## ШЕТЕЛ ҒАЛЫМДАРЫНЫҢ МІНБЕСІ ТРИБУНА ЗАРУБЕЖНЫХ УЧЕНЫХ TRIBUNE OF FOREIGN SCIENTISTS

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Abhari Aiman Shawkat Faris\*

Talal Abu Ghazaleh Intellectual Property Jordan

# THE ARAB SPRING: A POLITICAL ANALYSIS AND ASSESSMENT

#### Abstract

The study aims to explain the variations in the state of democratization in the countries of the region covered by the events of the Arab Spring, as well as to identify the factor(s) underlying the changes. Six countries were selected for analysis; half of them have undergone major changes, the other half - minor political changes. The theory of modernization and the theory of Huntington about the waves of democratization are used. The chosen method is a comparative method together with a quantitative analysis. The result shows that, contrary to the modernization theory and hypothesis, economic and socio-economic development does not explain the changes in the state of democratization. Countries with little political change are somewhat more developed. The result suggests that other factors, such as economic decline and the resilience of the monarchy, may explain the differences in the state of democratization as a result of the Arab Spring.

**Keywords:** Arab Spring, democratization, modernization theory, Huntington, quantitative indicators, political analysis.

Абхари Айман Шаукат Фарис\*

Талал Әбу Ғазале Зияткерлік меншік Иордания

### АРАБ КӨКТЕМІ: САЯСИ ТАЛДАУ ЖӘНЕ БАҒАЛАУ

#### Андатпа

Зерттеудің мақсаты-Араб көктеміндегі оқиғалармен қамтылған аймақ елдеріндегі демократияландыру жағдайындағы айырмашылықтарды түсіндіру, сондай-ақ өзгерістердің негізінде жатқан факторларды анықтау. Талдау үшін алты ел таңдалды; олардың жартысы үлкен өзгерістерге ұшырады, екінші жартысы кішігірім саяси өзгерістерге ұшырады. Модернизация теориясы мен Хантингтон демократияландыру толқындары теориясы қолданылады. Таңдалған әдіс сандық талдаумен біріктірілген салыстырмалы әдіс болып табылады. Нәтиже көрсеткендей, модернизация теориясы мен гипотезасына қайшы, экономикалық және әлеуметтік-экономикалық даму демократияландыру жағдайындағы өзгерістерді түсіндірмейді. Кішігірім саяси өзгерістері бар елдер біршама дамыған. Нәтиже экономикалық құлдырау және монархияның тұрақтылығы сияқты басқа факторлар Араб көктемінің нәтижесінде демократияландыру жағдайындағы айырмашылықтарды түсіндіре алады деп болжайды.

**Түйін сөздер:** араб көктемі, демократияландыру, модернизация теориясы, Хантингтон, сандық көрсеткіштер, саяси талдау.

Абхари Айман Шаукат Фарис\*

Интеллектуальная собственность Талала Абу Газале, Иордания

### АРАБСКАЯ ВЕСНА: ПОЛИТИЧЕСКИЙ АНАЛИЗ И ОЦЕНКА

Целью исследования является объяснение различий в состоянии демократизации в странах региона, охваченных событиями Арабской весны, а также выявление факторов, лежащих в основе изменений. Для

анализа были отобраны шесть стран; половина из них претерпела серьезные изменения, другая половина незначительные политические изменения. Используются теория модернизации и теория Хантингтона о волнах демократизации.

Выбранный метод представляет собой сравнительный метод в сочетании с количественным анализом. Результат показывает, что, вопреки теории и гипотезе модернизации, экономическое и социально-экономическое развитие не объясняет изменений в состоянии демократизации. Страны с незначительными политическими изменениями несколько более развиты. Результат наводит на мысль, что другие факторы, такие как экономический спад и устойчивость монархии, могут объяснить различия в состоянии демократизации в результате арабской весны.

#### INTRODUCTION

The Arab Spring is a notable example of how protests and demands for political reforms can spread from one country to an entire region within a few weeks. The Arab Spring is highly relevant not only as a phenomenon but also as an example of democratization in the field of political science. Considering that almost all countries in the region were classified as authoritarian prior to the Arab Spring, there is a clear emphasis on changing the political regime towards democracy.

The Arab Spring is being studied here as a case of democratization or democratic transition. More specifically, this study will focus on the political state of democratization in the countries of the region. While most countries in the region have been affected by the Arab Spring, the state of democratization varies greatly among them. This will be analyzed using the theory of modernization, along with the application of Huntington's theory on waves of democratization. The preliminary hypothesis is that modernization in terms of economic and socio-economic development can explain the change in the state of democratization.

The research question will be formulated as follows:

How can the recent political state of democratization after the Arab Spring be explained?

Subquestion:

What factor(s) can help explain the variations in democratization in the region? While some countries experienced significant political changes after the Arab Spring, others had low degrees of change, resulting in a wide range of democratization levels across the region. The aim of this study is to explain this variation. Thus, the dependent variable measures the state of democratization after the onset of the Arab Spring, differentiating between major and minor political changes. As for the subquestion, this study seeks to identify the factor(s) underlying the variations in democratization during the Arab Spring.

#### LITERATURE REVIEW

Democratization, like democratic theory itself, is a central area of study in political science, with a wide range of theories. Therefore, theoretical delineation is necessary to sharpen the theoretical discourse and focus the research. As mentioned earlier, democratization is a process that occurs in different stages. This study does not claim to cover the complete transition from authoritarianism to democracy. Instead, it primarily focuses on the initial stages of democratization. In other words, it identifies the initiating or triggering factor in an authoritarian state that ultimately leads to democratization.

History has shown that revolution or political liberalization does not necessarily indicate a path to democratization. The study acknowledges this issue but instead makes the theoretical assumption that the recent democratization after the Arab Spring should be considered as a preparatory phase of democratization. Regardless of whether countries eventually become full-fledged democracies or the process regresses, the initial goal of the revolution is defined by democratization.

Using the framework of democratization theories, two main types of theories have been chosen to explain the recent state of democratization. The first is the theory of modernization, which takes into account the internal characteristics and features of states (i.e., economic growth and socio-economic development). Support for the relationship between economic factors and democratization can be found in Ruman's study, which links socio-economic factors to democratization [1, p. 10].

The second theory discusses external factors that are presumed to drive state democratization. This theory argues that state democratization can be explained by external and global factors rather than just internal characteristics. Samuel

Huntington's idea of waves of democratization is the most significant theory in this regard [4, p. 579]. It provides a more global perspective on democratization and how events in one country are not isolated from the rest of the world. The Arab Spring serves as an example of how events in one country triggered reactions in other

countries in the region. It is for this reason that this theory was chosen for the study, aiming to explain how external factors contributed to the current developments in the region. Additionally, in a thematic study of Syria and Egypt after the Arab Spring, Ali Sarhan concludes that Egypt went through all the phases of Huntington's third wave of democratization [7, p. 20].

Building upon the two described theories, the research hypothesis is as follows: It is believed that economic development, including socio-economic development, explains the state of democratization in a country. Thus, a country with relatively strong development in these two areas has a higher degree of democratization compared to countries with low levels of development. This also implies that a country reaching a certain degree of economic maturity undergoes democratization. Internal factors within a country depend on external premises being applied. Essential factors that determine Huntington's third wave of democratization are necessary for democratization to take place.

Many scholars have focused on Arab monarchies and how they have proven highly resilient in the face of political challenges. In an article by D. Ankur, it is noted that the major ruling monarchies of the world reside in the Arab world, where they govern over a third of the countries in the Arab League [2, p. 379]. This remains true today. Arab monarchies such as Morocco, Jordan, Saudi Arabia, Oman, Kuwait, the United Arab Emirates, Qatar, and Bahrain (though significant clashes occurred here as well) have remained relatively unaffected following the Arab Spring.

Other scholars concentrate on the stability of the Gulf monarchies. A common denominator for these countries is the Gulf Cooperation Council (GCC). Countries such as Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates (UAE) are members of this organization.

Economic factors underlying the Arab Spring have been one of the main explanations used by the media and many scholars. One notable example of how these factors can explain the Arab Spring is an index compiled by The Economist, measuring the vulnerability of Arab countries to revolution.

This index is compiled by combining and weighting a series of indicators that led to the upheavals in the Arab world, such as youth population, years of rule, corruption, GDP per capita, and several other indicators. The result shows that the potential for unrest in the Arab world in 2010 was highest in Yemen, Libya, Egypt, and Syria, while countries like Qatar, Kuwait, UAE, and Lebanon had the lowest scores [9]. The index lacks theoretical support but is empirically supported to some extent.

Recent studies on the Arab Spring have discussed the role of social media, making it almost obligatory to consider this topic in some way. In some articles, it is referred to as "Twitter revolution" or "Facebook revolution," as well as "cyberactivism" and "social media revolution" [5, p. 56]. However, social media can be seen as an effective tool for both the rebels and the repressive machinery.

#### RESEARCH METHODOLOGY

Regarding the aforementioned theories and the multifaceted case of the Arab Spring, there are a wide range of aspects to analyze. The Arab Spring is analyzed at the macro level, and the units of analysis, or cases, are therefore set in different countries. These countries will be compared to each other to explain the state of democratization and identify the factor(s) that could help explain their variations. When choosing a comparative method, it often comes down to a choice between an intensive case analysis with a small number of cases (small N) or statistical analysis (large N).

The research will employ a comparative politics method known as the most similar systems design. The design of this method is created as a comparison between very similar cases that differ only in the dependent variable. This comparative strategy traces its roots to John Stuart Mill's "method of difference" described in his 1843 book "A System of Logic" [3, p. 14]. The choice of this method is inspired by the famous study of social revolutions by Theda Skocpol, in which she compared revolutions in France, Russia, and China, using England, Germany, and Japan as contrasting cases [8, p. 87]. Skocpol's study of revolutions is relevant to the Arab Spring, particularly from a methodological perspective.

This method will be complemented by a statistical approach. The selected cases will be divided into two groups based on the dependent variable. These two groups will be compared to measure whether the difference between them is statistically significant.

The definition of the dependent variable is based on theoretical definition. The state of democratization in a country after the Arab Spring is described as a political change. This definition is based on democratization theory and derived from Dankwart Rustow's four phases of democratization [6, p. 14].

The study includes countries that have experienced only minor political changes: Jordan, Lebanon, and Morocco, as well as countries that have undergone significant political changes: Egypt, Tunisia, and Yemen.

#### **ANALYSIS RESULTS**

The study analyzes all six countries and compares the average values between two groups. This is a general analysis aiming to find patterns among independent variables.

Table 1 Economic development

| A country | Gross national<br>income per<br>capita (PPP<br>2008 USD) | Electric<br>Power consumpti on (kWh)<br>per per capita |       | Industry,<br>value<br>added<br>(% of<br>GDP) | ded of services, etc. |       | Urban population (% of total) |
|-----------|--|--|-------|--|-----------------------|-------|-------------------------------|
| Jordan    | 5956.00  | 2225.57  | 3.00  | 31.00  | 66.00                 | 39.70 | 82.00                         |
| Leban on  | 13,475.0 0   | 5903.35  | 6.00  | 23.00  | 71.00                 | -     | 87.00                         |
| Moroc co  | 4628.00  | 472.22   | 15.00 | 30.00  | 55.00                 | 40.90 | 57.00                         |
| Egypt     | RUB 5, 889.00  | 1607.93  | 14.00 | 38.00  | 48.00                 | 34.40 | 43.00                         |
| Tunisi a  | 7 979.00   | 1,349.9 7  | 8.00  | 31.00  | 61.00                 | 40.00 | 66.00                         |
| Yemen     | 2,387.00   | 248.62   | 8.00  | 29.00  | 63.00                 | 37.70 | 32.00                         |

This comparison does not show any clear differences between the two groups of countries, meaning that the results of the statistical analysis do not indicate any statistically significant difference when comparing the average value of each group. Yemen is the least developed country in almost all aspects, with low GDP per capita, low electricity consumption, and a low level of urbanization. On the other hand, Lebanon has a relatively high GDP per capita combined with the highest electricity consumption, the largest share of the service sector, and the highest level of urbanization.

Table 2 Economic development - Comparison of averages

| State of democratization | Gross<br>nationa<br>1<br>income<br>per<br>capita<br>(PPP<br>2008<br>USD) | Electricity<br>consumpti or<br>(kWh) pe<br>capita |  | Industry,<br>value<br>added (% of<br>GDP) | Value added<br>of services,<br>etc. (% of<br>GDP) | Househol d<br>income<br>distributi<br>on, Gini<br>index | Urban<br>populatio<br>n (% of<br>total) |
|--------------------------|--|---|--|---|---|---|---|
|--------------------------|--|---|--|---|---|---|---|

| Minor changes | 8,0<br>19.67 | 2,8<br>67.05 | 8  | 28    | 64    | 40.3  | 75.33 |
|---------------|--------------|--------------|----|-------|-------|-------|-------|
| Major changes | 541<br>8.33  | 1,0<br>68.84 | 10 | 32.67 | 57.33 | 37.37 | 47    |

Although this table is not statistically significant, it shows a comparison of the average values for different variables for each group. The result indicates that, contrary to the stated hypothesis, the group with minor variations is more economically developed than the group that experienced significant changes. GDP per capita, electricity consumption, the service sector, the Gini index, and urbanization are higher in this group.

Table 3 Socio-economic development

| A country | Huma n Devel opme nt UND P Index (HDI) | Infant<br>morta lity<br>rate<br>(per<br>1,000 live<br>births | Life expect<br>ancy at<br>birth<br>(years) | Litera cy<br>rate, total<br>adult<br>popul<br>ation (% of<br>popul<br>ation aged<br>15 and<br>over) | gross) | enroll ment,<br>averag e (%<br>of gross) | Highe r<br>educat ion<br>enroll ment<br>(% gross) | Public<br>spendi ng<br>on<br>educat ion,<br>total<br>(% of<br>GDP) |
|-----------|--|--|--|---|--------|--|---|--|
| Jordan    | 0.681 0                                | 18.00  | 73.10                                      | 93.00   | 92.00  | 87.00                                    | 38.00   | 4.90   |
| Lebano n  | -                                      | 9.00   | 72.40                                      | 87.40   | 105.00 | 81.00                                    | 54.00   | 1.70   |
| Morocc o  | 0.567 0                                | 29.00  | 71.80                                      | 56.00   | 111.00 | 64.00                                    | 13.00   | 5.40   |
| Egypt     | 0.620 0                                | 19.00  | 70.50                                      | 72.00   | 106.00 | 72.00                                    | 32.00   | 3.80   |
| Tunisia   | 0.683 0                                | 15.00  | 74.30                                      | 78.00   | 110.00 | 90.00                                    | 36.00   | 6.20   |
| Yemen     | 0.439 0                                | 58.00  | 63.90                                      | 64.00   | 87.00  | 44.00                                    | 10.00   | 5.20   |

Similar to the comparison of economic development, it is not possible to find a clear pattern when it comes to social-economic development. The statistical analysis also fails to find a statistically significant difference between the two groups. Here again, it is evident that Yemen is the least developed country. Yemen has the highest infant mortality rate, the lowest life expectancy, the lowest school enrollment rate, and a low value of the UN Human Development Index.

Table 4 Socio-economic development - Comparison of averages

| State<br>Democrat<br>ization | UNDP<br>Human<br>Develo pment<br>Index<br>(HDI) | Infan t<br>mort<br>ality rate<br>(per<br>1,00 | Life expect<br>ancy at<br>birth<br>(years) | Litera cy<br>rate, total<br>adult<br>popul<br>ation<br>(% of | Enroll ment<br>in<br>primar y<br>educat ion<br>(% | Schoo<br>1<br>enroll ment,<br>averag e (%<br>of gross) | Highe r<br>education<br>enroll ment<br>(% gross) | Publi c<br>spend ing<br>on<br>educa tion,<br>total |
|------------------------------|---|---|--|--|---|--|--|--|
| Minor                        | 0.624   | live 18.6                                     | 72.43                                      | popul78,80   | gross)102.6                                       | 77.33  | 35,00  | (4,000% of   |
| changesMajor                 | 0.581   | 30.667  | 69.56 <sup>3</sup>                         | 71.330   | 101,067   | 68.663   | 26,000   | 5.067  |

The difference between the two groups is not statistically significant. However, by examining the average values for each variable, it is implied that the group with minor variations is more socio-economic than the other group. This result is evident for each indicator except for government expenditure on education.

Table 5 Media coverage and mass communications

| A country | Telephone lines (per 100 people) | Mobile cellular subscribers (per 100 people) | Daily newspapers (per 1,000 people) | Internet users (per 100 people) |
|-----------|----------------------------------|--|-------------------------------------|---------------------------------|
| Jordan    | 8.00                             | 107.00                                       | 74.23                               | 27.20                           |
| Lebanon   | 21.00                            | 68.00  | 55.57                               | 43.70                           |
| Morocco   | 12.00                            | 100.00                                       | 11.74                               | 49.00                           |
| Egypt     | 12.00                            | 87.00  | 31.28                               | 30.20                           |
| Tunisia   | 12.00                            | 106.00                                       | 22.69                               | 36.80                           |
| Yemen     | 4.00                             | 46.00  | 3.73                                | 12.40                           |

The result of this comparison does not show any clear differences between the two groups, except perhaps for the number of daily newspapers. However, the statistical analysis does not reveal any significant differences between the two groups. As previous comparisons have shown, Yemen is the least developed country in terms of media coverage and mass communication.

Table 6 Media coverage and mass communication - Comparison of averages

| State of democratization | Telephone lines (per 100 people) | Mobile cellular subscribers (per 100 people) | Daily newspapers (per 1,000 people) | Internet users (per 100 people) |
|--------------------------|----------------------------------|--|-------------------------------------|---------------------------------|
| Minor changes            | 13.667                           | 91.667                                       | 47.180                              | 39.967                          |
| Major changes            | 9.333                            | 79.667                                       | 19.233                              | 26.467                          |

The comparison of average values between the two groups shows the same contradictory picture as the previous comparisons. It suggests, although not statistically significant, that the group with minor variations consists of the most developed countries.

Next, within the analysis, Lebanon and Yemen were excluded, i.e., one country from each group. Both countries significantly differ from the other selected countries in terms of development. Lebanon also has missing values for two variables, further enhancing the comparison. For these reasons, a second analysis is conducted to attempt to distinguish a clearer picture between the two groups. Placing it in a broader context and making it more illustrative for the reader, each variable value was compared to the global median and mean values. They were then sorted and labeled into three categories: "Low," "Medium," and "High." Statistically, this represents the 33rd percentile, 67th percentile, and 100th percentile of world countries.

Table 7 Economic development

| A countr y | Gross national<br>income per<br>capita<br>(PPP<br>2008<br>USD) | Electric Power consum ption (kWh) per per capita | Agricult ure,<br>value<br>added<br>(% of<br>GDP) | Indust ry,<br>value<br>added<br>(% of<br>GDP) | Value added<br>of<br>service s, etc.<br>(% of<br>GDP) | Househ old income distribu tion, Gini index | Urban<br>populat ion<br>(% of total) |
|------------|--|--|--|---|---|---|--------------------------------------|
| Jordan     | 5,956.00<br>(Medium)   | 2,225.57<br>(medium)                             | 3.00 (Low)                                       | 31.00<br>(High)                               | 66.00<br>(Average)                                    | 39.70 (Average)                             | 82.00 (High)                         |
| Moroc co   | 4,628.00<br>(Medium)   | 472.22 (Low)                                     | 15.00 (High)                                     | 30.00<br>(High)                               | 55.00<br>(Average)                                    | 40.90<br>(medium)                           | 57.00<br>(Average)                   |
| Egypt      | 5,889.00<br>(Medium)   | 1,607.93<br>(medium)                             | 14.00 (High)                                     | 38.00<br>(High)                               | 48.00<br>(Short)                                      | 34.40<br>(medium)                           | 43.00<br>(Average)                   |
| Tunisi a   | 7,979.00<br>(Medium)   | 1,349.97<br>(medium)                             | 8.00 (Medium)                                    | 31.00<br>(High)                               | 61.00<br>(Average)                                    | 40.00<br>(Average)                          | 66.00<br>(Average)                   |

Table 8 Socio-economic development

| A country | UNDP<br>Human<br>Develop ment<br>Index<br>(HDI) | Infant<br>mortali ty<br>rate<br>(per<br>1,000 live<br>births) | (years)          | Literac y<br>rate, total<br>adult<br>popula<br>tion (% of<br>popula | Enrollm ent in primary educati on (% gross) | enrollm ent,<br>average (% | Higher<br>educati on<br>enrollm ent<br>(% gross) | Public spendin g on educati on, total (% of GDP) |
|-----------|---|---|------------------|---|---|----------------------------|--|--|
| Jordan    | 0.6810<br>(Average                              | 18.00<br>(Mediu   | 73.10<br>(Mediu  | tion<br>93.00<br>(Avera   | 92.00<br>(Short)                            | 87.00<br>(Averag           | 38.00<br>(Mediu                                  | 4.90<br>(Mediu                                   |
| Morocc o  | 0.5670 (Short)                                  | 29.00<br>(Mediu   | 71.80<br>(averag | 56.00<br>(Short)  | 111.00<br>(High)                            | 64.00<br>(Low)             | 13.00<br>(Short)                                 | 5.40 (averag                                     |

| Egypt   | 0.6200<br>(Average | 19.00<br>(Mediu | 70.50<br>(Averag | 72.00<br>(Short) | 106.00<br>(Averag | 72.00 (Low) | 32.00<br>(Mediu | e)<br>3.80<br>(mediu |
|---------|--------------------|-----------------|------------------|------------------|-------------------|-------------|-----------------|----------------------|
| Tunisia | 0.6830             | 15.00           | 74.30            | 78.00            | 110.00            | 90.00       | 36.00           | 6.20                 |
|         | (average)          | (Mediu          | (Averag          | (Short)          | (High)            | (Averag     | (Mediu          | (High)               |

Table 9 Media coverage and mass communications

| A country | Telephone lines (per 100 people) | Mobile cellular subscribers (per 100 people) | Daily newspapers (per 1,000 people) | Internet users (per 100 people) |
|-----------|----------------------------------|--|-------------------------------------|---------------------------------|
| Jordan    | 8.00 (Medium)                    | 107.00 (Average)                             | 74.23 (Medium)                      | 27.20 (Medium)                  |
| Morocco   | 12.00 (Medium)                   | 100.00 (Average)                             | 11.74 (Short)                       | 49.00 (High)                    |
| Egypt     | 12.00 (Medium)                   | 87.00 (Average)                              | 31.28 (medium)                      | 30.20 (Medium)                  |
| Tunisia   | 12.00 (Medium)                   | 106.00 (Average)                             | 22.69 (Medium)                      | 36.80 (Average)                 |

Having examined the three tables mentioned above, the result shows that Morocco is the least developed among the four countries, while Tunisia appears to be the most developed, followed by Jordan. However, the difference between these two groups is less discernible, as in the preliminary comparison where Lebanon and Yemen were included. Overall, it can be confidently said that the two groups of countries are largely similar.

Morocco stands out here and is above or below the global median in several variables. All four countries have a strong industrial sector but also a low literacy rate (except for Jordan).

#### **CONCLUSION**

The Arab Spring is studied here as a case of democratization or democratic transition. Specifically, this study focuses on the political state of democratization in the region's countries.

Within the framework of democratization theories, two main types of theories have been selected to explain the recent state of democratization. The first is

modernization theory, which takes into account internal characteristics and features of states (i.e., economic growth and socio-economic development). This theory, originally formulated by Seymour Martin Lipset, links economic development and democratization. The second theory discusses external factors that are presumed to trigger state democratization. This theory suggests that state democratization can be explained by more external and global factors rather than just its internal characteristics.

The chosen method is comparative politics, known as most-similar systems design. Alternative explanations that have been considered for this study propose that strong legitimacy of the monarch and willingness to make concessions in the form of both political and economic reforms could have saved Jordan and Morocco from any significant political changes, while Lebanon is seen as a special case with a previous revolution. The legitimacy of the monarch, especially religious legitimacy, provided stronger support to the leaders of Jordan and Morocco than to political leaders in Egypt, Tunisia, and Yemen. Another reason is that both Abdullah II and Mohammed VI have already implemented numerous economic and political reforms in their countries, so the discontent of the people was not as acute as in other Arab countries. Both monarchs are also considered very skilled politicians and managed to fulfill the demands of the people without jeopardizing their own political power. While Lebanon has already experienced war and revolution, it is quite likely that the people were not as interested in staging another uprising. Lebanon is also the most developed country in terms of economic development compared to the other five countries in this sample.

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*Рау И.А.,* <sup>1\*</sup> *Абсаттаров Р.Б.* <sup>2</sup>

<sup>1</sup> Академия ведущих кадров Бундесфера г. Гамбург, Германия, <sup>2</sup> Казахский национальный педагогический университет им. Абая г. Алматы, Республика Казахстан

# ПРЕДУПРЕЖДЕНИЕ ЭЛЕКТРОННЫМИ СИСТЕМАМИ И ЧЕЛОВЕКОМ ЯДЕРНЫХ УГРОЗ: ПОЛИТИЧЕСКО-СОЦИОЛОГИЧЕСКИЙ АНАЛИЗ

#### Аннотация

В статье рассматриваются проблемы предупреждения электронными системами и человеком ядерных угроз, которые ещё не изучены в социально-политической науке. В статье более подробно рассматриваются вопросы предупреждения электронными системами и человеком ядерных угроз: искусственный интеллект и разум в предотвращении ядерной катастрофы; ненадёжности в системе раннего предупреждения; контекстные знания; предложения по преодолению сомнений; о возможности большой безопасности на основе неполной информации электронных систем; какая из систем контроля внезапного нападения надежнее. В статье отмечается, что наличие ядерного оружия даже у равносильных держав не есть гарантия ядерной катастрофы. Гарантия возможности скорейшего ответ нового ядерного удара — одно из решающих условий предотвращения ядерной агрессии. Компьютерная система раннего предупреждения и электронные системы по принятию решений нацелены на своевременное определение ядерного нападения.

В мирные времена и в период разрядки напряжённости между ядерными державами риск относительно мал, что компьютерный сигнал о нападении немедленно ведёт к ответному ядерному удару. В такой ситуации резко возрастает роль человека в принятии решения по сомнительному сигналу ядерная атака. Ситуация резко меняется во времена кризисных обострений отношений между ядерными державами вплоть до выражения взаимных угроз.

Ключевые слова: ядерное оружие, ядерная угроза, электронная система, катастрофа, безопасность.