

Fractionalization of MENA Countries in Political Economy Categories

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Abstract

The article dwells on configuring Middle East and North Africa (MENA) countries in three political economy dimensions: population, gross national income per capita in current international dollars converted by purchasing power parities (per capita GNI PPP), and human development measured by the Human Development Index (HDI). Furthermore, the relationship between the mentioned dimensions and self-reported life satisfaction as well as the Index of Happiness is analyzed. The author conducts comparative analysis of diversity within a target region, shows where it fits on the world scale, and focuses on drawbacks in the data. The author concludes that the MENA region is a volatile cluster from the standpoint of safety, political rationality, and living standards. Armed clashes, technogenic accidents, the refugee problem in coping with the trend of demographic growth will put extra stress on the national economies of states and create great challenges for the governments.

Keywords: MENA countries, per capita GNI PPP, population, human development index, index of happiness, life satisfaction, comparative analysis

1. Introduction

The paper is a part of a series of articles with an objective to configure Western Asia, Middle East and North Africa countries in different dimensions of a political economy (Alhanaqth, 2016a, 2017a, 2017b, 2018, Alhanaqth & Alhanaqth, 2018; Alhanaqth, 2016b, 2016c). The author conducts comparative analysis by putting the target region along the spectrum of other world countries. Then, a comparison within the MENA region is made.

1.1 Sample

According to the World Bank list, MENA countries include Algeria, Bahrain, Djibouti, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Malta, Morocco, Oman, Qatar, Saudi Arabia, Syria, Tunisia, United Arab Emirates (UAE), West Bank and Gaza (Palestine), Yemen. In order not to distort the scale, we excluded from the list small countries (with a population of less than 1.5 million). Malta and Djibouti are excluded from the data set. Thus, there are 19 countries in the sample.

1.2 Units of Analysis

The first unit of analysis is the population. It is a convenient indicator showing the size of a state, its economic and military potential. Furthermore, many measures are indicated in per capita terms.

The second unit of analysis is a country's gross national income (GNI; formerly GNP) per capita, expressed in current international dollars converted by purchasing power parities (PPP). Converting national income into a common currency (the international dollar) allows us to consider how large the economy of a country is in comparison to the rest of the world's economies. In other words, we may imagine how poor or rich a country is. However, a better basis for national income comparing is PPP, which economists started to calculate from the 1970s. The PPP conversion factor eliminates the effects of price differences between countries. It provides us with a more comprehensive measure to compare consumption between countries.

Crucially, the practice of collecting data on a national income became common only after the Second World War. This procedure is more complicated than counting people, so the probability of making an error in calculations is greater. What is more, capital income remains an average value and does not give us information about poverty, living standards or different social indicators. It isn't a very informative and objective indicator.

Thus, the third unit of analysis is the Human Development Index (HDI) that considers long and healthy lives, access to education and living standards.

1.3 Methodology

Comparative analysis is a technique of the research. First, we rank the data for all economies of the world in ascending order. Thus, we may observe how countries are distributed in the world on a criterion of our interest – population, per capita GNI PPP, HDI, self-reported life satisfaction and the Index of Happiness. Second, we put our target region – MENA countries - along the world spectrum, describing whether the region is at the bottom, middle, top or whether it scatters randomly; we may see whether countries are similar, clustered, or diverge radically. After all, we analyze the pattern of the data and explain the results.

The paper contributes to the literature by undertaking research on fractionalization of the MENA region in terms of population, income and human development.

2. Diversity of MENA Countries in Terms of Population

The MENA region consists of 21 countries (approximately 6 % of the world population). The contribution of modern medicine to length of life, control of killer diseases sufficiently decreased death rates. Additionally, an increase in the birth rate causes population growth in that region. The total population in the MENA region is expected to increase by 581 mln in 2030, and almost double by 2050; i.e., reach 724 million (Total population across the Middle East and North Africa, 2020).

Considering numerical data, it is worthwhile to keep in mind the issue of accuracy of data collection by statistical agencies. In rural and remote areas, death and birth rates may remain unrecorded. Political context or missing migration flows numbers also influence the accuracy of data collection. In poorer economies, with the lack of financial resources, the less trustworthy the data is (Griffiths, 2010). Nonetheless, the latest statistical data on the population has been used.

For the purposes of the research task, we ranked the population values of states with a population of more than 1.5 million and below 1 billion (China and India were listed separately) in order to exclude outliers and not to distort the scale. Thus, Malta and Djibouti were excluded from the data set as small countries. Then the map of the world population was divided into deciles (Table 1). Finally, we have ranked MENA countries by deciles according to population data.

Table 1. Distribution of MENA Countries in the World Spectrum of Population, 2021

Decile	Population values (mln)	Countries
1	[299.9; 333]	
2	[266.8-298.9)	
3	[233.6-266.8)	
4	[200.5-233.6)	
5	[167.4-200.5)	
6	[134.3-167.4)	
7	[101.1-134.3)	Egypt
8	[68-101.1)	
9	[34.9-68)	Saudi Arabia, Morocco, Iran, Iraq, Algeria
10	[1.75-34.9)	Bahrain, Qatar, Kuwait, Oman, Palestine, Lebanon, Libya, Israel, UAE, Jordan, Tunisia, Syria, Yemen

Note. The author's computations based on the Gapminder data and Our World in data (Population, 2021; Future population by country, 2019)

The ranking of MENA countries by population parameter in ascending order is shown in Figure 1.

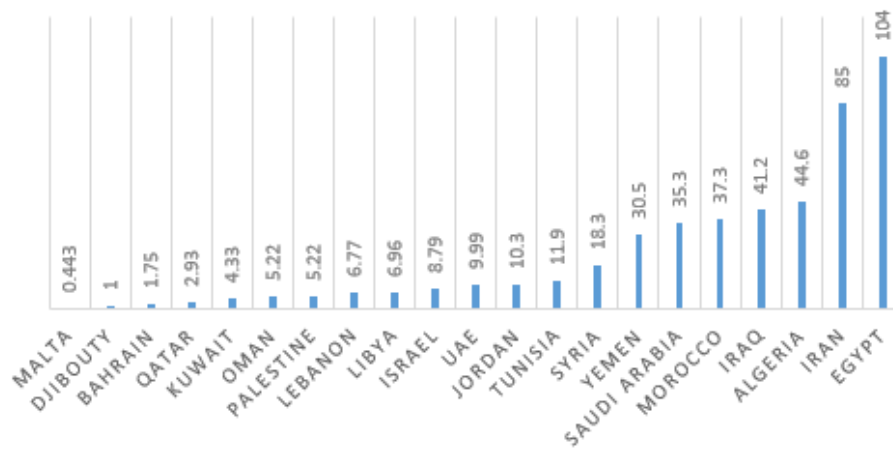


Figure 1. Population of MENA countries, 2021 (million people)

Note. The author's computations based on the Gapminder data (Population, 2021)

In the world context, MENA countries form a cluster at the bottom along the world spectrum (see Table 1). In the 10th decile (relatively small states) we observe Qatar followed by Kuwait, Oman, Palestine, Lebanon, Libya, Israel, UAE, Jordan, Tunisia, Syria and Yemen. There are Saudi Arabia, Morocco, Iran, Iraq and Algeria in the 9th decile, and only Egypt – the largest state in the target region in population terms – in the 7th decile.

For a deeper analysis we have drawn Figure 2 showing the current population in the target region in comparison with projections every 10 years – in 2030 and 2040.

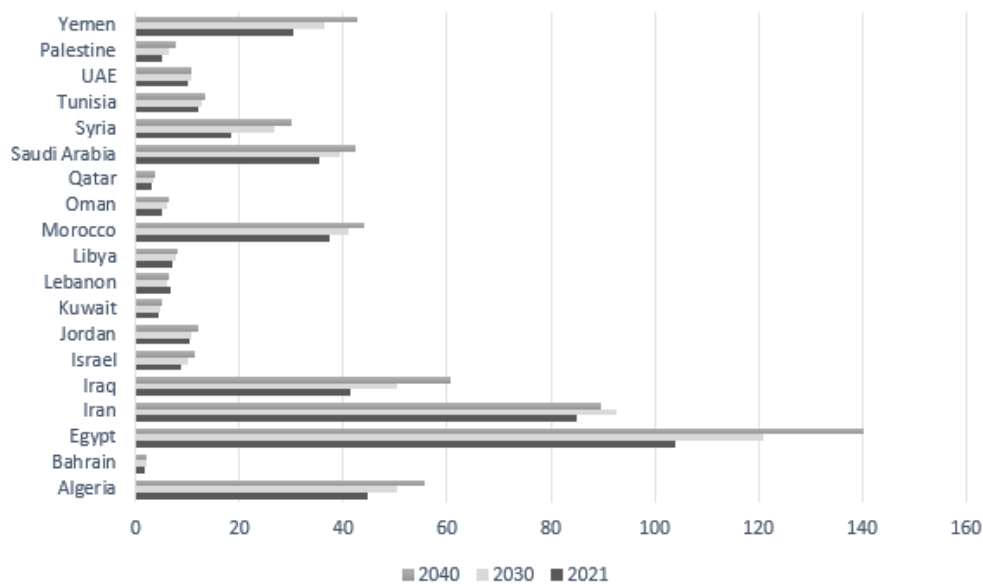


Figure 2. Population in the MENA region in 2021 compared to projections in 2030, 2040 (million people)

Note. The author's computations based on the Gapminder data (Population, 2021)

Figure 2 shows that all MENA countries, except Lebanon, demonstrate population growth in the following 20 years. In 2019, Lebanon had an annual population growth rate of 0.1 % which is the smallest in the region. The population aged over 65 years is 7.3 % of the total population in this country, which is the highest ratio in the MENA region, alongside Morocco (World Population Ageing, 2019). The availability of the recent data demonstrates the decline in fertility rates in Lebanon, which in many respects is a result of the essential improvement in the educational level of females and their involvement in economic activity. These two factors have been long recognized as crucial, influencing the delay in the age of marriage and childbearing (Martin & Juarez, 1995; Abbasi et al. 2002). Female labor force participation before marriage is rather high compared to the rest of Arab world (Rizkallah & Zaky, 2009). Additionally, recent arm conflicts have decreased the number of populations causing death and migration. Consequently, Lebanon currently experiences a demographic transition

from rather high birth rates to the lower and a decrease of the total population number in projections.

The highest annual population growth rate is demonstrated by Bahrain (4.47 % in 2019). This is a small oil-rich state with major concerns about irregular migration (World Population Policies, 2019). The jump in population in recent decades was due to the greater number of expatriates moving to the country (Oxford Business Group, 2022).

It's worthy of remarking that the MENA region, mostly represented by Muslim people, traditionally demonstrates big family size, which leads to higher population growth rates. In oil-rich countries, in countries not caught up in the war, such as Saudi Arabia, Kuwait, Qatar, Bahrain, UAE, Oman, there are many labor-immigrants as well as expatriates. The data on Iraq and Libya looks dubious because of the protracted military conflict since 2003 and 2011, respectively. These oil-rich countries are mired in civil war and armed conflicts and, as a consequence, there are many deaths and migration flows. In general, such a situation leads to inefficiency of statistical censuses.

The statistical data on Syria and Yemen is also not reliable because of the armed conflicts. Such data is a little better than random selection. During the war in Syria, living standards worsened significantly. There is the high level of migration to the neighbor-countries, especially Jordan. In countries with a large ratio of rural population, like Yemen, family size is traditionally big. This is a factor contributing to population growth. Different from the whole region – Israel - demonstrates a growing population number, mainly due to the migration policies, providing repatriation of Hebrews. Also, the fertility rate in Israel is relatively high – 3.1 births per woman in 2018.

On balance, projections show that the MENA region is growing in population terms. The percentage of population aged over 65 years is lower compared to the world average (9.1 % in 2019) and varies from 1.2 % in UAE to 7.3 % in Morocco (World Population Ageing, 2019). The difference in population numbers is in many respects based on historical factors, traditions, and influenced by religious norms. Among important factors are also economic prosperity, peace, stability in the country, government weighted socio-economic policy. Logically, countries with greater economic wellbeing and opportunities attract more people to settle. The analysis has also revealed that population numbers very poorly relate to land area.

3. Diversity of MENA countries in Terms of Per Capita GNI PPP

Production output is one more criterion in which we describe the world. Usually we employ composite indices GDP/GNI which provide data on transactions, and, curiously, not about the output. It reports about the output not in terms of goods and services but in terms of cash flow: if cash flow does not change hands, it will not impact GDP/GNI calculation. Analysts do not evaluate transactions itself but the value added, by stating the results in a common currency (e.g., current international dollars). What is more, there are shadow transactions which deliberately are not reported and, thus, not included in GDP/GNI calculation. Economists apply GDP/GNI in order to evaluate the impact of the countries on the world (Coauthor, 2016).

Reliable data is a crucial point. Fraudulent reporting by governments, complexity to evaluate shadow economy, legitimate re-estimations, lack of financial resources, reluctant and unqualified staff in statistical offices, human factor and irregularity of data collection is not the full list of obstacles occurring while collecting data. Despite this, GDP/GNP is traditionally applied to evaluate the size of an economy.

Comparing different economies over time, discussing economic growth and poverty, we try to equalize price differences between countries with the help of purchasing power parity (PPP). Thus we get GDP/GNI PPP, including per capita GDP/GNI PPP. Evaluating differences in the economic development of countries in per capita GDP/GNI, the PPP statistics is more relevant.

The graphical analysis shows that there is no relationship between capital income and population numbers. The distribution of GNI in the world map barely relates to population distribution.

In this paragraph we analyze per capita GNI PPP (current international dollars). We ranked all the world's countries by per capita GNI PPP, excluding states with a population less than 1.5 million and above 1 billion. Then we divided the world map of per capita GNI PPP into deciles. Table 2 is computed based on the latest available data. Finally, we have ranked MENA countries by deciles according to per capita GNI PPP data.

Table 2. Distribution of MENA Countries in the World Spectrum by per capita GNI PPP, 2020

Decile	per capita GNI PPP (current international \$)	Countries
1	[82609-97100]	Qatar
2	[73518-82609]	
3	[64427-73518]	UAE
4	[55336-64427]	Kuwait
5	[46245-55336]	Saudi Arabia
6	[37154-46245]	Israel, Bahrain
7	[28063-37154]	
8	[18972-28063]	Oman
9	[9881-18972]	Jordan, Tunisia, Iraq, Algeria, Egypt, Iran, Lebanon, Libya
10	[790-9881]	Yemen, Palestine, Morocco

Note. The author's computations based on the Gapminder data (GNI per capita PPP, 2020)

The ranking of MENA countries by per capita GNI PPP in ascending order is shown in Figure 3.

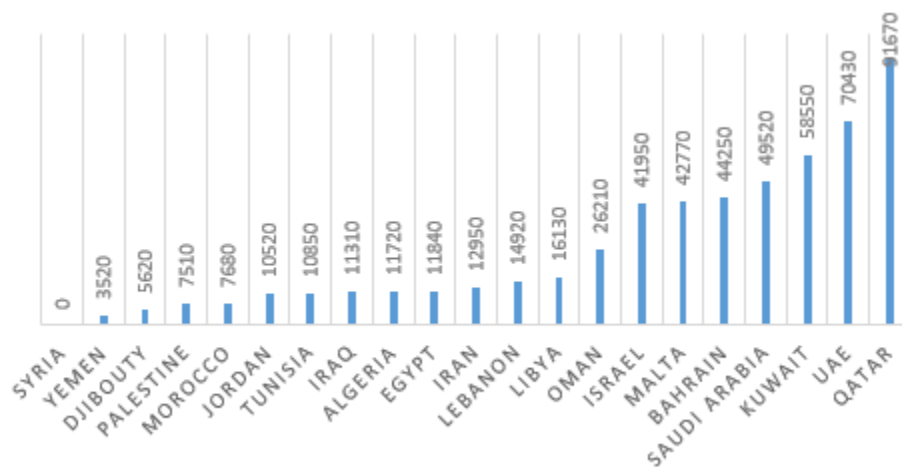


Figure 3. GNI per capita PPP, 2020 (current international dollars)

Note. The author's computations based on the Gapminder data (GNI per capita PPP, 2020). No data for Syria.

The analysis reveals that countries in the MENA region scatter randomly along the world spectrum of per capita GNI PPP, with the shift to the bottom. Countries diverge radically within the target region.

Figure 4 shows that the distribution of per capita GNI PPP across countries of the MENA region is asymmetric, highly right-skewed (skewness is 1.06), which means that relatively small values of per capita GNI PPP prevail in the distribution. The mean value for the MENA region is 27496, median is 13935, minimum is 3520 for Yemen and maximum is 91670 for Qatar.

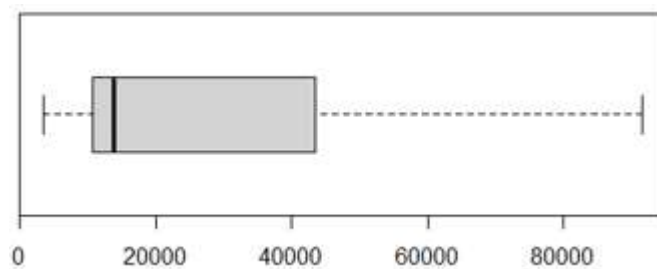


Figure 4. Box plot: distribution of per capita GNI PPP in MENA region, 2020

Note. The author's computation in R-Studio (R-script is in Appendix).

We observe a cluster of rich in oil countries in the top deciles. Based on Table 2 and Figure 3, we observe Qatar in the 1st decile of the world spectrum of per capita GNI PPP, which belongs to the top rich economies in the world. Qatar is followed by the UAE in the 3rd decile; Kuwait in the 4th decile; and Saudi Arabia in the 5th decile. The economic performance of Saudi Arabia has recently worsened while the country was involved in several military conflicts. Saudi Arabia financially supports the opposition in Syria. It is a leading member of the

military alliance against Shiite military rebellion Houthi in Yemen (Sa'dah War). This alliance supports Yemeni government with financial resources and armament. Contact restrictions with Qatar had its negative impact on Saudi Arabia's economy, too. These factors worsen the sustainability of Saudi Arabia in terms of state fragility (Author, 2018a). The countries mentioned above are oil-rich countries with economic, political and relative social stability. They belong to the 20 wealthy economies in the world in terms of per capita GNI.

In the 6th decile we observe Israel and Bahrain. Israel is the most wealthy state in Western Asia. Israel's economy is founded on high-tech development (there is an analogy to the USA's Silicon Valley). Bahrain is a small oil-rich state. In recent years its position on the world spectrum has worsened when the country was on the verge of civil war. The central government, supported by Saudi Arabia, was opposed by the Shiite confession, supported by Iran. The growing tension in society has led the country to some extent of instability.

Oil-rich Oman has no internal or external conflicts. The country occupies the 8th decile of the world spectrum. Its economy suffers an economic crisis, worsened by the sharp drop in oil prices (Mansour et al., 2020) and the coronavirus pandemic (Oman, 2020).

There is a cluster of countries in the 9th and 10th deciles which are at the bottom of the world spectrum of per capita GNI PPP. Oil-rich Iraq and Libya are currently convulsed with civil wars. The majority of countries in this cluster suffer consequences of the so-called "Arab spring" which dramatically worsened its economies, social standards and made these countries fragile.

Jordan is required to provide a separate comment. It is a country poor with natural resources, dependent on imports of food and agricultural products. The country is at the top of the list of world countries with scarce water resources. The projections reveal that the population of Jordan will increase by 2030. Certainly, it will lead to greater social and economic problems. Its economy is greatly affected by the refugee problem. Jordan has already accepted refugees from Syria, Palestine, Iraq and other countries convulsed with civil conflicts. Irregular migration is of major concern. Refugees settle down, occupy job places, consume public goods and services, often to the detriment of the indigenous population. Additionally, as historic lessons teach us, many refugees like, for example, the Palestinians, don't associate themselves with Jordan. Many of them emphasize their belonging to Palestine but at the same time consume the social and economic benefits of Jordan (Author, 2018a). The situation with refugees in Jordan is alarming.

According to the former Minister of Planning and International Cooperation at Government of Jordan Dr. Wissam A. Rabadi, Jordan has been living in external shocks over 10 years: starting in 2009 global crisis, followed by the Arab spring and its implications, closing borders with neighbor countries, Syrian crises (Rabadi, 2020). 1.3 million refugees from Syria are coming to Jordan, making this country a home for 3.6 million refugees (out of 10.3 million population). Undoubtedly, COVID19 has a severe impact on refugees in terms of incomes, access to education, etc. But there is a scary observation: in fact, a hosting community of Jordanians is really now being exposed to almost similar vulnerabilities as refugees. The study by UNICEF shows that similar levels of engagement to economic opportunities between Syrians and Jordanians before and after the lockdown are very similar in percentage terms (UNICEF, 2020). About 32 % of Syrians are involved in jobs against 25 % of Jordanians. 88 % of Syrian households are receiving social assistance from the UN and the donor community, while only 35 % of Jordanian households are receiving this kind of social assistance. What is more, there are mostly Palestinian households among these 35 % of "Jordanian" households. The fear today is that the hosting community of indigenous populations is going the way the refugees are going. So the indigenous Jordanian community is the most vulnerable. There is a crisis in Jordan before COVID19 that is on the ground of Syrian crises and a great refugee problem, and this crisis is getting worse.

To sum up, the highest per capita GNI PPP is demonstrated by oil-rich countries that are economically, politically and socially stable, plus high-tech Israel. Countries experienced "Arab spring" are all at the bottom of the world's spectrum. Their position is the lowest in the target region. Some countries in the region suffer problems of irregular migration which worsens their economic performance. Undergoing transformational recession, underdeveloped processing sector or almost absence of natural resources are among other factors shifting some MENA countries to the lower deciles of the world spectrum of per capita GNI PPP.

4. Diversity of MENA Countries in Terms of Human Development

Economists got used to applying GDP/GNI composite indices as a measurement of prosperity in a country. However, the development of a country, the wealth and happiness of a nation is not just a matter of changes in capital transactions. We have to consider other dimensions such as living standards, access to education and health services. The United Nations Development Program (UNDP) suggests the Human Development Index (HDI) launched in 1990 (Human Development Index, 2014). HDI consists of three elements with equal weights:

living standards, health and knowledge.

This composite index has its shortcomings:

- what variables should be selected and included into the index;
- different variables have different dimensions, so there is a question of standardization;
- whether the three dimensions of the index should be weighted equally.

Here we rank all world countries by HDI. Then the world map of HDI is divided into deciles. Table 3 is computed based on the latest available data (2019). Finally, we have ranked MENA countries by deciles according to HDI data.

Table 3. Distribution of MENA Countries in the World Spectrum by HDI, 2019

Decile	HDI	Countries
1	[0.8963-0.954]	Israel
2	[0.8386-0.8963)	Bahrain, Qatar, Saudi Arabia, UAE
3	[0.7809-0.8386)	Kuwait, Oman
4	[0.7232-0.7809)	Lebanon, Tunisia, Algeria, Iran
5	[0.6655-0.7232)	Morocco, Iraq, Palestine, Egypt, Libya, Jordan
6	[0.6078-0.6655)	
7	[0.5501-0.6078)	
8	[0.4924-0.5501)	Syria
9	[0.4347-0.4923)	Yemen
10	[0.377-0.4347)	

Note. The author's computations based on the Gapminder data (Gapminder HDI, 2019)

The ranking of MENA countries by HDI in ascending order is in Figure 5.

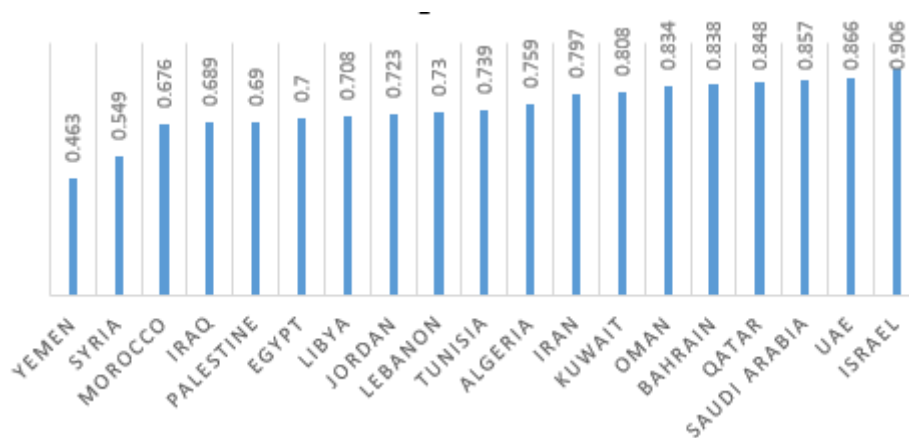


Figure 5. HDI, 2019

Note. The author's computations based on the Gapminder data (HDI, 2019)

The analysis reveals that MENA countries scatter randomly across the world spectrum of HDI. As regarding distribution within the target region, countries are clustered, deviating to the top of the world spectrum. The majority of MENA states belong to the “high” and “very high” categories in terms of HDI.

Since 2013, Israel has improved its HDI position and now the country is at the top of the world spectrum and the leader in the target region (1st decile). Israel has a high rank both in terms of per capita GNI PPP and HDI. In the 2nd decile we observe oil-rich countries such as UAE, Saudi Arabia, Qatar, Bahrain. The UAE and Qatar have also high positions in per capita GNI PPP. Qatar is one of the tiniest in population numbers oil-rich country which partially uses oil revenues to increase the wellbeing of its citizens. Other mentioned oil-rich countries have possibilities to improve the living standards of citizens. Small oil-rich Kuwait and Oman are in the 3rd decile. Mentioned countries may be grouped together as states with very high human development standards.

There are Iran, Algeria, Tunisia and Lebanon in the 4th decile. The countries may be characterized as countries with high human development. Jordan, Libya, Egypt, Palestine, Iraq, Morocco are in the 5th decile. They have medium human development indicators. We should admit that Jordan's HDI is on the border with the 4th decile and we find it reasonable to assign the country to the higher decile by its HDI. Syria is in the 8th decile, and its position has worsened in the last decade. Yemen belongs to the 9th decile with low HDI in the target region. The

country worsened its position in the last decade and belongs to the bottom of the world spectrum of HDI. Poor Yemen and mired in a protracted war, Syria have worsened positions on the world spectrum, both in terms of both per capita GNI PPP and HDI. We consider unreliable data on Palestine as well as Libya and Iraq because the last countries are mired in protracted civil wars after international intervention in the fight for oil. We don't find it reasonable to put them in line with Egypt and Morocco. Even though the mentioned countries have experienced negative economic and social consequences of the "Arab spring", these countries are relatively stable. Jordan should be assigned to the upper decile due to its better economic, social and political performance.

On balance, if we analyze the distribution of HDI globally, we may see that the highest values belong to higher income countries. Poorer countries occupy the lower end of the HDI spectrum. It means that the correlation between per capita GNI PPP and HDI is positive. Even though capital income is not the single factor in a country's wellbeing, it has a great influence on expenditures for healthcare, education, and living standards in general.

5. Diversity of MENA Countries in Terms of Happiness and Self-Reported Life Satisfaction

In this paragraph we analyze the target region in terms of happiness. We divided the world map of happiness indicators into deciles. Table 4 is computed based on the latest available data. Finally, we have ranked MENA countries by deciles according to the happiness indicator (Figure 6). The Index of Happiness takes values from 0 (the worst) to 10 (the best) (World Happiness Report, 2020). The worst value is for Afghanistan (2.567); the best is for Finland (7.809).

Table 4. Distribution of MENA Countries in the World Spectrum by the Index of Happiness, 2018

Decile	HDI	Countries
1	[7.2848-7.809]	
2	[6.7606-7.2848)	Israel, UAE
3	[6.2364-6.7606)	Saudi Arabia, Qatar
4	[5.7122-6.2364)	Bahrain, Kuwait
5	[5.188-5.7122)	Libya
6	[4.6638-5.188)	Morocco, Algeria, Iraq, Lebanon, Iran
7	[4.1396-4.6638)	Jordan, Palestine, Tunisia, Egypt
8	[3.6154-4.1396)	
9	[3.0912-3.6154)	Yemen, Syria
10	[2.567-3.0912)	

Note. The author's computations based on the World Happiness Report (2020). No data for Oman.

The analysis reveals that MENA countries scatter randomly across the world spectrum of the happiness index. As regarding distribution within the target region countries are also scattered randomly. Distribution is right-skewed with the mean 5.23, median 4.89, skewness 0.36 and kurtosis -09. There is no core in the data. The majority of countries in the target region are below the median, deviating to the bottom of the world spectrum of the happiness indicator. If we analyze the distribution of MENA countries along the world spectrum of self-reported life satisfaction (Our World in Data, 2018), the results would be very similar to the distribution by the happiness indicator (Figure 6).

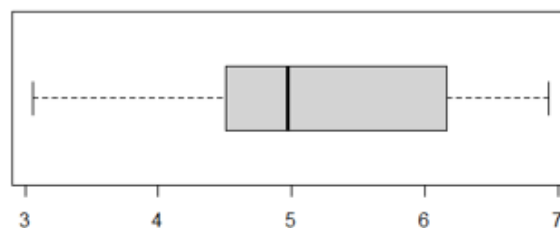


Figure 6. Box-plot: distribution of MENA countries by the self-reported life satisfaction, 2018

Note. The author's computation in R-Studio (R-script is in Appendix) is based on (Self-reported life satisfaction, 2018). The latest data for Qatar (2017), Syria (2015), and Oman (2011).

The linear correlation coefficient between per capita GNI PPP and the index of self-reported life satisfaction is 0.75; the linear correlation coefficient between HDI and the index of self-reported life satisfaction is 0.894. It supports the view that there is a strong positive linear relationship between life satisfaction and such parameters as capital income per person, living standards, access to health services and education. In higher income countries we observe greater values of self-reported life satisfaction and happiness. In other words, healthier and richer countries tend to have higher average happiness scores.

6. Discussion

In the research, we configured the MENA region in three categories of a political economy: population, capital income (per capita GNI PPP) and human development (HDI). Additionally, we analyzed the relationship between the mentioned dimensions and self-reported life satisfaction as well as the Index of Happiness. We performed a comparative analysis placing our target area (MENA countries) along the world spectrum. Furthermore, we made comparisons within the target region. Outcomes are as follows:

- We always have to keep in mind the accuracy of statistical data influencing conclusions. It is of major criticism as well as the methodology of the construction of composite indexes. In the comparative analysis we have used the latest available data.

- Reliable data is a crucial point. Fraudulent reporting by governments, complexity to evaluate shadow economy, legitimate re-estimations, lack of financial resources, reluctant and unqualified staff in statistical offices, human factor and irregularity of data collection is not the full list of obstacles occurring while collecting data. We find the data is unreliable for countries involved in armed conflicts – Iraq, Syria, Libya.

- Projections show that all MENA countries, except Lebanon, demonstrate population growth in the following 20 years. However, this growth will be at a slowing rate. There is a tendency of a fertility rate to decline due to major factors: improvement in educational level of women and their involvement in economic activity. Recent arm conflicts have decreased the number of population, deaths and migration. Jordan is the most vulnerable state in the MENA region in terms of the refugee problem. The situation there is alarming.

- In the world context, MENA countries form a cluster at the bottom along the world spectrum. Among important factors influencing population numbers of a particular country are also economic prosperity, peace, stability in the country, and government-weighted socio-economic policy. Logically, countries with greater economic wellbeing and opportunities attract more people to settle.

- The analysis has also revealed that population numbers very weakly relate to land area. There is no relationship between capital income and a population number. The world distribution of GNI barely relates to the population distribution.

- MENA countries scatter randomly along the spectrum of the world per capita GNI PPP, with the shift to the bottom. Regarding the target region “inside”, our countries diverge radically: the distribution of per capita GNI PPP across the MENA region is highly right skewed. That means that relatively small numbers of per capita GNI PPP prevail in the distribution. The maximum value is for Qatar; the minimum is for Yemen. We observe a cluster of oil-rich states in the top deciles of the world spectrum. There is a cluster of countries in the 9th and 10th deciles which are at the bottom of the world spectrum of per capita GNI PPP. The majority of countries in this cluster are currently convulsed with civil wars and/or suffer consequences of the so-called “Arab spring” which dramatically worsened its economies, social standards and made these countries fragile.

- MENA countries scatter randomly across the world spectrum of HDI. As regarding distribution within the target region, countries are clustered, deviating to the top of the world spectrum. The majority of MENA countries belong to the “high” and “very high” development categories.

- Israel has high rank both in terms of per capita GNI PPP and HDI. Qatar is one of the smallest oil-rich countries (in population terms) which partially uses oil rents to increase the wellbeing of its citizens. Other mentioned oil-rich countries have possibilities to improve the living standards of citizens. Small oil-rich Kuwait and Oman are in the 3rd decile. Mentioned countries may be grouped together as states with very high human development standards.

- On balance, if we analyze the distribution of HDI globally, we may see that the highest values belong to higher income countries. Poorer countries occupy the lower end of the HDI spectrum. It means that the correlation between per capita GNI PPP and HDI is positive. Even though capital income is not the single factor in a country’s wellbeing, it has a significant influence on expenditure on education, healthcare, and living standards in general.

- MENA countries scatter randomly across the world spectrum of the happiness index. As regarding distribution within the target region countries are also scattered randomly.

- Analysis supports the view that there is a strong positive linear relationship between life satisfaction and such parameters as capital income per person, living standards, access to health services and education. In higher income countries we observe greater values of self-reported life satisfaction and happiness. In other words, healthier and richer countries tend to have higher average happiness scores.

7. Conclusion

To sum up, all MENA countries, except Lebanon, demonstrate population growth in the following 20 years. The highest per capita GNI PPP is demonstrated by oil-rich countries that are economically, politically and socially

stable, plus high-tech Israel. Countries experienced “Arab spring” are all at the bottom of the world’s spectrum. Their position is the lowest in the target region. Some countries in the region suffer problems of irregular migration which worsens their economic performance. Undergoing transformational recession, underdeveloped processing sector or almost absence of natural resources are among other factors shifting some MENA countries to the lower deciles of the world spectrum of per capita GNI PPP. According to self-reported life-satisfaction and index of happiness distribution analysis, healthier and richer countries tend to have higher average happiness scores.

Currently, the MENA region is an a volatile cluster from the standpoint of safety, political rationality, and living standards. Armed clashes, technogenic accidents, the refugee problem in coping with the trend of demographic growth will put extra stress on the national economies of states and create great challenges for the governments.

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Appendix

R-script

Figure 4. Box-plot

```
gni<-c(3520,5620,7510,7680,10520,10850,11310,11720,11840,12950,14920,16130,26210,41950,42770,44250,49520,58550,70430,91670)
```

```
boxplot(gni,horizontal=TRUE,xlab="per capita GNI PPP")
```

```
library("psych")
```

```
describe(gni)
```

Figure 6. Box-plot

```
life<-c(6.93,6.6,6.36,6.23,6.09,5.49,4.9,5.04,4.46,5.17,4.28,4.64,4.55,4.74,4.01,3.06)
```

```
boxplot(life,horizontal=TRUE)
```

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