

# Mapping and Spatial Distribution of Socio-Economic Indicators for MENA Countries: Comparative Analyzes Before and During COVID-19

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## Abstract

The purpose of this paper is to study comparative analyzes between two different situations, namely the situation before the COVID-19 epidemic and during the COVID-19. We have tried to present in a cartography the spatial distribution for the majority of MENA countries while showing the evolution of some socio-economic indicators namely education, health, GDP growth during the years 2017 and 2020.

**Keywords:** COVID-19 epidemic • Mapping • Socio-economic indicator • Spatial distribution

## Introduction

Most of the region's economies experienced a contraction in 2020 that was unprecedented in decades, and the economic damage from the pandemic remains particularly visible in the transport and tourism sectors. The resurgence of the virus has resulted in further restrictions on travel in many countries. The rise in infections, however, has had limited economic repercussions so far.

Despite the disruption caused by the pandemic, rising oil prices have generally supported economic activity in oil-exporting countries. In the Islamic Republic of Iran, the oil and non-oil sectors rebounded in the second half of the 2020-2021 fiscal year ended in March, for example in Saudi Arabia, the deepening decline in the oil sector due to further production cuts has been offset by growth dynamics in the non-oil sector. Several oil-importing countries experienced an upsurge in COVID-19 cases in early 2021, which slowed growth in the Arab Republic of Egypt, Jordan, Lebanon and Tunisia.

The MENA region ranks last among all regions of the world on two components of the index that are essential for combating a pandemic: "human resources in epidemiology" and "emergency preparedness and response activities". "Emergency". In many countries in the region, funding for public health has been limited for decades.

According to WHO data, countries like Egypt and Iraq spent no more than 5% of their public budgets on health in 2017, which gives some idea of the effects of severe budget constraints on the health sector.

At the same time, most countries in the region do not have a public universal health insurance scheme. Even households with insurance in countries like Egypt and Morocco have to pay high medical bills out of pocket due to lack of prepaid risk-sharing mechanisms, which is of great concern during a pandemic. The COVID-19 was to worsen this situation, the health sector being more and more solicited consequently the determining sector of the development namely the education.

By way of conclusion, we have tried to present in a cartography the spatial distribution for the majority of MENA countries while showing the evolution of some socio-economic indicators namely education, health, GDP growth during the years 2017 and 2020.

## Literature Review

### The evolution of socio-economic indicators before and during COVID-19

The World Bank revised its estimate of economic growth in 2015 in the MENA region to 2.6%, slightly less than in 2014 and 0.2 percentage point below the forecast for October 2015. The main reasons for this recent revision is the lingering civil wars, terrorist attacks and low oil prices. The recent clash between Saudi Arabia and Iran adds to the current tensions in the region. If this confrontation were to escalate, military spending could increase, especially in the countries directly affected and their allies. Given current levels of government spending and falling oil prices, this could further weaken the economies in question. The recent clash is also

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likely to amplify geopolitical risks, with implications for investment, tourism and trade in an already fragile region.

However, with the factors responsible for slowing growth in the MENA region showing no sign of abating, the near term outlook remains "cautiously pessimistic" and the region's average growth rate will remain at this low level. However, with a political resolution of the conflicts in Yemen and Libya, and to some extent in Iraq and Syria, and the lifting of sanctions against Iran, regional growth will be given a new lease of life through reconstruction and recovery activities and the resumption of investment and oil exports. In this slightly more optimistic scenario, the World Bank anticipates an average growth of 4.1% and 4.4% in 2016 and 2017 in the MENA region.

### Effects of trade openness on economic growth

The trade openness policy makes it possible to increase imports of goods and services which include new technologies, and through learning by doing and technology transfer, the country is experiencing technological progress and its production is becoming efficient. In addition, the commercial opening economic growth through investment.

Some empirical work also confirms the causal link between trade openness and economic growth. Sachs and Warner, for example, analyze the effect of trade openness on growth for 122 countries on period 1970-1989. The results of their work show that trade openness is a powerful lever for growth of developing countries. Countries with open economies experience stronger growth than those with closed economies.

Although using different tools to measure trade openness, these results were confirmed by the work by Dollar, Edwards, Frankel and Romer, Bosworth and Collins, Wacziarg and Welch. In addition, Caupin and Saadi-Sedik analyze the effects of open trade policy on the instability of economic growth rates for countries in the Middle East and North Africa. The end of this study, the author concludes that the opening policy has a beneficial effect on the resilience of countries which outweighs the negative effect caused by increased exposure to external shocks. Nlemfu meanwhile does an analysis of the effects on the Congolese economy of integration into the SADC free trade area from a static point of view.

### Commercial economic policy: The case of MENA region

Trade policy is a complex field of study that lies at the intersection of national and international politics. Indeed, analyzing Tunisia's trade policy comes down to examining first its strategic choices in terms of exports and imports. MENA region has always considered trade openness as a factor of economic growth. Exports of goods and services constitute an important source of external financing for sustainable growth. Despite this driving role for development, Tunisia has not been able to take full advantage. The trade balance has experienced a strong deficit; Tunisia's trade has declined significantly. Of course, MENA region has concluded cooperation and exchange agreements with several countries, but the trade balance with certain partners is still in deficit.

In conclusion, the rationalization of imports, as well as the improvement of exports, are essential to ensure development while remaining competitive in more than one sector. We must include the

balance of services and their very profitable development in Tunisia with the strengthening of tourism, the enhancement of the health sector and expanding offshore activities. The potential of the social and solidarity economy should not be underestimated either. The rationalization of imports, as well as the improvement of exports, are essential to ensure development while remaining competitive in more than one sector. We must include the balance of services and their very profitable development in MENA region with the strengthening of tourism, the enhancement of the health sector and expanding offshore activities. The potential of the social and solidarity economy should not be underestimated either. We must include the balance of services and their very profitable development in Tunisia with the strengthening of tourism, the enhancement of the health sector and expanding offshore activities. The potential of the social and solidarity economy should not be underestimated either. Promotion of the health sector and expanding offshore activities. The potential of the social and solidarity economy should not be underestimated either.

## Methodology

The literature review emphasizes the analyzes to compare the socioeconomic indicators between two different situations before and during COVID-19 namely the year (2017) just before COVID-19 and the year 2020 during COVID-19 while using mapping and spatial distribution MENA region.

### Assumptions

**H<sub>1</sub>:** The socioeconomic indicators stimulated economic growth (GDP) before COVID-19 namely the year (2017) and vice versa for MENA countries.

**H<sub>2</sub>:** Let's assume that (TRADE) is a catalyst before COVID-19 for the MENA region and vice versa and let's assume that (FDI) is a catalyst before COVID-19 for the MENA region and vice versa.

**H<sub>3</sub>:** According to these hypotheses, if the population becomes awake then it has effects on the entrepreneurial capacity of society. In this regard, many elements seem to indicate that the entrepreneurial capacity depends on age. Duhaouis given the propensity to create a business is twice as high for those under 45. All other things being equal, demographic change.

### Sample, period and data

**Sample:** Our sample of countries is made up of 16 countries from the MENA region to know: 6 African countries, 10 Gulf countries. In fact, this study region is made up of 16 countries namely: Bahrain, Oman, Kuwait, Jordan, Iraq, Iran, Yemen, United Arab Emirates, Qatar, Saudi Arabia, Tunisia, Turkey, Morocco, Egypt, Sudan, and Algeria.

**Period:** We compare the socioeconomic indicators between two different situations before and during COVID-19 namely the year (2017) just before COVID-19 and the year 2020 during COVID-19.

**Data:** We have formed an international data base available in "World Bank CD: WDI".

## Definitions and measures of variables

### Economic growth indicator (GDP)

Levine, et al. Beck, et al. and Beck and Levine noted (GDP). Likewise, Mohem and Mairesse (1999, 2001) give a few orders of magnitude on the contribution of R and D to GDP.

### The trade indicator (trade)

For our work, the ratio of trade value (export+import)/GDP to capture the degree of openness (Sachs and Warver (1995)) noted (TRADE).

### The Investment Indicator (INV)

Business investment includes gross fixed capital formation (INV) and stock change which is considered a catalyst for any growth variable because it makes human labor more efficient.

### The Foreign Direct Investment Indicator (FDI)

One variable is justified by the abundant literature which states that foreign direct investment has a positive impact on economic growth such as Ikiara, Moses M. (2003) and Fosto, which prove that technology transfers have a positive effect on growth and noted (FDI).

### The demographic indicator (Pop)

The POP indicator represents the population growth rate reported by (WDI)

### The health indicator

The health indicator (PHE) Public expenditure denoted on health as a percentage of GDP. (WDI)

### The education indicator

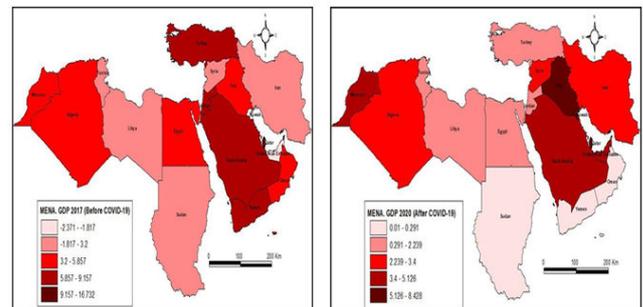
The education indicator (PEE) Public expenditure denoted on education as a percentage of GDP. (WDI).

Evaluated at the average point, the socio-economic indicators do of course, make it possible to assess the level of development achieved at the national level, but they remain analytically limited in view of the taking into account the wide dispersion of the spatial and social distribution of investment in the social and economic prerequisites for development.

In the most isolated and disadvantaged rural areas, accessibility to social, educational and health facilities also remains hampered by standards or even cultural resistance essentially attributable to ignorance of the expected benefits and to poverty in its monetary and forms human. In other words, the inequity of the distribution of the investment in the social and economic capacities of the populations generates an uneven progression of both basic and composite socio-economic indicators (Figure 1).

## Results and Discussion

### The evolution of economic indicators before and during COVID-19



**Figure 1.** Comparison between the two GDP growth situations (2017 and 2020).

The recent clash between Saudi Arabia and Iran adds to the current tensions in the region. If this confrontation were to escalate, military spending could increase, especially in the countries directly affected and their allies. Given current levels of government spending and falling oil prices, this could further weaken the economies in question. The recent clash is also likely to amplify geopolitical risks, with implications for investment, tourism and trade in an already fragile region.

However, with the factors responsible for slowing growth in the MENA region showing no sign of abating, the near term outlook remains "cautiously pessimistic" and the region's average growth rate will remain at this low level.

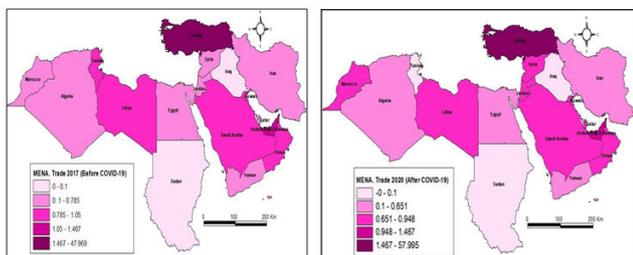
With a political resolution of the conflicts in Yemen and Libya, and to some extent in Iraq and Syria, and the lifting of sanctions against Iran, regional growth will be given a new lease of life through reconstruction and recovery activities and the resumption of investment and oil exports. In this slightly more optimistic scenario, the World Bank anticipates an average growth of 4.1% and 4.4% in 2016 and 2017 in the MENA region.

During COVID-19, GDP growth for the majority of MENA countries experienced great uncertainty still surrounds the current forecast. The mean and standard deviation of growth adjustments for 2020 by private sector forecasters. The standard deviation of downward revisions reflects disagreements between forecasters and is therefore a good indicator of forecast uncertainty. The standard deviations are important, in particular for Lebanon, which is going through an unprecedented economic, political and social crisis.

The MENA region absorbed the production losses should only be partially in 2021.

- The crisis disproportionately affects vulnerable populations, many of whom will fall into poverty. Nonetheless, state aid is helping to mitigate the impact.
- In the short term, countries may consider adopting tailored responses. The priorities consist to provide non-therapeutic interventions; support the private sector and households vulnerable; reduce tax evasion; and mobilize funding.

In the medium term, to restore growth and it will be necessary as a priority to undertake institutional reforms likely to redefine the role of the state, promote fair competition, accelerate the adoption of digital technologies and continue regional integration, which is the subject of this report (Figure 2).



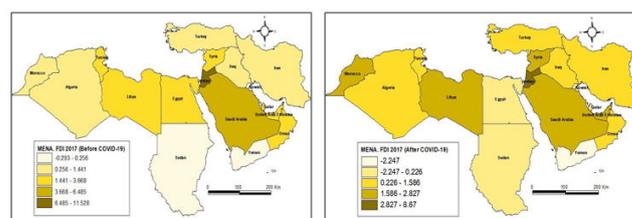
**Figure 2.** Comparison between the two trade indicator situations (2017 and 2020).

Before COVID-19, the MENA region are very likely to have to open up their trade regimes, as most of these countries need innovations produced in the rest of the world in order to engage in innovative and efficient activities in turn.

During COVID-19, the further trade integration as a means of ensuring regional stability. The changes in the world and the looming post-COVID-19 scenario offer new possibilities for MENA countries. The pandemic has exposed the vulnerabilities of long supply chains, which European companies want to replace with much shorter and more reliable chains. In the meantime, the new reality will require factor reallocations. The trade in the MENA region, national policies and regional integration: horizontal and vertical integration of trade through specific reforms. The most important challenge will be to develop a coordinated program of trade and investment reform in the MENA region, to overcome the difficulties encountered in setting up TRCs and to attract quality investments to implement a strategy of diversified, equitable and sustainable regional development.

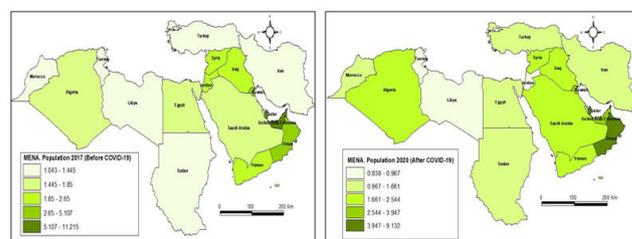
In addition, The COVID-19 pandemic present an opportunity to rethink economic and social policies and regional trade integration with Africa. The double shock of a pandemic-induced health crisis and falling oil prices plunged the MENA region in deep recession. Border closures to stem the spread of the virus have exacerbated the cost of doing business. It is estimated that trade volumes have fallen sharply and that the recession is likely to accelerate in sectors such as electronics and automotive products. The pandemic is having a direct impact on trade in services, including tourism, due to transport and travel restrictions

In total, the trade openness can be significant in achieving inclusiveness. However, to promote growth that benefits all segments of society, trade reforms must move in parallel with other policy reforms. The benefits of trade openness might otherwise be canceled by other economic and social measures. The contributions of trade openness to inclusive growth can be uneven and cannot be understood without considering how it affects all factors of production, benefiting some and hurting others (Figure 3).



**Figure 3.** Comparison between the two FDI indicator situations (2017 and 2020).

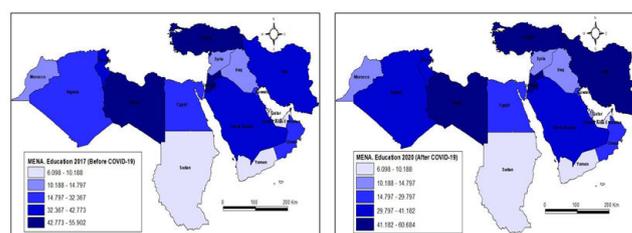
According to Michelle Davies, partner and international head of clean energy and sustainability at Eversheds Sutherland, says that sustainable water is becoming a key area for Foreign Direct Investment (FDI). “With the emphasis on smart cities we can expect to see FDI engagement increasing, as sustainable water is intrinsic to any smart city,” she says (Figure 4). “The challenges as always will be host country support, its investment regime and economic strength, and the fitness for purpose of local regulation the usual factors.”



**Figure 4.** Comparison between the two Population indicator situations (2017 and 2020).

Before COVID-19, the population rate is still in a state of increase which influences the overall consumption and consequently on the growth economy which was almost in a situation of stagnation during the period of COVID-19 in MENA region (Figure 5).

**The evolution between social indicators before and during COVID-19**



**Figure 5.** Comparison between the two Education indicator situations (2017 and 2020).

The governance of public spending, especially spending on the education sector, remains at the heart of controversy regarding national development policies. Indeed, in public administration, governance is the process by which "government run public resources." Public finance is the most important mechanism available to governments for the performance of their public policy objectives, good governance of public finances is therefore essential for the success of these public actions in MENA region.

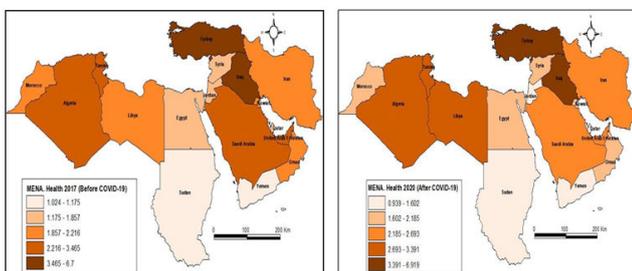
Before COVID-19, the education (schooling and literacy) for the MENA region is vocational training and qualification as well as on-

the job training and learning are the main supports for investing in human skills in Morocco. By qualifying human resources and strengthening human capital, these supports are essential for any human and economic development.

Remember that schooling is the keystone of the process of investing in human skills and that in the absence of generalized education qualification and literacy, the qualification of human resources can only be selective in the sense that it does not lead to the inclusion of the entire working population in the process of wealth creation. Since education, literacy and training are discussed in the section 'Socio-demographic indicators', this section is limited to the analysis of the interaction of investment in professional skills with schooling and training and learning modes.

During the period of COVID-19 in MENA region, the diagnosis of education spending on human capital, we reported a negatively significant effect because the share of this spending is insufficient for education in general. However, research and development spending has a positive and significant effect on human capital which shows the importance of this part while improving the quality of education and reducing the rate of ignorance in this area (MENA).

Moreover, the public expenditure granted to education and health services occupies a very important part in the totality of the expenses of the government which are insufficient to improve research and reduce the rate of ignorance (rate of illiteracy). The effect on growth is indirectly linked by the impact of human capital on growth because human capital explains the expenditure above. A major effect of economic growth on health is the extension of government control over the resources associated with growth (Figure 6).



**Figure 6.** Comparison between the two Health indicator situations (2017 and 2020).

The determinants of health expenditure are numerous and their respective impact difficult to separate.

Before COVID-19, three fundamental developments appear to maintain "upstream" the dynamism of spending which should continue in the long term:

**Health developments:** Rajkumar and V. Swaroop: "public spending and outcome: Does governance matters?" public policy institute, Georgetown university changes in the health status of the population shape the needs and therefore the demand for care.

- The standard of living: the mechanism examined is the increase in demand for care driven by higher income.
- Advancement of medical knowledge/technical progress: it is above all because it is an innovative sector that the health is a growing industry. Innovations have more often a very high cost; it

is mainly a product innovation (generating expense) rather than process (cost saving factor).

- Integrated public systems are traditionally considered to be more appropriate for cost containment policies than more segmented systems. Global supply control instruments (numerus clausus for example) can be attached to this mode of intervention.

During the period of COVID-19 in MENA region, the crisis is also testing the public sector, forcing governments to make quick decisions, manage crisis co-ordination and implement drastic measures to protect communities at risk. Many administrations have demonstrated strong capacity to mobilise and implement prevention measures, while preparing for stimulus packages to support households and firms.

Public governance measures should be used to ensure the continuity of response and essential services by public institutions, while enhancing public sector resilience and adaptability and restoring the population's trust in public institutions. The crisis has underscored the need to accelerate public administration reform to create a more professional, efficient, effective, transparent and user-oriented public sector.

## Conclusion

Looking ahead to COVID-19, analyzing the channels through which the COVID-19 pandemic affects the Middle East and North Africa (MENA) region, Arezki R. and Nguyen H. (2020) note:

- **The value chain:** With the drop in Chinese production, countries with a significant volume of trade with China will be significantly affected, especially Asian countries whose value chain has a strong connection with China.
- The combination of a COVID-19 pandemic and a collapse in oil prices has affected all aspects of the economies in the Middle East and North Africa (MENA). The region's economies are projected to contract by 5.2% in 2020. The outlook for MENA's current account and fiscal balances also deteriorated sharply. Driven largely by lower oil export revenue, a drop in fiscal revenue, and the large increase in fiscal expenditure required to respond to the health crisis, the region's current account and fiscal balances in 2020 are forecast at -4.8%. In dealing with the COVID-19 pandemic, the top priority is responding to the health crisis while aiming to preserve consumption and production capabilities. If financially feasible, countries should postpone fiscal consolidation until recovery is well underway.
- **Travel and tourism:** Travel from MENA countries to China is reduced and tourist visits to MENA countries too, which will affect this area.

**In addition, lift trade restrictions in the MENA region to promote diversification and intensification of trade:**

- Improved logistics and increased trade facilitation are prerequisites.
- It is necessary to improve access to finance.
- Regulatory reform of trade in services needs to be approached with emphasis on harmonization regional and cross-border.
- The transition to greater facilitation of digital trade in future trade agreements should be a priority.

- To attract FDI linked to trade in services, countries in the MENA region must also rethink the rules governing temporary movement of people and being more open to each other.

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