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THE INTERNATIONAL DISTRIBUTION OF POWER IN THE MIDDLE EAST AND NORTH AFRICA. A POWERMETRIC APPROACH

Abstract:

The article presents the results of research on the international distribution of power in the Middle East and North Africa (MENA). Applying the synthetic formal powermetric model, the international distribution of power (IDP) in three vectors (perspectives): economic, military and geopolitical has been obtained. The pole structure of IDP system in these three dimensions and its main determinants were defined. The research area covers the MENA states, as well as the United States and the Russian Federation as the external actors. The research results are relevant to the decision-making process of the political system of states directly or indirectly involved in international security in MENA.

Key words: MENA, international system, international security, powermetrics, economic power, military power, geopolitical power.

Introduction

The starting point of the article is an important due to the political realism Raymond Aron's concept (1962), according to which the international distribution of power (IDP) is the most important feature of every international system and 'power' is the ability of political actors to creating or destroying activities in this system (Aron, 2017). The states¹ are permanently rivalling to maximize of the power in IDP to pursue their national interests in the best way by cooperation or struggle (including a war). The international distribution of power is a game of the national power and interests. To get the best position in IDP, every state must have the correct geostrategy and the will to achieve its national interests (goals). Knowledge of IDP and its changes is a *sine qua non* condition for optimizing the decision-making process of the political system in

¹ In the study, it is only considered an individual 'state' as the basic political unit in the international system.

domain of the national and international security. It also allows for forecasting changes in IDP and geostrategic planning of the national security policy (the adaptation of political goals to the possibility of their implementation).

The article presents the results of research on the international distribution of power in the Middle East and North Africa (MENA). The purpose of the research is to determine and analyze the polar structure of this system in three dimension of power: economic (general) power, military power and geopolitical power. The research was based on a synthetic formal model of power measuring which has been developed in the framework of powermetrics. The research has been based on the input data from 2017, but the results refer also to the current situation in the region. The changes of input data in a short period of time will not significantly influence on the results of the formal model..

For a very long time, MENA has been an arena for the rivalry of civilizations, great powers and important geopolitical events. There is no unanimity regarding the territorial borders of the MENA in geography. This region has no objective features characterized only by the consistent physical geography criteria, as in Central Asia, Western Europe and East Africa. They depend on the given period and context, which change in different terms and framework. The lack of consensus regarding this issue means, that the MENA region should be defined from various points of view (criteria): historical, geoculture, geopolitical, geoeconomic, geostrategic etc. Sometimes it is just short called - the Middle East. Culturally, this region is dominated by the Arab states. In the political dimension, there is also a tendency to expand the region's coverage to the so-called the Greater Middle East extended of the post-Soviet areas of Central Asia. In a geopolitical sense, the MENA region is generally recognized as the region which covers territory of North Africa and West Asia (Bania, 2012, p. 16). For the purpose of this study, it has been adopted the framework of the MENA states according to the World Bank typology plus Turkey, assigned to Europe and Central Asia. This framework consists of non-Arab states (Turkey, Israel, Iran and Malta), and Arab states or states with strong influences of the Arabic culture (Algeria, Bahrain, Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Malta, Morocco, Oman, Qatar, Saudi Arabia, Syria, Tunisia, United Arab Emirates and Yemen). There are three geopolitical subregions in the MENA region: a central subregion (MENA core) - Levant (Egypt, Jordan, Syria and Israel) and two peripheral subregions – Maghreb (Libya, Algeria, Morocco and Tunisia) and Persian Gulf (Iraq, Iran, Kuwait, Saudi Arabia, Bahrain, Qatar, Oman, United Arab Emirates and Yemen).

There are many interesting and valuable analyses and publications on the geopolitical situation in the Middle East. Among many researchers: Yury Barmin from the Russian International Affairs Council; Dmitri Trenin from the Carnegie Moscow Center; Robert O. Freedman from Johns Hopkins University;

Mark N. Katz from George Mason University; Stephen J. Blank from the American Foreign Policy Council; Nikolay Kozhanov from the St Petersburg State University (visiting lecturer); Ekaterina Stepanova from the Institute of World Economy and International Relations (IMEMO) in Moscow; Anna Dyner and Witold Rodkiewicz from the Polish Institute of International Affairs should be mentioned. It should be noted that these studies are mostly the classical geopolitical analysis. I propose a new approach to geostrategic research based on *powermetric study*.

Short introduction to a powermetrics

Powermetrics is a new term, introduced by the Polish scientist Miroslaw Sulek², combining two concepts – ‘power’ and ‘metric’. It has been adopted on the ground of Polish science. Powermetrics is an applied science, dealing with the measurement and evaluation of the power of political units, especially states (nations) and forecast the relation between them on a global, regional and local scale using of models and simulations scientific methods.

The powermetric research focused on two main areas: (1) *economic* – resulting from the desire of rationalizing the development costs and defence in the certain circumstances and understanding of their formation; (2) *political-military* – resulting from the desire of occupying the best position and to playing the best role in the international distribution system.

The states strive for survival and development, in order to get maximum power, competing for limited global resources. This causes dynamic changes (in time and space) in *the international distribution of power (IDP)*. However, from the historical perspective, these changes are slow (there are periods of acceleration), which means that it is not possible to change IDP in a short time. A key sources of change of IDP is the uneven development of superpowers, causing a permanent shift of ‘power centres’ on the world map (in global, regional and local dimensions). The present IDP has a large inertia. It is a subject of constant fluctuations – causing increases or decreases in the number of main players, the stability of the international system, the mutual hostility etc. These changes are usually slow, reminding the tectonic motions, sometimes ending in unexpected changes (‘earthquakes’). But even in this case (e.g. after the end of the cold war) these changes are not so rapid, because their potential is increasing in time. It was very often unnoticed or under-valued. The synthetic research usually requires the formal models or expert estimates. The sector research requires

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more specialized knowledge. IDP can also be studied statically (at the moment; at the short period of time) or dynamically (the significant changes, trends, directions at the long period of time). IDP can also be studied geographically – due to the location of states with the specific power on the world map. This allows determining the distribution between the major powers and the continents and the direction of changes. There are also other criteria of the IDP analysis, such as: balance, stability, polarity, level of political and military tension (escalation), which are closely associated not only with a particular IDP, but also with the interests of the individual states (Sulek, 2013, pp. 19–23).

To maximize the power in IDP, states must have the correct geostrategy and the will to achieve their national interests (goals). IDP is a game of forces and interests, which takes the form of a permanent rivalry for the best position in the hierarchy. The *rivalry* between states is a so-called zero-sum game, where winning of one side is a loss the other side with the same size. In the IDP, a global power is always equal to a one hundred percent, while the ratio of states power is constantly changing. The rivalry between states for the limited global resources (“source of life energy”) takes two forms: (1) *cooperation* (trade resources) or (2) *struggle* (taking other people’s resources). The cooperation is a so-called positive-sum game, where all players profit, though in different degree. Struggle (in a different spheres: political, economic, military etc.) is a so-called negative-sum game, in which all players lose, though in different degree. Thus, *in constant competition for maximum share of power, states alternate between cooperation and struggle, depending on the specific conditions* (Sulek, 2013, pp. 23–27).

The rivalry between states to maximize their power depends on the interaction of their national interests determined by the political system (authority) and the conditions for their implementation. Thus, states have to calculate the possibility of pursuing their national interests according to their power and will of society (in democratic system) or hard decision of leader(s) (in an autocratic regime).

The powermetric study based on the quantitative and qualitative methods of the research of the international distribution of power seems to be very useful in the geostrategic studies [See (Białoskórski, 2018)]. This research was limited to the application of a formal model of measurement of power of states, as the main players of the international system. The studies therefore omitted the use of other indicators and non-state actors. Among different approaches (Höhn, 2011) I have adopted the modern powermetric model developed by Mirosław Sulek (Sulek, 2013). This model recognises three types of power: (1) economic power (EP), (2) military power (MP) and (3) geopolitical power (GP). There are also derived indicators of power, such a militarization. Three types of militarization are distinguished: economic militarization (m_e), GDP militarization (m_{GDP}) and demographic militarization (m_d).

Powermetric formal model

Rivalling in the international system, states are still approaching to maximize their power in form of sociological power (Mazur, 1996, p. 183)³. It relies on establishing proportions between cooperation and struggle (and therefore changing management standards) in order to achieve the best ratio of power. The international relations are synthesis of cooperation and struggle, in different spheres and proportions, determined during rivalry.

In the international distribution of power, the states pursue their **goals** defining a **potential (capability)** and employing social support (**will**) and appropriate **strategy**.

In general approach, the national power is the product of tangible, intellectual and spiritual potential (Sulek, 2010, p. 98) & (Moczulski, 1999, p. 402–403):

$$NP = TP \times IP \times SP$$

Where:

NP – national power,

TP – tangible potential,

IP – intellectual potential,

SP – spiritual potential.

It can be also expressed as the product of national resources (potential), strategy and will to pursue national strategy by the political unit:

$$NP = R \times NS \times W$$

Where:

NP – national power,

R – resources,

NS – national strategy,

W – will to pursue of national strategy.

In both formulas, the tangible potential (resources) relates to presented synthetic concept of economic power (EP), military power (MP) and geopolitical power (GP). On the basis of these three sort of powers, it has been also estimated the level of power status (PS).

³ It refers to cybernetic theory of known Polish scientist Marian Mazur and considers a power in the category of sociological power. There are two principle forms of sociological power of state: (1) Internal power – within political system of state and (2) External power – in the international system.

Assuming, that the expression of the organizational and production ability or the collective action ability is the stream (flow) of the gross domestic product (GDP) in time, economic (general) power can be expressed by the formula⁴:

$$EP = (GDP)^{0.652} \times L^{0.217} \times a^{0.109}$$

Where:

EP – economic (general) power (Sulek, 2001, pp. 87–97)⁵,

GDP – gross domestic product,

L – population,

a – area (territory).

Concept of military power (MP) formal (synthetic) model is based on economic power approach (EP) stressing the total character of state power, including military power.

Assuming that the expression of organizational and production skills (ability to collective activity) is the stream of military expenditures (expressed in time unit), the military power can be expressed by the following formula⁶:

$$MP = (MEX)^{0.625} \times S^{0.217} \times a^{0.109}$$

Where:

MP – military power,

MEX – military expenditures,

S – soldiers (active),

a – area (territory).

The concept of geopolitical power (GP) formal (synthetic) model is based on economic (general) power (EP) and military power approach stressing the total character of state power, including economic power and military power.

⁴ The economic power can be understood narrowly or broadly. In the narrow meaning of the main component of economic power is the value of GDP expressed in time, while in a broad sense, the expression of economic power are also demographic and spatial (territory) factors, which are an expression of the general power. In reflection, I took the view of a broad economic (general) power, which part is the military power.

⁵ The exponent values were determined by the deductive method.

⁶ It has to be noted that the synthetic model takes into account the military power as conventional military power without nuclear factor. The nuclear power factor has to be research separately.

Geopolitical power is expressed by the following formula:

$$GP = \frac{EP + (2 \times MP)}{3}$$

Where:

GP – geopolitical power,

EP – economic (general) power,

MP – military power.

This model has assumed that the power of the world is a whole and equals 1. The power of each state is therefore a fraction (share) of this size. To clarity of the presented results, the fractions can be multiplied by any number, e.g. if we multiply them by 100, we will get results in percent of the world's power (then the power of the world=100%). We can also multiply them by 1000 (then the power of the world=1000), which means that we will express it in the millimir (mM), that is, the thousandth parts of the power of the world.

There are three types of militarization indicator: (1) economic (general) militarization (m_e), (2) GDP militarization (m_{GDP}) and (3) demographic militarization (m_d). The militarization indicators are dimensionless quantities.

The economic (general) militarization indicator is the ratio of military power to economic (general) power⁷:

$$m_e = \frac{MP}{EP} = \frac{MEX^{0.652} \times S^{0.217} \times a^{0.109}}{GDP^{0.652} \times L^{0.217} \times a^{0.109}}$$

After a mathematical simplification, the formula will take the form:

$$m_e = \left(\frac{MEX^{0.652}}{GDP^{0.652}} \right) \times \left(\frac{S^{0.217}}{L^{0.217}} \right)$$

We can be seen that the economic (general) militarization indicator is the product of two partial indicators - GDP militarization and demographic militarization:

⁷ The economic (general) indicator can be also interpreted as an indicator of mobilization, because it demonstrates how many part of the resources was allocated (mobilized) for military (defence) purposes. It can be also treated as an indicator of a defensive readiness.

$$m_{GDP} = \frac{MEX^{0.652}}{GDP^{0.652}}$$

$$m_d = \frac{S^{0.217}}{L^{0.217}}$$

The above indicators are important means of describing the security and defense policy of states. These indicators inform us about the type of military strategy of the states and about readiness to implement it. We can distinguish two extreme cases: first, when the indicator of the militarization of GDP is high, and the demographic militarization is - low and the second - the opposite. There are also a large number of intermediate situations.

As a polarity criterion to recognize every (global, regional and local) international system as a unipolar, bipolar or multipolar, I have adopted an algorithm of comparing the ratios of the largest powers of states in the ranking: the first with the second ($P1/P2$), the first with the third ($P1/P3$) etc. If $P1 > 2 \times P2$ - the system is unipolar with one pole - P1. If $P1 \leq 2 \times P2$ - the system is bipolar with two poles - P1 and P2. If $P1 > 2 \times P3$ - the bipolar system is established. If $P1 \leq 2 \times P3$ - the system is multipolar with three poles - P1, P2 and P3. The next poles of the system can be recognized in the same way.

International distribution of power in MENA

This section answers the research problem: *what is the polar structure of the international distribution of powers in MENA?* A powermetric approach was used to solve this research problem. It is based on the presented above formal model developed by Miroslaw Sulek. The international distribution of power based on the economic power, military power and geopolitical power were taken into account.

In general, the both static (1997) and dynamic (1992-2017) outcomes of the distribution of economic power, military power and geopolitical power of MENA states present a clear dominance of three states of the region, i.e. **Turkey, Saudi Arabia and Iran** (Table 1-2). Saudi Arabia holds the strongest position among the member state of this elite triangle. The other states have the power ambitions in the system, but they stay in the background of this triangle states rivalry.

The economic (general) international system points to the **three-pole system** of MENA region in 2017 created by - **Turkey, Saudi Arabia and Iran**. In this case, the adopted polarity criterion is completed:

$P1_{TURKEY} = 1.10\% / P2_{SAUDI ARABIA} = 0.88\% = 1.25 (\leq 2.0)$ - at least bipolar system,

$P1_{TURKEY} = 1.10\% / P3_{IRAN} = 1.41\% = 0.78 (\leq 2.0)$ - at least three-pole system,

$P1_{TURKEY}=1.10\%/P4_{EGYPT}=0.51\%=2.16$ (>2.0) - the three-pole system is completed.

It is confirmed by a dynamic polarity distribution in 1992-2017. Turkey still occupies the position of the strongest economic power among the MENA states throughout the entire research period (the pole number 1). Saudi Arabia and Iran rival for the position of the second leader (pole) in this system.

The military international system points to the **unipolar system** of MENA region in 2017, created by one military pole - **Saudi Arabia**. In this case, the adopted polarity criterion is completed:

$P1_{SAUDI ARABIA}=3.42\%/P2_{IRAN}=1.43\%=2.39$ (>2.0).

It is also confirmed by a dynamic polarity distribution in 1992-2017. Turkey and Iran periodically had taken the position of second and the third military pole, but it can be considered as the marginal pole states.

The geopolitical international system points to the **unipolar system** of MENA region in 2017, created by one geopolitical pole - **Saudi Arabia**. In this case, the adopted polarity criterion is completed: $P1_{SAUDI ARABIA}=2.57\%/P2_{IRAN}=1.21\%=2.12$ (>2.0). Turkey had taken the position of second economic pole for eleven years (1996-1999; 2003-2009), what can be considered as the high geopolitical aspirations in the region, but what lost during the last eight years (the member of NATO).

Table 1. Distribution of powers of MENA states related to the United States and the Russian Federation in 2017

MENA ranking	Economic Power (EP) world=100%			Military Power (MP) world=100%			Geopolitical Power (GP) world=100%		
	State	%	World position	State	%	World position	State	%	World position
1	Turkey	1.099	17	Saudi Arabia	3.417	5	Saudi Arabia	2.570	6
2	Saudi Arabia	0.877	19	Iran, Islamic Rep.	1.432	11	Iran, Islamic Rep.	1.214	15
3	Iran, Islamic Rep.	0.776	21	Iraq	0.886	18	Turkey	0.880	20
4	Egypt, Arab Rep.	0.509	29	Algeria	0.812	19	Iraq	0.704	22
5	Algeria	0.377	37	Israel	0.777	20	Algeria	0.667	23
6	Iraq	0.339	40	Turkey	0.770	21	Israel	0.604	27
7	United Arab Emirates	0.321	42	United Arab Emirates	0.721	23	United Arab Emirates	0.588	28
8	Israel	0.258	47	Oman	0.466	29	Egypt, Arab Rep.	0.440	30
9	Morocco	0.227	54	Egypt, Arab Rep.	0.406	30	Oman	0.347	39
10	Qatar	0.115	70	Morocco	0.372	32	Morocco	0.324	42
11	Libya	0.111	71	Kuwait	0.210	50	Kuwait	0.175	59
12	Oman	0.108	74	Jordan	0.165	58	Jordan	0.135	66
13	Kuwait	0.107	75	Lebanon	0.127	65	Lebanon	0.106	72
14	Tunisia	0.083	83	Tunisia	0.090	71	Tunisia	0.087	78
15	Jordan	0.075	90	Bahrain	0.053	88	Bahrain	0.045	98
16	Lebanon	0.063	95	Malta	0.005	136	Qatar	0.038	107
17	Bahrain	0.027	125	Syrian Arab Republic	N/A	N/A	Libya	0.037	109
18	Malta	0.010	151	Djibouti	N/A	N/A	Malta	0.006	154
19	Djibouti	0.005	160	Yemen, Rep.	N/A	N/A	Djibouti	N/A	N/A
20	Yemen, Rep.	N/A	N/A	Libya	N/A	N/A	Syrian Arab Republic	N/A	N/A
21	Syrian Arab Republic	N/A	N/A	Qatar	N/A	N/A	Yemen, Rep.	N/A	N/A
	MENA States	5.486		MENA States	10.71		MENA states	8.968	
	Russian Federation	2.602	7	Russian Federation	4.096	4	Russian Federation	3.598	4
	United States	14.954	2	United States	22.590	1	United States	20.045	1

Bold – poles; N/A – no data available for formula calculation; Source: own elaboration.

Table 2. Distribution of the poles of the economic power, military power and geopolitical power in MENA in 1992-2017

Year	Poles	Economic Power	Military Power	Geopolitical Power
1992	1 st	Turkey	Saudi Arabia	Saudi Arabia
	2 nd	-	-	-
	3 rd	-	-	-
1993	1 st	Turkey	Saudi Arabia	Saudi Arabia
	2 nd	Saudi Arabia	-	-
	3 rd	-	-	-
1994-1995	1 st	Turkey	Saudi Arabia	Saudi Arabia
	2 nd	Saudi Arabia	-	-
	3 rd	Iran	-	-
1996	1 st	Turkey	Saudi Arabia	Saudi Arabia
	2 nd	Iran	-	Turkey
	3 rd	Saudi Arabia	-	-
1997	1 st	Turkey	Saudi Arabia	Saudi Arabia
	2 nd	Saudi Arabia	Turkey	Turkey
	3 rd	Iran	-	-
1998	1 st	Turkey	Saudi Arabia	Saudi Arabia
	2 nd	Iran	Turkey	Turkey
	3 rd	-	-	-
1999	1 st	Turkey	Saudi Arabia	Saudi Arabia
	2 nd	Saudi Arabia	Turkey	Turkey
	3 rd	Iran	-	-
2000-2002	1 st	Turkey	Saudi Arabia	Saudi Arabia
	2 nd	Saudi Arabia	-	-
	3 rd	Iran	-	-
2003	1 st	Turkey	Saudi Arabia	Saudi Arabia
	2 nd	Saudi Arabia	-	Turkey
	3 rd	-	-	-
2004	1 st	Turkey	Saudi Arabia	Saudi Arabia
	2 nd	Iran	-	Turkey
	3 rd	-	-	-
2005	1 st	Turkey	Saudi Arabia	Saudi Arabia
	2 nd	Saudi Arabia	Turkey	Turkey
	3 rd	-	-	-
2006	1 st	Turkey	Saudi Arabia	Saudi Arabia
	2 nd	Saudi Arabia	Turkey	Turkey
	3 rd	-	Iran	-
2007-2009	1 st	Turkey	Saudi Arabia	Saudi Arabia
	2 nd	Iran	-	Turkey
	3 rd	-	-	-
2010	1 st	Turkey	Saudi Arabia	Saudi Arabia
	2 nd	Iran	-	Iran
	3 rd	-	-	-
2011	1 st	Turkey	Saudi Arabia	Saudi Arabia
	2 nd	Iran	Iran	-
	3 rd	-	-	-
2012	1 st	Turkey	Saudi Arabia	Saudi Arabia
	2 nd	Iran	Iran	-
	3 rd	Saudi Arabia	-	-
2013	1 st	Turkey	Saudi Arabia	Saudi Arabia
	2 nd	Saudi Arabia	-	-
	3 rd	-	-	-
2014-2017	1 st	Turkey	Saudi Arabia	Saudi Arabia
	2 nd	Saudi Arabia	-	-
	3 rd	Iran	-	-

Source: own elaboration.

Analysis of positions taken by MENA states playing role of power poles in a regional international system

After determining the *status quo* of the international distribution of power in MENA, it is necessary to answer the next research problem: *what kind of main determinants affect the distribution of polar structure of the system? What kind of particularly ingredients determine the economic polar of Turkey and Saudi Arabia and the military and geopolitical polar dominance of Saudi Arabia in the region?* To solve this problem, the data components of the formal power model and militarization indicators will be analysed.

(a) Let's first consider the distribution of polarity in the MENA system by economic power. There are three data components of the formal economic power model with different weights (exponents) - the highest – GDP (0.652), followed by - population (0.217) and territory (0.109) (Table 3).

The first pole of the system – Turkey took the highest rank of GDP position in the region with value of 1.055% in 2017. At the same time, Turkey took the high third position in the ranking of population (1.072%, by Iran with 1.078%) and the sixth position in terms of territory (0.593%) in the region. The second pole - Saudi Arabia took the second rank GDP position (0.848%), the seventh position in the ranking of population (0.437%) and high second position in terms of territory (1.657%). The ratio of economic power of the MENA region states between Turkey and Saudi Arabia is on the level of 1.253 (i.e. 0.253 advantages Turkey over Saudi Arabia). The third pole – Iran took the third rank GDP position (0.545%), the high second population rank (1.078%) and the fourth position in the ranking of the territory (1.255%). The fourth MENA state of the ranking of economic power – Egypt (Table 1) was not able to get the pole status, because of too low GDP value – the sixth position (0.292%) even by the highest first rank in population (1.295%) and the fifth rank in the territory (0.767%). Egypt should be however considered as a next state with the highest aspiration to take a pole position in the region.

Considering the index of militarization (derived indicators of power) it should be firstly noted that MENA is the most militarized region of the world in all three dimensions: economic, GDP and demographic (Graph 1). The biggest difference of militarization relative to the next region of ranking – North America - occurs in the case of a GDP militarization value – 69%, next demographic militarization – 81%, and economic militarization – 86% of MENA. The above is confirmed by detailed quantitative and qualitative data of distribution of militarization indicators of MENA states in 2017 (Table 4). It should be noted, that even a dozen MENA states belong to the top 20 of the most economic and GDP militarized states in the world.

The top economic pole – Turkey took the low values (below the world average=1.0) of all three militarization indicators ($m_e=0.701$; $m_{GDP}=0.625$; $m_d=1.122$) compared to others MENA states. Turkey got also the lowest level

of militarization among the all three pole states of the region. The above leads to an interesting conclusion, that the top position of Turkey in economic powers ranking of MENA states was achieved by restrictions in developing of the military dimension. Developing its economy at the expense of military power, Turkey joining the 'club' of NATO's states of Western Europe with too low military expenditures, including its leader Germany ($m_e=0.680$; $m_{GDP}=0.707$; $m_d=0.962$). This also means, that Turkey has significant reserves to increase the value of all three indexes of militarization (largest of all three poles). Preserving the position and size of economic power value in the region (system stability), it is enough to increase its military expenditures (MEX) and (or) the number of active soldiers (S). The militarization indexes of a second economic pole – Saudi Arabia are the highest compared to other poles in region ($m_e=3.895$; $m_{GDP}=3.150$; $m_d=1.237$). The high second places in a ranking of economic militarization and GDP militarization of Saudi Arabia in the region as well as in the world do not leave much freedom to increase them. More opportunities can be provided by the improvement of the demographic militarization indicator (the seventh position in a region) by increasing the number of soldiers (active) by the constant of population. The third economic pole – Iran maintains the level of all militarization indexes at an average level in the region and high in a global ranking, with a large perspective of increasing.

(b) The distribution of polarity in the MENA system by military power was firstly considered by three data components of formal military power model with different weight (exponents) - the highest – military expenditures (0.652), followed by – soldiers (active) (0.217) and territory (0.109) (Table 3). Saudi Arabia was the only one pole in the regional international system in 2017. It took a very high the fifth position in the world military power ranking (3.417% of the world=100%) following the unquestioned leader - the United States (22.590%), next China (10.022%), India (4.100%) and Russia (4.096%) in 2017 (Białoskórski, Kiczma, & Sulek, 2019, s. 15). This top position in the MENA ranking of military power is the result of the highest military expenditure (leader), significant territory (strong second position after Algeria) and a large number of active soldiers (fourth position after leading Iran, Egypt and Turkey). It is also confirmed by the already above-mentioned (para a) level of militarization indexes of Saudi Arabia. The next state in this ranking – Iran was not able to complete the polarity criterion due to insufficient military expenditures level (fifth position after Saudi Arabia, Iraq, UAE and Israel), even by the largest number of active soldiers in the region (leader) and significant territory (fourth position after Algeria, Saudi Arabia and Libya). Iran is a state not only with the clearly significant military aspirations but also with the opportunities to get the pole position, increasing the military budget and all militarization indicators.

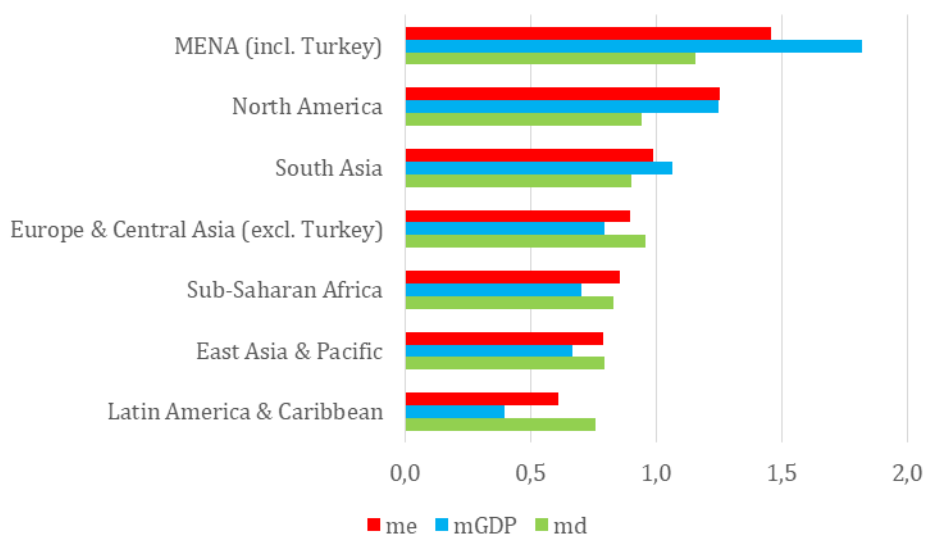
(c) The distribution of polarity in the MENA system by geopolitical power was constituted by the values of economic power (weight=1) and military power (weight=3). The position of the only one pole of geopolitical system in MENA in 2017 – Saudi Arabia - results directly from the values of both constituent powers. Saudi Arabia took very the high sixth position in geopolitical powers ranking in the world (2.57% of the world=100%) comparable with Brazil (no. 5 with 2.58%) and Japan (no. 7 with 2.53%). The undisputed leader of this ranking is the United States (20.04%) preceding China (11.75%), India (4.35%) and Russia (3.60%) (Białoskórski & others, 2019, p. 15). Iran is the next state in the regional ranking with the high aspiration to increase the geopolitical power by increasing military power.

Table 3. Input data to calculate the power formula of MENA states in 2017 (world=100%)

P.	Gross Domestic Product (GDP)		Population (L)		Territory (a)		Military Expenditures (MEX)		Soldiers (active) (S)	
	State	%	State	%	State	%	State	%	State	%
1	Turkey	1.055	Egypt	1.295	Algeria	1.836	S. Arabia	4.925	Iran	2.681
2	S. Arabia	0.848	Iran	1.078	S. Arabia	1.657	Iraq	1.238	Egypt	2.250
3	Iran	0.545	Turkey	1.072	Libya	1.356	UAE*)	1.194	Turkey	1.820
4	UAE	0.474	Algeria	0.549	Iran	1.255	Israel	1.191	S. Arabia	1.164
5	Israel	0.435	Iraq	0.508	Egypt	0.767	Iran	1.030	Morocco	1.005
6	Egypt	0.292	Morocco	0.475	Turkey	0.593	Algeria	0.643	Israel	0.907
7	Iraq	0.245	S. Arabia	0.437	Yemen	0.407	Oman	0.558	Syria	0.810
8	Algeria	0.211	Yemen	0.375	Morocco	0.344	Turkey	0.513	Algeria	0.666
9	Qatar	0.208	Syria	0.243	Iraq	0.335	Kuwait	0.367	Jordan	0.518
10	Kuwait	0.149	Tunisia	0.153	Oman	0.239	Morocco	0.224	Iraq	0.328
11	Morocco	0.135	Jordan	0.129	Syria	0.142	Egypt	0.171	UAE	0.323
12	Oman	0.090	UAE	0.125	Tunisia	0.120	Lebanon	0.120	Lebanon	0.308
13	Lebanon	0.064	Israel	0.116	Jordan	0.068	Jordan	0.105	Oman	0.220
14	Libya	0.063	Libya	0.085	UAE	0.064	Bahrain	0.095	Tunisia	0.185
15	Tunisia	0.050	Lebanon	0.081	Djibouti	0.018	Tunisia	0.053	Yemen	0.103
16	Jordan	0.050	Oman	0.062	Israel	0.017	Malta	0.004	Qatar	0.087
17	Bahrain	0.044	Kuwait	0.055	Kuwait	0.014	Libya	N/A	Kuwait	0.082
18	Malta	0.016	Qatar	0.035	Qatar	0.009	Yemen	N/A	Djibouti	0.051
19	Djibouti	0.002	Bahrain	0.020	Lebanon	0.008	Syria	N/A	Bahrain	0.041
20	Syria	N/A	Djibouti	0.013	Bahrain	0.001	Djibouti	N/A	Malta	0.010
21	Yemen	N/A	Malta	0.006	Malta	N/A**)	Qatar	N/A	Libya	N/A
	MENA	4.975	MENA	6.910	MENA	9.250	MENA	12.431	MENA	13.557
	Russia	1.955	Russia	1.919	Russia	7.051	Russia	2.929	Russia	4.613
	USA	24.033	USA	4.325	USA	12.624	USA	38.716	USA	6.909

Bold – pole states; N/A – no data available for formula calculation. Source: own elaboration based on (*The Military Balance*, 2018) and („The World Bank”, 2019); *) data from CIA („The World Factbook”, 2018); **) small value.

Graph 1. Distribution of militarization indicators of MENA related to other regions (world=1.0)*



*) World Bank regions typology rules (excluded states with N/A); Source: own elaboration.

Table 4. Distribution of militarization indicators of MENA states related to the United States and the Russian Federation in 2017

MENA ranking	economic militarization (e _m) world=1.0			GDP militarization (m _{GDP}) world=1.0			demographic militarization (m _a) world=1.0		
	State	m _e	pos.	State	m _{GDP}	pos.	State	m _a	pos.
1	Oman	4.332	1	Oman	3.285	1	Israel	1.563	2
2	S. Arabia	3.895	2	S. Arabia	3.150	2	Djibouti	1.353	10
3	Israel	3.016	4	Iraq	2.875	4	Jordan	1.352	11
4	Iraq	2.614	5	Algeria	2.068	5	Lebanon	1.337	12
5	UAE	2.244	7	Israel	1.929	7	Oman	1.319	13
6	Jordan	2.204	8	UAE	1.826	8	Syria	1.299	14
7	Algeria	2.157	9	Kuwait	1.800	9	S. Arabia	1.237	18
8	Lebanon	2.008	10	Bahrain	1.658	11	UAE	1.229	20
9	Kuwait	1.964	11	Jordan	1.629	12	Iran	1.219	21
10	Bahrain	1.942	13	Iran	1.515	15	Qatar	1.219	22
11	Iran	1.846	17	Lebanon	1.502	16	Morocco	1.177	28
12	Morocco	1.635	21	Morocco	1.389	19	Bahrain	1.171	29
13	Tunisia	1.084	39	Tunisia	1.041	38	Egypt	1.127	39
14	Egypt	0.797	68	Egypt	0.707	92	Turkey	1.122	41
15	Turkey	0.701	86	Turkey	0.625	108	Malta	1.116	43
16	Malta	0.469	123	Malta	0.420	136	Kuwait	1.091	54
17	Djibouti	N/A	N/A	Djibouti	N/A	N/A	Algeria	1.043	69
18	Libya	N/A	N/A	Libya	N/A	N/A	Tunisia	1.041	71
19	Qatar	N/A	N/A	Qatar	N/A	N/A	Iraq	0.909	112
20	Syria	N/A	N/A	Syria	N/A	N/A	Yemen	0.755	143
21	Yemen	N/A	N/A	Yemen	N/A	N/A	Libya	N/A	N/A
	MENA	32.906		MENA	27.419		MENA	23.678	
	Russia	1.574	23	Russia	1.301	25	Russia	1.210	25
	USA	1.511	24	USA	1.365	23	USA	1.107	47

Bold – pole states; N/A – no data available for formula calculation; Source: own elaboration.

Conclusions

The article presents the results of research on the international distribution of power in the Middle East and North Africa (MENA) in 2017. The international distribution of power in terms of (a) economic power, (b) military power and (c) geopolitical power has been obtained. These three dimensions of power are closely related in applying a synthetic formal powermetric model. The paper looked answers for two research problems: (1) *What is the polar structure of the international distribution of powers in MENA?*, (2) *What kind of main determinants affect the distribution of polar structure of this system?* Taking under consideration the research outcomes it can be concluded:

1. There are three strongly dominant states in MENA related to economic, military and geopolitical power: Turkey, Saudi Arabia and Iran. Saudi Arabia holds the strongest position among the member state of this elite triangle. The other regional states have the ambitions to reach this position, but they remain in the background of this triangle states rivalry.

2. The economic (general) international system points to a three-pole system of MENA region created by - Turkey, Saudi Arabia and Iran, while the military and geopolitical system is dominated by the only one pole-state – Saudi Arabia.

3. MENA was the most militarized region of the world in all three dimensions: economic, GDP and demographic in 2017.

4. The pole positions of MENA states related to the international distribution of economic power (triangle: Turkey-Saudi Arabia-Iran) are determined by relation of values of three indicators: gross domestic product (GDP), population (L) and territory (a). To obtain the status of a pole-state, it is necessary to have a sufficiently high GDP ratio, and the last two indicators at least at a medium level. The only Turkey, Saudi Arabia and Iran met these criteria among the MENA states. The GDP level of fourth state in ranking – Egypt, is too low to get this position, even by the highest first rank in population and fifth rank in territory in region. Egypt should be however considered as a next state with the highest aspiration to take a pole position in the region. It is interesting to note, that Turkey was achieved an economically leading country (top economic pole) by restrictions in developing of the military dimension (the significant reserves of all three indexes of militarization). Developing its economy at the expense of military power, Turkey joining the 'club' of NATO's states of Western Europe with a low military expenditures value. Saudi Arabia do not leave much freedom to increase the economic power (the high rate of economic militarization and GDP militarization) while Iran is a state with a large perspective to increase it (an average level of all military indexes).

5. The pole positions of MENA states related to the international distribution of military power (the only one pole-state: Saudi Arabia) are

determined by relation of values of three indicators: military expenditures (MEX), soldiers active (S) and territory (a). To obtain the status of a military pole-state, it is necessary to have a sufficiently high MEX ratio, and the last two indicators at least at a medium level. The only Saudi Arabia met these criteria among the MENA states. The next state in this ranking – Iran was not able to complete the polarity criterion due to insufficient military expenditures level (fifth position after Saudi Arabia, Iraq, UAE and Israel), even by the largest number of active soldiers in the region (leader) and significant territory (fourth position after Algeria, Saudi Arabia and Libya). Iran should be considered as a state with the clearly significant military aspirations.

6. The pole positions of MENA states related to the international distribution of geopolitical power (the only one pole-state: Saudi Arabia) are determined by ratio of values of military power (MP) and economic power (EP). To obtain the status of a geopolitical pole-state, it is necessary to have a sufficiently higher MP to EP ratio. The only one MENA state obtained this criterion - Saudi Arabia, which should be considered as the geopolitically strongest state in the region.

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Międzynarodowy rozkład potęgi na Bliskim Wschodzie i w Afryce Północnej. Podejście potęgometryczne

W artykule przedstawiono wyniki badań dotyczących międzynarodowego rozkładu potęgi w krajach Bliskiego Wschodu i Afryki Północnej (MENA). Stosując syntetyczny formalny model potęgometryczny, uzyskano międzynarodowy rozkład potęgi (IDP) w trzech wektorach (perspektywach): ekonomicznym, wojskowym i geopolitycznym. Określono strukturę biegunową układu IDP w tych trzech wymiarach i określono jego główne determinanty. Obszar badawczy obejmuje państwa MENA, a także Stany Zjednoczone i Federację Rosyjską jako podmioty zewnętrzne. Wyniki badań odnoszą się do procesu decyzyjnego systemu politycznego państw bezpośrednio lub pośrednio zaangażowanych w bezpieczeństwo międzynarodowe w MENA.

Słowa kluczowe: MENA, system międzynarodowy, bezpieczeństwo międzynarodowe, potęgometria, potęga gospodarcza, potęga wojskowa, potęga geopolityczna.