.MENA countries is faced with a lot of challenges that has affected full realization of educational benefits to individuals, beneficiaries and industrial sector. The high unemployment rate of graduates who have invested a lot in education poses a challenge in MENA regions. The governments in these regions have not put up enough measures in ensuring that the youths graduatingare absorbed in the job market immediately after their graduation. The low quality of education offered in these regions is also a big hindrance to the youths since the education system does expose students to critical thinking and problem-solving skills as required in the job market. With this in place, many failed to be employed. There is also need for government to involve the private sector in learning facilities to help impart the necessary skills needed. Lastly, with the rising need of technological usage in the world, MENA countries need to promote the use of digital gadgets in learning facilities. Kuwait government undertook education reforms in 2017. These reforms focused on raising the qualification of teachers, increasing tertiary enrolment rates and addressing the overall education standards(Winokur, 2014).

**Methodology**

Data for this study were selected from the MENA region countries on human capital that was collected by World Bank(SOURCE). The dependent variable of this study was Human Quality Investment in MENA region while the explanatory variables were; use of technology in learning, centralized control, regional threat, common language, information technology in education, unemployment rate and quality of education.Descriptive method of statistics was used to determine how the explanatory variables affect human investment capital.

In order to determine the effects of modernization of education system and how quality of education affects economic growth and GDP in the MENA countries, ARDL method that was proposed by Pesaran et. al., was used. Also, Augmented Dickey-Fuller test (ADF) which caters for the stationarity test was used. Ordinary least squares estimation method was used to predict ARDL model with bounded test which uses conditional unrestricted error correction model for determining the relationship between variables. The ARDL model is of the form:

$$Y_t = Yoi + \sum_{i=0}^{p} \delta Y_{t-1} + \sum_{i=0}^{p} \beta X_{t-1} + \in_{it};$$

Where $Y_t$ is the dependent variable, $X_t$ represent the predictor variables and $\delta$ and $\beta$ are the regression coefficients associated with the independent variables while $\in_{it}$ are the error terms. According to Pesaran et. al., ARDL bound test is an appropriate tool when the nature of data is very small and when data stationarity is not stated. However, Unit Root Test is also used together with ARDL to determine the stationarity of data since the outcome is unpredictable. To accomplish this, Augmented Dickey-Fuller test and Phillips Perron (PP) tests are utilized to ensure that the predictor variables are not integrated as this may violate the assumptions of ARDL.

## IV. Data Findings

Table 1:Results for ARDL Model

**Table 1.** Descriptive Statistics.

| Variable | Statistics | Mexico | Kuwait | Tunisia | Jordan |
|---|---|---|---|---|---|
| GDP | *M* | 8,934.13 | 2,771.06 | 1,838.04 | 9,978.42 |
| | Maximum | 9,946.16 | 4,130.66 | 2,563.09 | 14,933.27 |
| | Minimum | 7,522.22 | 1,968.13 | 1,242.74 | 6,889.82 |
| | *SD* | 623.03 | 670.07 | 523.93 | 2,420.93 |
| | Obs. | 25 | 25 | 25 | 25 |
| Unemployment | *M* | 0.45 | 0.59 | 0.33 | 0.38 |
| | Maximum | 0.48 | 0.75 | 0.55 | 0.42 |
| | Minimum | 0.41 | 0.49 | 0.21 | 0.33 |
| | *SD* | 0.02 | 0.07 | 0.11 | 0.02 |
| Gender Parity | Obs. | 22 | 22 | 22 | 22 |
| | *M* | 83.74 | 104 | 57.60 | 46.46 |
| | Maximum | 103 | 144 | 94.52 | 60.27 |
| | Minimum | 65.77 | 64.53 | 32.04 | 34.58 |
| | *SD* | 11.36 | 24.37 | 19.37 | 7.79 |
| | Obs. | 25 | 25 | 25 | 25 |
| Quality of education | *M* | 1,523.31 | 759.94 | 731.80 | 1,288.36 |
| | Maximum | 1,659.52 | 883.91 | 798.30 | 1,656.80 |
| | Minimum | 1,401.23 | 611.71 | 680.71 | 976.49 |
| | *SD* | 69.07 | 82.14 | 34.49 | 204.75 |
| | Obs. | 23 | 22 | 22 | 23 |

*Note.* GDP = gross domestic product;

According to human capital investment (HCI 2020) update in MENA countries, there exists a gap between human capital and labor market outcomes. The utilization of human capital caters for the fact that when today's child becomes a future worker, he/ she may not be able to find a job and even if he/she can, it might not be a job where he/she can fully use their skills and cognitive abilities in better employment that boost their productivity and enhance economic growth. The proportion of the working-age population who are employed, has declined by at least one-third in MENA regions from 0.57 to 0.32. on gender parity, Low female labor force participation rates in MENA countries are a key factor for the region's low economic empowerment index for the girl child. However, MENA region needs to continue strengthening and building its human capital investment even during this pandemic period. MENA countries' human capital outcomes vary significantly, depending on their income levels and vulnerability to fragility and conflict. The Gulf Cooperation Council's wealthier states have higher Human Capita Index (HCI) values (between 0.56 and 0.67), while conflict-affected states like Yemen (0.37) and Iraq (0.41) lag behind. According to these findings some nations, such as Morocco, Oman, and the United Arab Emirates, have strengthened their HCI values over the years, while others, such as Jordan, Kuwait, and Tunisia, have stayed the same. In general, MENA countries do worse on the Human Capital Index than countries in other regions with comparable income levels.

Table 2:Results for Unit Root Test

Unit Root Test.

| Variable | Test | | Mexico | Kuwait | Tunisia | Jordan |
|---|---|---|---|---|---|---|
| GDP | ADF | Level | −1.18 | 0.50 | −0.45 | 0.58 |
| | | First difference | −5.33* | −3.60** | −3.72** | −5.01* |
| | PP | Level | −0.98 | 0.50 | −0.50 | 0.58 |
| | | First difference | −5.48* | −3.56** | −3.72** | −4.99* |
| Gender | ADF | Level | −0.77 | −2.49 | −1.11 | −0.44 |
| | | First difference | −5.63* | −4.82* | −3.63** | −4.13** |
| | PP | Level | −0.77 | −2.36 | −1.39 | −0.44 |
| | | First difference | −5.63* | −4.86* | −3.63** | −4.13** |
| Unemployment | ADF | Level | −1.73 | −2.05 | −0.99 | −1.78 |
| | | First difference | −3.73** | −4.89* | −4.71** | −2.88*** |
| | PP | Level | −2.13 | −2.99 | −0.99 | −1.59 |
| | | First difference | −2.74*** | −4.90* | −4.73** | −2.99** |
| Quality of Education | ADF | Level | −1.52 | −1.16 | −1.01 | −0.46 |
| | | First difference | −4.02** | −5.47* | −4.91* | −5.04* |
| | PP | Level | −1.60 | −1.59 | −1.03 | −0.18 |
| | | First difference | −4.02** | −6.57* | −5.24* | −5.14* |

*Note.* ADF = Augmented Dickey–Fuller Test; PP = Phillips–Perron;

According to these findings, there exists a strong relationship between GDP, gender, unemployment rates and quality of education on Human Capital Investment. The error of correction model was estimated to establish the association between quality of education, unemployment, gender and GDP growth on human capital investment. The Augmented Dickey-Fuller and Phillips Peran tests were all found to be statistically significant. ADF and PP tests were found to be -4.02 in Mexico, -5.47 in Kuwait, -4.91 in Tunisia and -5.04 in Jordan. In regard to the relationship between GDP, quality of education, unemployment and Gender parity on human capital investment, it was found to be -5.48, -3.56, -3.72 and -4.99 in Mexico, Kuwait, Tunisia and Jordan respectively. It also shows that there is a very strong correlation between gender parity and unemployment rate in MENA countries which in turn affect Human Capital Investment negatively.

**Implications of Research**

Scientific Implications – The research revolves around some of the MENA region countries and particularly focuses on Kuwait as there is a dearth of information regarding the matter. However, further research can surely benefit from investigating the matter on a grander scale and including more countries. As well, a more introspective approach could be useful in a way which digs deeper into the findings for each of the countries. Moreover, the research could have included a bigger scope of data and possibly investigated more indicators. Investigating possible correlations between various variables, including other socio-economical factors others than the ones used, is also advised for future research.

Key Recommendations

**Boost Competitiveness among Public Schools**

To promote knowledge-based economies and raise the competitiveness among public schools, MENA needs to: (i) Build positive relationships with the industry; (ii) review the financing mechanisms, leverage public and private financing; (iii) relate school budget to school performance;(iv)promote the enrollment of students in R&D incubators.

Performance-based components have long been adopted by Denmark, England and the Netherlands which define certain pre-established criteria for a given group of educational institutions(World Economic Forum, 2017a). Some examples of these criteria are the number of students graduating in a year or the number of students who may need to repeat a year. The ratio of academic and non-academic staff, as well as, teaching staff to student number ratio can also measure the impact on the education quality of the given institution,and reflect how well it can implement its functions of teaching and research(El Baradei & El Baradei, 2004). Quality standards should be regarded to maintain the conduct and compliance with the norms.

Output-based funding will inevitably lead to increased accountability. GPA, absenteeism, the number of graduates, or even the number of those being recruited upon graduation can also be considered for the performance-based funding. World Bank programs have supported the governments of Egypt, Jordan, Palestine and Tunisia to implement such mechanisms of competitive funding. Mounting number of university students forced Jordan to turn to more vibrant private universities.

The competitiveness in the market soon led to the higher enrollment rates of the students doubling in 5 years in the early 2000's as a result of expansion. The lessons learned from their experience showthat designing the mechanisms thoroughlyand ensuring the transparent implementation and regular monitoring are important considerations.

**Local and Overseas Scholarship Programs**

- Create accessible mechanisms for students from low privileged families to apply for grants and scholarships to a number of family offices and charity foundations. This step will ensure the equity mechanism and may need the government to act as a guarantor for the studentsfrom the low-income families to participate in grant/loan schemes. Tunisia, Morocco, Kuwait, Saudi Arabia and Oman already have a wide proportion of students receiving state scholarship.
- Establish endowment funds within the universities which will be funded by alumni donations and other beneficiaries who wish to make a social impact. With over 50% of private universities in theArab world, the students who get education in Private HEI comprise 20 to 25% of the total population, thus, leaving a room to further develop their role(UNESCO, 2018). Most high-rank universities in the USA, such as Harvard, MIT and Princeton, are private and possess large endowment Funds. In 2010, $28 billion were raised through charity to fundthe American public and private colleges and universities(CASE, 2019).
- Maintain long-term collaboration with private-sector companies. They can sign contracts with high-performing students, provide scholarship programs for honor students or partially finance their tuition and hire them with favorable terms upon graduation. Many Asian (Japan& Korea) and South American (Brazil& Chile) countries heavily rely on private, tuition-supported HEIs.

All these steps can lead to strengthening of social solidarity and improving the cost-sharing mechanisms in the education sector. It will cope with the increasing cost of HE, expand its scopes from being "elite",and set a base for dynamic socio-economic transformation of the region. Ultimately, it will create a dependable, high-quality, pool of human capital which can support the growth of this region into other industries and improve the diversity in the economic profiles of their respective countries.

**Conclusion**

According to the findings, there exists a strong relationship between GDP, gender, unemployment rates and quality of education on Human Capital Investment. The error of correction model was estimated to establish the association between quality of education, unemployment, gender and GDP growth on human capital investment. The Augmented Dickey-Fuller and Phillips Peran tests were all found to be statistically significant. In regard to the relationship between GDP, quality of education, unemployment and Gender parity on human capital investment, it shows that there is a very strong correlation between gender parity and unemployment rate in MENA countries which in turn affect Human Capital Investment negatively. This proves that the recommendations included in this paper are of utmost importance to the policy makers and societies who are experiencing the mentioned symptoms. Particularly in Kuwait, matters pertaining to education should be looked at extensively as they are part of the roadmap to success as per the New Kuwait 2035 government agenda.

**References**

Aghion, P., Boustan, L., Hoxby, C., & Vandenbussche, J. (2009). The causal impact of education on economic growth: evidence from US. *Brookings Papers on Economic Activity*, *1*, 1–73.

Alasmari, M. G. H. (2012). Acceptance of Vocational and Industrial Training between the Culture of Society and Future Career" An Applied Study on the Saudi-Japanese Institute in Jeddah Province". *Journal of King Abdulaziz University: Economics & Administration*, *26*(2).

Alwadai, M. A. (2014). Islamic Teachers' Perceptions of Improving Critical Thinking Skills in Saudi Arabian Elementary Schools. *Journal of Education and Learning*, *3*(4), 37–48.

Anderson, D. L., & Lee, H. L. (2000). The internet-enabled supply chain: From the "first click" to the "last mile." *Achieving Supply Chain Excellence through Technology*, *2*(4), 1–7.

Assaad, R. A., Hendy, R., Lassassi, M., & Yassin, S. (2018). *Explaining the MENA Paradox: Rising Educational Attainment, Yet Stagnant Female Labor Force Participation*.

Barnes, L. P. (2014). *Education, religion and diversity: Developing a new model of religious education*. Routledge.

Barsoum, G. (2015). Young people's job aspirations in Egypt and the continued preference for a government job. *The Egyptian Labor Market in an Era of Revolution*, *108*.

Brennan, J., & Shah, T. (2000). Quality assessment and institutional change: Experiences from 14 countries. *Higher Education*, *40*(3), 331–349.

Brixi, H., Lust, E., & Woolcock, M. (2015). *The state of education and health services delivery: The quality challenge amid*

*impressive advances*.

Burns, M. (2011). Distance education for teacher training: Modes, models and methods. *Washington, DC: Education Development Center*.

CASE. (2019). *Voluntary Support of Education (VSE) survey*. https://www.case.org/resources/voluntary-support-education-data-research-findings

Chamorro-Premuzic, T., & Frankiewicz, B. (2019, January 7). Does Higher Education Still Prepare People for Jobs? *Harvard Business Review Digital Articles*. https://hbr.org/2019/01/does-higher-education-still-prepare-people-for-jobs

Chevaillier, T., & Eicher, J.-C. (2002). Higher education funding: A decade of changes. *Higher Education in Europe*, *27*(1–2), 89–99.

Crystal, J. (2016). *Kuwait: The transformation of an oil state*. Routledge.

Dandan, M. M., & Marques, A. P. (2017). Education, employment and gender gap in Mena Region. *Asian Economic and Financial Review*, *7*(6), 573.

Di Stefano, G., Gino, F., Pisano, G. P., Staats, B., & Di-Stefano, G. (2014). *Learning by thinking: How reflection aids performance*. Harvard Business School Boston, MA.

Dubeck, M. M., & Gove, A. (2015). The early grade reading assessment (EGRA): Its theoretical foundation, purpose, and limitations. *International Journal of Educational Development*, *40*, 315–322.

Durrat Almanal. (2017). *Fostering a Culture of Responsibility and Accountability*. https://reliefweb.int/sites/reliefweb.int/files/resources/fostering_a_culture_of_responsibility_and_accountability.compressed_0.pdf

El Baradei, M., & El Baradei, L. (2004). Needs Assessment of the Education Sector in Egypt. *Higher Education*.

Galal, A., & Kanaan, T. (2010). *Financing Higher Education in Arab Countries*. https://erf.org.eg/publications/financing-higher-education-in-arab-countries/

Green, A. (1997). Education, globalization and the nation state. In *Education, globalization and the nation state* (pp. 130–186). Springer.

Harris, S. E. (1964). *Economic Aspects of Higher Education*.

Hattar- Pollara, M. (2019). Barriers to education of Syrian refugee girls in Jordan: Gender- based threats and challenges. *Journal of nursing scholarship*, *51*(3), 241-251.

International Labour Organization. (2020). *Global Employment Trends for Youth 2020*. https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_737648.pdf

Ismail, A., Schøtt, T., Bazargan, A., Salaytah, B., Al Kubaisi, H., Hassen, M., de la Vega, I., Chabrak, N., Annan, A., & Herrington, M. (2018). Background to the MENA Region. In *Entrepreneurship Education and Research in the Middle East and North Africa (MENA)* (pp. 19–31). Springer.

Jalbout, M. (2015). *Reaching all children with education in Lebanon*. Brookings: World. http://www. aworldatschool. org/page/-/uploads/Reports ….

Jaramillo, A., Ruby, A., Henard, F., & Zaafrane, H. (2011). *Internationalization of Higher Education in MENA: Policy issues associated with skills formation and mobility*.

Kaphahn, L., & Brennan, L. (2017). Reassessing the risk conditions for political instability in the light of the Arab Spring. *Journal of Risk Research*, *20*(11), 1497–1515.

Kilpi-Jakonen, E., Buchholz, S., Dämmrich, J., McMullin, P., & Blossfeld, H.-P. (2014). Adult learning, labor market outcomes, and social inequalities in modern societies. In *Adult Learning in Modern Societies*. Edward Elgar Publishing.

Kraay, A. (2018). *Methodology for a World Bank human capital index*. The World Bank.

Lange, G.-M., Wodon, Q., & Carey, K. (2018). *The changing wealth of nations 2018: Building a sustainable future*. The World Bank.

Lasardo, J. (2019, April 28). The Middle East's Best Institutes For Higher Education. *Forbes.Com*. https://www.forbesmiddleeast.com/industry/education/the-middle-easts-best-institutes-for-higher-education

Le Blanc, L. al-S. (2019). "The Lost Generation" in the Middle Eastern and North African (MENA) Countries: The Ethics of the Failure to Educate Iraqi and Syrian Refugee Children in Turkey. *Legacies of Love, Peace and Hope: How Education Can Overcome Hatred and Divide*, 165.

Levinson, M. (1999). *The demands of liberal education*. Oxford University Press.

Mcloughlin, C. (2013). *Helpdesk research report: Women's economic role in the Middle East and North Africa (MENA)*.

Murad, D., & Al Awadhi, L. (2018). *Report: The Quality of Education in Kuwait*. https://static1.squarespace.com/static/5ae5dab125bf0240808df943/t/5baca382e4966bf0037ab2b0/1538040718718/Report+-+The+Quality+of+Education+in+Kuwait.pdf

Narayan, A., Van der Weide, R., Cojocaru, A., Lakner, C., Redaelli, S., Mahler, D. G., Ramasubbaiah, R. G. N., & Thewissen, S. (2018). *Fair Progress?: Economic Mobility Across Generations Around the World*. World Bank Publications.

Overbye, D. (2001). How Islam won, and lost, the lead in science. *New York Times*, *30*.

Patrinos, H. A. (2016). Estimating the return to schooling using the Mincer equation. *IZA World of Labor*.

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testingapproaches to the analysis of level relationships.*JournalofApplied Econometrics*, *16*(3), 289–326.

PISA. (2016). PISA 2015 Results in Focus. In *OECD*. https://doi.org/10.1787/9789264266490-en

Psacharopoulos, G., & Patrinos, H. A. (2018). *Returns to investment in education*.

Radcliffe, D., & Lam, A. (2018). Social media in the Middle East: The story of 2017. *Available at SSRN 3124077*.

Teach Middle East Magazine. (2017, September 3). *Ministry of Education, ADEC announce unification of education systems across all emirates*. https://teachmiddleeastmag.com/ministry-education-adec-announce-unification-education-systems-across-emirates/

The Oxford Business Group. (2017). *Government reforms to change Kuwait's education sector*. https://oxfordbusinessgroup.com/overview/time-transition-extensive-government-reforms-signal-change-kuwait's-education-sector

The World Bank. (2018). *A project for the world*. https://www.worldbank.org/en/publication/human-capital

The World Bank. (2019). *MENA Economic Update*. https://www.worldbank.org/en/region/mena/publication/mena-economic-monitor

The World Bank Group. (2019). *Expectations and Aspirations: A New Framework for Education in the Middle East and North Africa*. http://documents.worldbank.org/curated/en/527931542039352771/pdf/Overview.pdf

Tilak, J. B. G. (2008). Higher education: a public good or a commodity for trade? *Prospects*, *38*(4), 449–466.

Tomasevski, K. (2003). *Education denied: Costs and remedies*. Zed books.

Ullah, A. K. M. A. (2014). MENA: Geopolitics of Conflicts and Refugees. In *Refugee Politics in the Middle East and North Africa* (pp. 29–58). Springer.

UNESCO. (2018). *UNESCO Study Report on Financing Higher Education in Arab states*.

US Bureau of Labor Statistics. (2013, December). *Occupational employment projections to 2022*. https://www.bls.gov/opub/mlr/2013/article/occupational-employment-projections-to-2022.htm

Weiler, H. N. (1990). Comparative perspectives on educational decentralization: An exercise in contradiction? *Educational Evaluation and Policy Analysis*, *12*(4), 433–448.

Weller, M. (2018). Twenty years of EdTech. *Educause Review Online*, *53*(4), 34–48.

Winokur, I. K. (2014). From centralized education to innovation: Cultural shifts in Kuwait's education system. Education for a knowledge society in Arabian Gulf countries. *International Perspectives on Education and Society*, *24*, 103–124.

Wolbers, M. H. J., De Graaf, P. M., & Ultee, W. C. (2001). Trends in the occupational returns to educational credentials in the Dutch labor market: changes in structures and in the association? *Acta Sociologica*, *44*(1), 5–19.

Wong, B. T. M. (2017). Learning analytics in higher education: an analysis of case studies. *Asian Association of Open Universities Journal*.

World Economic Forum. (2017a). *Global Human Capital Report 2017*. http://www3.weforum.org/docs/WEF_Global_Human_Capital_Report_2017.pdf

World Economic Forum. (2017b). *The Future of Jobs and Skills in the Middle East and North Africa - Preparing the Region for the*. https://doi.org/10.13140/RG.2.1.3063.8241

World Economic Forum. (2018). The Global Gender Gap Report 2017. In *World Economic Forum*. https://doi.org/10.1177/0192513X04267098