# THE ARAB SPRING: A QUANTITATIVE ANALYSIS

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**Abstract**: The quantitative analysis of the Arab Spring events is a rather difficult task. Respective difficulties are related to the variety of factors affecting social instability, and to individual peculiarities of historical, cultural, socio-economic, and political processes in the region. As a result of the research, we found out that the processes of social and political destabilization in the countries of Arab Spring were caused by a complex set of factors. The most significant factors that tended to reduce the scale of sociopolitical destabilization during the Arab Spring have turned out to be the following: the ability of the government to reduce social tensions and the presence of "immunity" to internal conflicts. However, such indicators as structural and demographical characteristics and external influences turned out to be less significant in the context of the Arab Spring. It should be mentioned that the significance of the external influences indicator notably increases when the model is used to account for the death toll resultant from anti-government protests. We also discuss the possibility of applying the developed model of sociopolitical destabilization to forecast sociopolitical upheavals in future.

**Keywords**: Arab Spring, social instability, elite conflict, Middle East, demographics, forecasting, poverty, inequality, quantitative analysis

The goals of this research is to contribute to the development of methodological tools for the assessment and forecasting of sociopolitical instability level in the Arab world, as well as for the assessment of the effectiveness of measures to reduce social tensions in the Arab countries.

The specific tasks of the research are as follows:

Selection of main factors of sociopolitical destabilization;
Quantitative assessment of importance of destabilization factors;
Development of a specialized index to assess the current state and forecast social instability levels in the Arab world.

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This is mainly an exploratory analysis.[1] The purposes of exploratory analysis are as follows: the maximum "penetration" into the data, identification of major structures, choice of the most important variables, detection of deviations, verification of main hypotheses, and development of initial models.[2] In this regard, it is important to note that the preliminary study of data is only the first step in the process of analysis, since the results should be confirmed in other samples or independent sets of data.

## Methodological Issues

We would like to start our assessment of the methodological issues with an analysis of the research results produced by the Political Instability Task Force—a research project that was created in 1994 with the support of the US government. The main aim of its work was to create a database of key internal conflicts that could have lead to state failure, and analysis of political instability indicators from 1955 to 2005. Over time, the working group began to study not only the cases of "failed states," but also ethnic conflicts, the facts of genocide, and radical regime changes and issues of democratic transition modeling. The explanatory variables used in the project include the following: economic indicators (gross domestic product (GDP), inflation, foreign trade, etc., as well as indicators related to the environment), social and demographic (population growth, mortality, etc.), and political (ethnic discrimination, the level of democracy, etc.) variables. Thus, one of the experts' conclusions is the assertion that partial democracies with low involvement in international trade and high infant mortality are the most prone to sociopolitical upheavals and regime change.[3] In this framework, a few interesting fundings were made and some predictive models (in particular, the Global Model for Forecasting Political Instability by Jack Goldstone) were developed.

Jack Goldstone, the Professor of Public Policy at George Mason University, and a group of his colleagues, analyzing the emergence of political instability in various countries around the world from 1955 to 2003, have developed a model for forecasting political instability, which, according to the authors, makes it possible to predict destabilization with two years lead time and 80 percent accuracy.[4] Goldstone notes that previous quantitative approaches to the study of civil wars causes (Fearon, Laitin, Regan, Norton et al.) have focused mainly on the economic resources available for government and insurgents: in particular, P. Collier and A. Hoeffler stressed that the insurgents are able to provide themselves with necessary resources by looting; J. Fearon and D. Laitin considered the ability of states to finance an army in comparison with the possibility of insurgents to take an advantage of much of the population, rough terrain, and the situation of political instability. Some researchers (Ross, Dunning, etc.) have focused on the

state control of natural resources. Recent trends in the study of revolutions have moved in a different direction adopting, however, a state-centered approach that focuses on the political structures and elite relationships as the most important factors in determining the time and place of the revolution.

Goldstone's model includes just four independent variables: the type of regime that defines the models present in the process of executive recruitment and competitiveness of participation in the political life of the country; infant mortality, which is logged and normalized to the global average in the year of observation; and conflict-ridden neighborhood, an indicator showing whether there are cases of four or more bordering states with major armed civil or ethnic conflict, as well as a binary measure of State-Led Discrimination. The model has been developed by comparing the cases of instability onset to a matched sample of control cases, and by testing the ability of variables to distinguish, in binary fashion, between the country-years when instability was imminent, from those followed by a period of stability.

It is noteworthy that this model uses multiple variables and a simple specification. The model shows accurate results in forecasting violent civil wars and non-violent democratic changes as well, suggesting the presence of common factors in both types of changes. While the type of regime is as a rule measured using linear or binary indicators of democracy/autocracy derived from the 21-point Polity scale, the model uses a nonlinear measure of regime type with five categories based on the components of state structure. At that, when the model takes into account characteristics of political regime, the majority of other economic, political, social, or cultural characteristics of countries under study in the represented sample did not have a significant impact on the results of research. Moreover, the replacement of binary and categorical measurements by their continuous counterparts has not led to an increase in accuracy of the model. Such a method of measuring the type of regime acts as the most powerful predictor of instability onsets. In view of this, it could be concluded that the political institutions, but not economic conditions, demographics, and geography are the most important predictors of political instability.

Russian economist and historian Sergey Tsirel has developed a simple mathematical model[5] of the transformation of a revolutionary situation into a revolution, showing the threshold nature of such transition. Noting that a revolutionary situation is an unstable condition in which a small impetus can bring no influence on the situation, or can cause an avalanche, Tsirel concludes that such signs and conditions of revolutionary situation as delegitimization of power, availability of alternatives to the current regime, and weakness of government or the presence of "combustible material" (i.e., people who are ready to go into the streets and take part in revolutionary activities), are not able yet to give a more or

less accurate picture of where and when a revolutionary situation can turn into a revolution, or at least into mass protests.

On the basis of theory described above a set of variables describing the intensity of revolutionary actions in the Arab world for analyzing the Arab Spring events has been offered.[6] Thus, the legitimacy of political regime acts as a main variable (the correlation coefficient between the rank of political regime in the degree of legitimacy and scope of revolutionary actions is 0.88). Important factors are also the proportion of unemployed young people with higher education, the youth unemployment rate, and the percentage of discriminated national and religious groups, as well as the intensity of riots and wars that have taken place in recent decades and contributed to "burnout of revolutionary combustible material." The resulting multiple regression with four independent variables explains 93.5 percent of intensity dispersion in the revolutionary events in the Arab world, which could be a good confirmation of the developed theory. Our own multiple regression analysis[7] has found rates of statistical significance of regression parameters that are quite similar to those arrived at by Tsirel (though not entirely identical).

## The Analysis of Instability Factors and Their Relative Importance

A considerable number of studies[8] that have analyzed the events that took place in different countries at different times are devoted to empirical and theoretical study of social instability factors. The most important factors of instability detected by those studies include the following:

1. Presence of ethnic (interconfessional, interclan, intra-elite) contradictions and conflicts;
2. Instability of political order;
3. Uneven distribution of socio-economic and sociopolitical benefits;
4. High level of poverty;
5. Presence of structural and geographical risks (e.g., a "youth bulge");
6. Excessive government corruption;
7. Availability of attractive alternative to the existing political regime and others.

In this case, the basic mechanisms and important factors of social instability are dependent on the type of countries, and specific historical and sociopolitical situation. Statistics by historical precedents are necessary to identify the factors of social and political upheavals in Arab countries, to determine their relative importance, and to form a quantitative index. Arab Spring events in 2011 and afterward provide rich materials for the analysis of sociopolitical destabilization in modernizing countries with strong clan traditions. The analysis of Arab Spring

events allows speaking about following internal instability factors common to the countries of this type.

1. Objective factors of instability in modernizing societies:
   a) Political preconditions:
      Type of political order;
      Presence of intra-elite conflict;
      Unefficient power transfer tools;
   b) Social preconditions—the presence of internal social, religious, ethnic, and tribal conflicts;
   c) Demographic factors—the presence of "combustible material," which is based on the demographic component (e.g., a "youth bulge," youth unemployment, etc.);
   d) External factors—the presence of a significant destabilizing/stabilizing external factor that influences the development of a situation in the country;
   e) Historical background—the presence of large-scale conflicts that led to the burnout of "combustible material" in the near past;
   f) Islamist factor—presence/absence of the legal basis for the functioning of the Islamist-oriented opposition.
2. Subjective (psychosocial, cultural, and historical) factors of instability arising in a given period of time:
   a) Crisis of unfulfilled expectations of modernization;
   b) Presence of an attractive (though perhaps imaginary) alternative to the existing regime.

Below we will discuss those factors in some detail.

a) *The transitional nature of political regime*. The second half of the twentieth century saw the start of an intensive transition from authoritarianism to democracy in the majority of countries of Latin America, Asia, and Eastern Europe. In view of this, the area of authoritarianism prevalence narrowed down to three main regions: the Arab world, Central Asia, and Tropical Africa. Authoritarianism, originated in pre-industrial times when it was the dominant type of political system in the form of absolute monarchy; afterward it underwent significant changes and remained in its original form only in one country of the world, Saudi Arabia.[9] In all other countries, it has been modified in two main forms: the constitutional monarchy and the imitative republic. Thus, by the early twenty-first century, while generally moving toward democratic political structures, several Arab political regimes transformed themselves into so-called transition ones.[10] Powell and Almond wrote in the 1950s and 1960s about the transitional nature of many authoritarian regimes.

This type of political regime is much less stable in the course of social and political upheavals than consistently authoritarian or democratic regimes, since the former (authoritarian) mechanisms of its functioning are being destructed, and the new democratic tools are not developed enough.

b) *The presence of intra-elite conflict*. As the events of the Arab Spring have shown again, one of the most destabilizing factors is the conflict within political elites. Obvious examples of this is Egypt (where there has been a conflict between the "old guard" led by the top of the military, and the young reformers led by Gamal Mubarak), Tunisia (with conflicts between the army and the security forces whose numbers exceeded the military several times, and also between military and civil—first of all, party—bureaucracy[11]), and of course, Yemen and Libya (where tribal conflicts played a crucial role during the Arab Spring and in Libya even led to a temporary state breakdown).

c) *Inefficiency of power transfer tools*. Among the main features of authoritarianism, two should be specially highlighted: national consolidation and primary modernization. However, with the process of modernization and the transition from pre-industrial to industrial societies (and the rejection of socialist experiments in all the Arab countries), there has been a shift toward the establishment of democratic institutions and first of all the institution of general elections. However, while in monarchic states there has been development of real interparty competition (e.g., in Kuwait, Jordan, Morocco, and Bahrain, party systems emerged with winning parties having the right to form a government), in Arab republics, the institute of elections had an imitative nature: in Egypt, Tunisia, and Syria, dominant parties existed, and in Yemen, there had been a reliance on army and tribal alliances. Algerian experience of democracy building in the late 1980s led to the landslide victory of Islamists and the ensuing civil war, after which the President Abdelaziz Bouteflika returned to the authoritarian patterns typical for Arab republics. In Iraq and Libya, competitive multi-party elections were not possible at all due to the ideological component of Saddam Hussein and Jamahiriya regimes.[12] All this has led to the fact that the republican authoritarian regimes in the Arab world have lost effective power transfer tools (this point was critical for the regimes of Hosni Mubarak in Egypt, Muammar Gaddafi in Libya, and Ali Abdullah Saleh in Yemen), in contrast to monarchies whose system implies a legitimate transition of power from father to son.

d) *The presence of internal social conflicts*. Being extremely heterogeneous in several aspects: religious, ethnic, clan, etc., Arab countries are vulnerable to social split in several areas. Thus, the infringement of the rights of the opposition in the Arab countries during the period of authoritarianism (e.g., suppression of an uprising in Hama in 1982, extermination of Shiites and Kurds by Saddam Hussein

in Iraq, and so on) only aggravated the situation by putting a number of Arab States during the Arab Spring events to the threat of their territorial integrity loss. Violation of the rights of the Shiite population in Bahrain, the majority of country population, from the ruling house of al-Khalifa related to Sunni Islam, has led to the long-running conflict in the country that has not ceased to the present time. The situation is similar in Syria, where the contradictions between the Sunnis, on the one hand, and the Alawites, on the other, have led to the full-scale civil war with the threat of state collapse. A rivalry between Jordan Palestinians and supporters of the Royal Family is also the major factor of destabilization in Jordan, which significantly complicates the process of urgent political reforms;[13] the traditional division between the North and the South has been displayed with a new strength during the Arab Spring, again actualizing a problem of the need to separate the state.[14] Sharp clan differences, especially on the redistribution of power and economic resources, have clearly declared themselves in Libya which is threatened of split into three parts: Cyrenaica, Tripolitania, and Fezzan. We should not forget about the traditional ethno-national conflicts in some Arab countries (mainly in Algeria and Morocco) between Arabs and Berbers.[15] In addition, a strong destabilizing factor is the Kurd issue, which has displayed particularly acute after the fall of Saddam Hussein regime in Iraq[16] and deteriorating of the situation in Syria in 2011-12.[17]

e) *"Combustible material."* The beginning of sustainable escape from the "Malthusian trap"[18] by definition means reduced mortality and, therefore, a sharp acceleration in population growth. The beginning of sustainable escape from the "Malthusian trap" tends to be accompanied by particularly strong decrease in infant and child mortality. All this has led to a sharp increase in the proportion of young people in the population in total and adult population, in particular (the so-called phenomenon of "youth bulge").[19] As a result, there occurs a sharp rise in the proportion of that very segment of population that is most prone to violence, aggression, and radicalism, which itself is a powerful factor in political destabilization.

The rapid growth of the youth population requires a radical increase in the number of new jobs, which is a very difficult task. Explosive increase in youth unemployment can have particularly powerful politically destabilizing effect, since it creates an army of potential participants ("combustible material") for all political (including revolutionary) shocks.

This is confirmed by the studies of Moller and Goldstone. In particular, the latter states that

> the rapid growth of youth can undermine existing political coalitions, creating instability … Young people played a major role in political violence throughout recorded history,

and the presence of "youth bulge" is historically correlated with the periods of political crisis. Most major revolutions happened … where there were particularly significant youth bulges.[20]

f) *Burnout of "combustible material."* The presence of a recent large-scale conflict can be considered as one of the major deterrent factors of social and political upheavals. As the events of the Arab Spring have shown, those Arab countries which experienced recent major shocks, have managed to avoid a significant transformation of political system during the events of 2011-12. Huge death toll produced by sociopolitical destabilization in Algeria (during the civil war of the 1990s), in Sudan (especially, during the confrontation with rebels from Southern Sudan[21]), Iraq (especially, after the invasion of coalition forces in 2003), Lebanon (especially, during the protracted civil war[22]), and Palestine markedly reduced the protest activity in these countries during the Arab Spring events.[23] Indeed, against such a background, the population of a respective country is becoming increasingly interested in the maintenance of stability and the existing status quo, rather than in the radical changes.

g) *The legal basis for the functioning of Islamist-oriented opposition*. In many ways, the total suppression of Islamists in Tunisia, Egypt, and Libya ultimately led to the point that Islamist forces played a very important role in the Arab Spring protest movements, whereas afterward they became main contenders in the struggle for power. Muslim Brotherhood in Egypt and Libya, and al-Nahdah in Tunisia were under complete prohibition and had almost no opportunity to conduct legal political struggle. However, Ben Ali, Mubarak, and al-Qaddafi, being fully confident in the complete elimination of the Islamist threat in the countries, in fact, were disoriented by their rapid rise.[24] On the contrary, continued participation of Islamists in the political life allows authorities to adapt to their political position, requirements, and a format of political activity. In such cases, Islamists are in constant dialog with the government, and the government considers them as a political rival, which allows it to adequately assess their challenges. This is clearly seen on the Algerian case. Since the transition to a multi-party system in 1989, the Islamists have begun to play a key role in the political life of the country, which resulted in open confrontation with the army. However, as the practice of the early 2000s showed, Abdelaziz Bouteflika managed to deal with the Islamist threat and achieved in this area greater success, giving them a possibility to act within the legal framework. In the elections to the National People's Assembly in 2007, the "Green Algeria Alliance" consisting of "Movement for Peaceful Society" (Hamas), "Islamic Renaissance Movement" (al-Nahdah), and "The Movement for National Reform" (al-Islah) received 6.22 percent of votes and got 47 seats in the lower house of the parliament.[25] Relatively low results were also achieved by

Islamists in Sudan and Yemen, where they also had access to the legal struggle for power through participation in the elections.

h) *The crisis of modernization unfulfilled expectations*. This factor is subjective (psychological), but, despite this, it is very important. The fact is that modernization usually generates high expectations in society that are fueled by the government's promises (the latter gives inflated promises to secure the support of society). But sooner or later, after a period of steady growth of life quality in a country, one tends to observe sooner or later its certain decline; this may lead to a certain emotional distress, bring public discontent, and even provoke riots. Moreover, the higher the economic successes of the country, the stronger the frustration in the case of some recession or significant slowdown. The more opportunities people had, higher were their expectations, and greater the disappointment in case of the Government's failure to satisfy those expectations.[26]

i) *Availability of an attractive alternative*. The probability that the unfulfilled expectations can lead to social and political destabilization increases if there are forces in the country actively offering a more attractive alternative. In fact, this alternative may be totally imaginary, or even false, but during the period of frustration and disappointment it has a real chance to attract attention, to form a protest movement, and to undermine the existing regime.

## Description of the Methodology

This section is devoted to the presentation of methodology for our quantitative analysis of the Arab Spring events. The basis of methodology is the development of a specialized instability index which takes into account the cumulative impact of the described above factors and reflects the overall potential of instability. Note that we consider a *potential*, i.e., the objective possibility of social and political instability of a certain level (scale). Subjective and conjunctive factors are attached to the particular situation and should be considered in a separate way in assessing the probability of protests.

The task is to form a composite index which takes into account the most important factors of social and political instability and could be calculated on the basis of statistical data and expert assessments and would allow estimating the potential social instability and its possible scale. The values of this instability index have been compared to that how really stable Arab regimes turned out in the conditions of the Arab Spring. The estimation of sustainability of Arab sociopolitical systems to the wave of destabilization of 2011 that was actually demonstrated during the events of the Arab Spring is introduced using a numerical scale. In the construction of multiple regression equation, the scale of actual destabilization has been chosen

as a dependent variable. However, when we studied the correlation between the potential (systemic) instability and the actual destabilization amplitude, we have detected a power–law relationship between the instability index developed by us and the scale of actual destabilization. That is why we decided to invert the scale of the actual destabilization index, which resulted in an index of actual resistance to destabilizing impulses $I_{RES}$ (Table 1).

Table 1    Index of actually manifested resistance to Arab Spring events

| Content of events | Index of actually manifested resistance $I_{RES}$ (points) |
|---|---|
| The system has shown a very high degree of resistance, the pan-Arab wave of destabilization was manifested only in some small-scale protest actions | 7 |
| A high degree of resistance: a few notable anti-government demonstrations | 6 |
| An average degree of resistance: numerous protests against the government | 5 |
| The resistance below average: large-scale and prolonged anti-government protests with individual violent clashes | 4 |
| Low resistance: powerful anti-government protests with violent collisions that shattered the power (strength of anti-government forces is comparable with the one of the pro-government forces) | 3 |
| Very low resistance: civil war (without the fall of the regime) | 2 |
| Extremely low resistance: a successful revolution | 1 |

Since, as was noted above, the index of potential political instability reflects the accumulated potential of instability in the society, then the objectively existing conditions of instability (political, social, demographic, economic, etc.), as well as such important characteristics as "historic immunity" and the presence of Islamists within the legal framework, which have a damping effect, should be considered. According to this, the index of potential instability is reasonable to be presented in the form of a multiplicative convolution of indicators reflecting the following:

Internal contradictions (indicator $I_1$);
Structural and demographical characteristics (indicator $I_2$);
Ability of the government to reduce social tensions (indicator $I_3$);
Presence of "immunity" to internal conflicts (indicator $I_4$).

Therefore, instability index $I_{UNST}$ has the form:

$$I_{UNST} = I_1^{\beta 1} * I_2^{\beta 2} * I_3^{\beta 3} * I_4^{\beta 4} \tag{1}$$

where the exponents $\beta_i$ reflect the relative significance of relevant factors and are determined by calibration of index on the real events.

The methodology of quantitative assessment of indicators, as well as calibration of the index is necessary for the index proposed above to be used as a tool to assess the level of sociopolitical instability. This methodology is based on the analysis of Arab Spring events of 2011.

**Sampling and Quantitative Assessment of Indicators**

a) *Conflict potential index $I_1$.*
Here, we have included the following from the instability factors listed at the beginning of this work:

   Presence of intra-elite conflict;
   Presence of ethnic, interconfessional, intertribal, and interclan contradictions;
   Uneven distribution of socio-economic and sociopolitical benefits;
   High level of poverty;
   Excessive government corruption.

We excluded the last two factors from this list. This is due to the fact that, contrary to popular opinion about their important role in the emergence of the Arab Spring, the results of the quantitative analysis of these parameters were not statistically significant. In particular, the correlation coefficient ($R$) of the poverty level with the scale of actual destabilization of the Arab Spring countries is about -0.05, and the coefficient of determination ($R^2$) is equal to 0.003 (i.e., it explains less than 1% of dispersion). Similar results were obtained with respect to corruption ($R = -0.04$, $R^2=0.002$, accordingly). Quantitative calculations are confirmed by purely empirical analysis of the situation. None of the Arab countries has the poverty level exceeding 20 percent, in contrast to, e.g., India, Indonesia, and countries of sub-Saharan Africa. And the level of corruption in the Middle East countries is almost the same as nearly all the other developing countries.[27]

As for the uneven distribution of socio-economic benefits, this indicator in the Arab world and is at a good level and is comparable with that in the developed and developing countries, while being at the level of some Western European countries (UK, Spain, etc.) and lower than in the USA. In addition, however, this figure is rather similar in all Arab countries, so the use of it to detect differences in the Arab world does not make much sense.

In addition, we eliminate the ethnic diversity of the Arab countries from the number of indicators that make up the first indicator ($I_1$). This is due to the fact that this indicator did not play any destabilizing role in anti-regime performances in 2011. So, the Arab Spring was "Arab"—its main driving force included representatives of the Arab nation.

Designating a combination of factors—tribal and interconfessional heterogeneity and the presence of intra-elite conflict—the components of the first indicator ($I_1$), we should lead the qualitative assessment to the quantitative parameters. For such a purpose, we resort to their scale.

b) *Indicator of the presence of social "combustible material" $I_2$.*
The "combustible material" of social instability is, as a rule, disadvantaged social groups, and the youth is the most active in the protest movements. Since the possibility of social aggression in general has been taken into account in the preceding paragraph (the contradictions in the economic, political, and socio-cultural spheres in most cases are the result of the presence of a significant segment of the population dissatisfied with their status), this index is appropriate to reflect a potential of the youth factor directly as a "combustible material" of conflict escalation.

Due to the fact that Arab countries are mostly modernizing, the phenomenon of "youth bulge" is rather typical for them as is generally characteristic for countries having a risk to get into the "trap at the escape from the trap."[28] Accordingly, while assessing the presence of the "combustible material," one should proceed from the data which show the influence of the "youth bulge" on the overall level of instability.

On the basis of our analysis of the Arab Spring data, the following scheme has been detected. Itself, the "youth bulge" as a demographic phenomenon is (more or less) present in all countries of the Arab Spring, and about equally significant.[29] We should also assess youth unemployment rates, the proportion of unemployed young people in the total adult population, and the proportion of unemployed people with higher education among youth.

A grade scale (rather similar to the one described in the previous section) has been also introduced here, but only the indicator of "share of unemployed people with higher education among the youth" (due to a lack of statistical data) was estimated on the basis of the expert monitoring, the rest two had direct quantitative characteristics.

A high level of correlation[30] ($r = 0.661$) between the presence of "combustible material" ($I_2$) and the conflict potential index ($I_1$) brings down the statistical significance of $I_2$ in our multiple regression, as this factor is shadowed by the conflict potential index due to the multicollinearity effect.

c) *Indicator of political order sustainability (the ability of the government to reduce social tension) $I_3$.*
Previous studies have demonstrated that this index is essentially dependent on the type of political order.[31] At the same time, the analysis of historical events has

shown that the most stable regimes are either consolidated democracies (because of their strong institutional mechanisms that are able to ease social tension), or absolute monarchies and autocracies (due to their having the lever of direct impact on the social environment—the authority of the monarch, authoritarian leader, or fear of repressions). The least stable are transitional regimes. On this basis, an evaluation grade scale (Table 2) has been introduced.

Table 2  Political type scale

| The degree of instability (ascending order) | Type of political order |
| --- | --- |
| 1 | Consolidated democracy/absolute monarchy |
| 2 | Non-consolidated democracy/forms of government that are transitional from the absolute monarchy to constitutional |
| 3 | Constitutional monarchy |
| 4 | Autocratic or authoritarian government |
| 5 | Imitation democracy |

In addition, as has been noted above, a special role is played by the legitimate tools of power transfer. In this case, the least protected are authoritarian states with a republican (rather than monarchical) form of government. Moreover, the most prone to sociopolitical shocks are those formally republican states where the perspective to transfer the power within a family is maturing. On this basis, an evaluation grade scale has been developed (Table 3).

Table 3  Scale of assessment of the availability of power transfer tools

| The degree of instability (ascending order) | The availability of power transfer tools |
| --- | --- |
| 1 | Absence of necessity for power transfer tools |
| 2 | The need to keep the power within the constitutional term |
| 3 | The need to keep the power outside of the constitutional term |
| 4 | The necessity to transfer the power to the representative of the clan/tribe/party |
| 5 | The necessity to transfer the power to a family member |

d) *Indicator of the presence of "immunity" to internal conflicts $I_4$.*
Finally, we should consider the fourth indicator ($I_4$), which is a combination of two factors: the presence of a large-scale conflict (we considered as large-scale conflicts the ones in which the death toll has exceeded 10 thousand people) in the recent past and the participation of Islamists in the political process. The first

indicator appears in the countries that have endured civil war and unrest. The following should be noted.

First, this indicator can be evaluated in a manner close to the so-called "soft" ranking (i.e., the indicator is assigned a value of either "1" if it is the case, either "0," in its absence). At the same time, in our case, we can hardly talk about the possibility of assigning a value "0" since the "absolute immunity" to social unrest is a theoretical abstraction. Score scaling is therefore advisable.

Second, taking into account that one of the most common (especially in the Middle East and North Africa) factors affecting immunity to internal conflicts is the presence of prolonged internal conflicts in the recent past, as well as the presence of Islamist-oriented opposition within the legal framework of Arab States, this element should be considered more carefully. In particular, in the case of the Arab Spring, Algeria, Lebanon, Palestine, and Iraq were assigned with a score corresponding to an "almost absolute immunity."

**Calibration of the Index**

Potential instability index (1) should be calibrated using historical data to be used in practical assessments. The subject of calibration is the selection of the exponents $\beta_i$ and the correlation of the index with the events scale. Analysis of the Arab Spring events of 2011 had been used for the calibration.

Using nonlinear regression method, we have calculated values of exponents ($\beta_1 = 0.8$; $\beta_2 = 1$; $\beta_3 = 0.7$; $\beta_4 = 0.6$), in view of which the results of the calibration of potential instability index took the following form:

$$I_{UNST} = I_1^{0.8} * I_2 * I_3^{0.7} * I_4^{0.6} \tag{2}$$

It should be noted that another important additional factor—namely, the external influence—has been also taken into account during the calculations. This was done through the calculation of the external influence index $I_5$., according to the following scale:

0.1—limited distorted media coverage;
0.2—limited distorted media coverage, presence of some information on financing of the opposition forces from abroad, and some calls to resign from abroad;
0.3—large-scale distorted media coverage, connections of the foreign state actors with the opposition parties, strong pressure in the form of calls to resign;
0.4—information attack, reliable information on the funding of the opposition forces from abroad, and external pressure in the form of possible sanctions;
0.5—all previous points, as well as military intervention.

Using the same method of nonlinear regression, we have estimated the value of exponent $\beta_5$ to be equal to 1.0. Moreover, we note that taking into account this indicator is important primarily to account for the number of human casualties in the course of social and political upheaval. In the case of the evaluation of actual destabilization scale, its importance is greatly reduced.

As we remember, both factors (the presence of "combustible material" $I_2$ and external influences $I_5$) have low statistical significance in the construction of multiple regression equation, and have shown themselves substantially less important than the other three in the construction of the equation of nonlinear regression. However, the complete removal of these variables from the equation of nonlinear regression (Fig. 1) leads to a significant reduction of its predictive power (from $R^2 = 0.91$ and $R^2 = 0.82$).
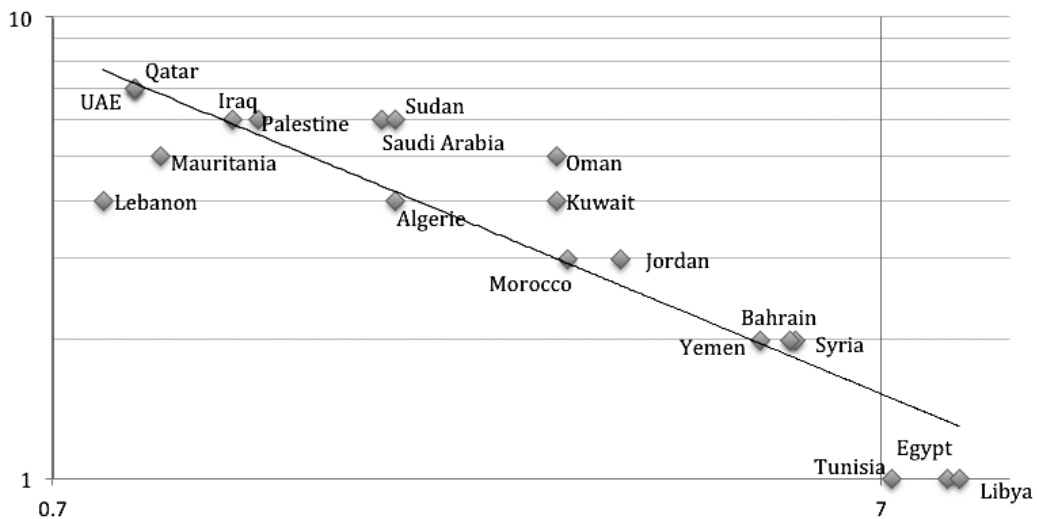


Figure 1    A comparison of potential instability index (calculated *without* taking into account indicators $I_2$ and $I_5$) with the index of actually manifested resistance to social and political instability (log–log scale)

Thus, the final formula for calculating the index of instability ($I_{UNST}$) takes the following form:

$$I_{UNST} = I_1^{0.8} * I_2 * I_3^{0.7} * I_4^{0.6} * I_5 \tag{3}$$

An example of calculation of instability index and its comparison with the index of resistance (see Table 1) during the Arab Spring in 2011 is shown below (Table 4 and Fig. 2).

The diagram (Fig. 2) clearly shows a significant distance of Lebanon from the trend line. This is primarily due to the fact that Lebanon takes the first place in

Table 4    Assessment of the instability index ($I_{UNST}$)

| Country | $I_1$ | $I_2$ | $I_3$ | $I_4$ | $I_5$ | $I_{UNST}$ | Resistance index |
|---|---|---|---|---|---|---|---|
| Tunisia | 3.75 | 5 | 4 | 1 | 1.1 | 37.61 | 1 |
| Egypt | 3.5 | 5 | 5 | 1 | 1.2 | 50.43 | 1 |
| Libya | 4.25 | 4 | 4.5 | 1 | 1.5 | 54.72 | 1 |
| Yemen | 5 | 4 | 5 | 0.3 | 0.7 | 15.2 | 2 |
| Syria | 2.75 | 3 | 4 | 1 | 1.4 | 29.05 | 2 |
| Bahrain | 4.75 | 4.5 | 2 | 1 | 0.7 | 17.8 | 2 |
| Algeria | 2.75 | 4 | 4 | 0.1 | 1.1 | 6.55 | 4 |
| Morocco | 3.75 | 3 | 2 | 0.5 | 1.1 | 11.88 | 3 |
| Iraq | 3.5 | 5 | 2 | 0.1 | 1.1 | 5.5 | 6 |
| Jordan | 3 | 3 | 2 | 1 | 1.1 | 15.06 | 3 |
| Saudi Arabia | 2.5 | 3 | 1 | 1 | 0.9 | 5.62 | 6 |
| Oman | 1.75 | 2 | 2 | 1 | 0.9 | 4.58 | 5 |
| Mauritania | 2.25 | 4 | 3 | 0.5 | 1 | 10.89 | 5 |
| Lebanon | 3 | 3.5 | 1.5 | 0.1 | 1.1 | 3.66 | 4 |
| Sudan | 3.25 | 2.5 | 4 | 0.3 | 1 | 8.23 | 6 |
| Palestine | 3.25 | 5 | 2.5 | 0.1 | 1 | 6.12 | 6 |
| Kuwait | 2.5 | 2.5 | 2 | 1 | 1 | 7.07 | 4 |
| Qatar | 1.25 | 2.5 | 1.5 | 0.5 | 1 | 2.2 | 7 |
| UAE | 1.25 | 2.5 | 1.5 | 0.5 | 1 | 2.62 | 7 |
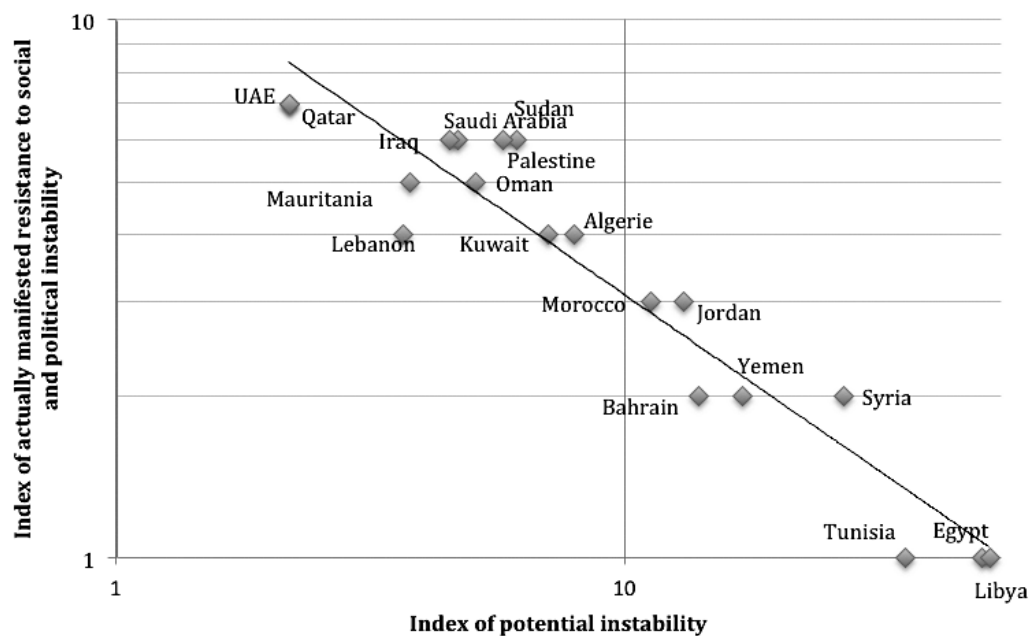


Figure 2    Comparison of the values of potential instability index with the index of actually manifested resistance to social and political instability (log–log scale)

the world by local ethnic and religious diversity of society, which, throughout the history of Lebanon, led to the growth of social and political instability. Therefore, despite the fact that Lebanon is an example of a successful developing country with stable democratic institutions, the factor of ethno-religious fragmentation of society can cause serious conflicts (close to a civil war) against the background of successful economic, political, and demographic development.[32] If we compare the index of instability and the resistance index in the period of the Arab Spring of 2011, excluding Lebanon from the list of the countries (Fig. 3), a significant improvement in the correlation becomes obvious ($R^2 = 0.93$).
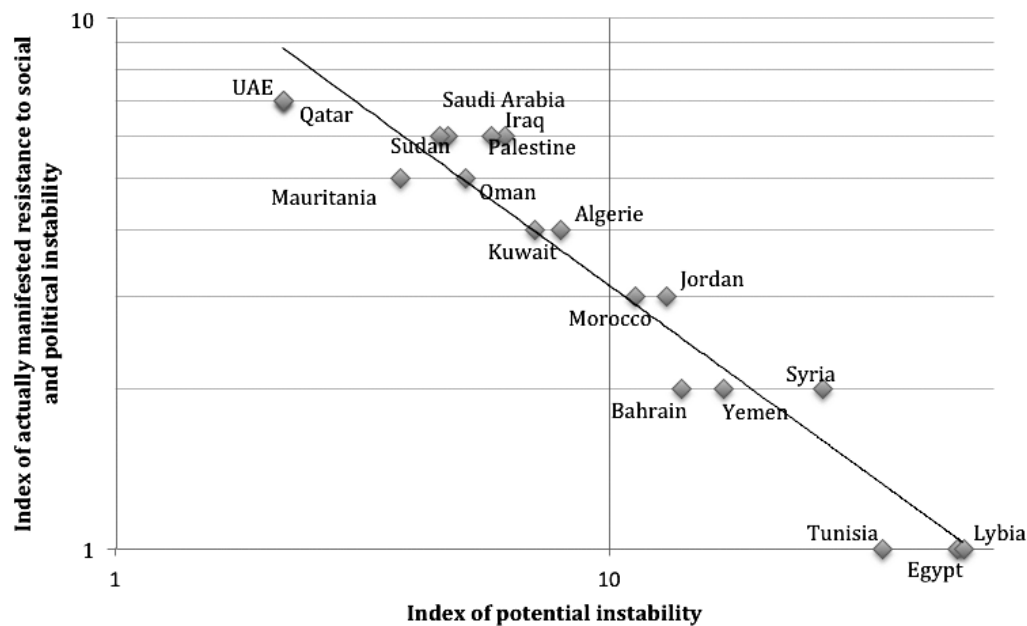


Figure 3    Comparison of the values of potential instability index with the index of actually manifested resistance to social and political instability (log–log scale) (excluding Lebanon)

## Conclusion

Therefore, we have identified a set of factors that allow evaluating the current state of social and political destabilization in the countries of the Arab Spring. These factors of instability act in long and medium term creating grounds for discontent with the existing situation among the population and elites. With respect to the Arab Spring, the most significant factors have turned out to be the following: the ability of the government to reduce social tensions, the presence of "immunity" to internal conflicts, and the internal contradictions level. Such indicators as structural and demographical characteristics and the external influences appear to be less significant as predictors of the actual level of the sociopolitical destabilization within particular Arab Spring countries in 2011. However, the demographic

structural factors turn out to be very important if we consider fundamental factors of the Arab Spring in general.[33] It should be also mentioned that the significance of the external influences indicator notably increases while accounting for the death toll that resulted from the destabilization in respective countries.

Note also that some trigger is necessary for the latent discontent to grow in overt protest actions. Moreover, this trigger should affect the widest possible range of social groups so that the response to it would be not local, but universal, which dramatically reduces the ability of the government to monitor the situation. In the context of Arab Spring, the role of such a trigger was played by the following factors:

*Sharp and rapid increase in the world food prices.* The second wave of agflation that preceded the Arab Spring of 2011[34] and significantly deteriorated economic position of a rather broad strata of citizens;

"*The effect of Al-Jazeera.*" It should be kept in mind that during the last 10-15 years in the Arab world, a media revolution took place which expressed in the appearance of super professional television satellite channels such as Al-Jazeera and Al-Arabiya. We are talking about unconditional world-class television journalism and about television channels that had already got an immense popularity all over the Arab world by the beginning of the Arab Spring;[35]

The rapid growth of the number of Internet users in the first decade of the twenty-first century in all Arab countries which enabled political activists to use social media resources in organizing protest activity and deprived (in conjunction with the activities of the satellite TV) authoritarian regimes of the power of effective information control possibility.

Implementation of the "domino effect" that leads to the accelerating rise of instability and its spread on new social strata and areas is necessary for most effective triggering of destabilization. Because of the "domino effect," social instability may go beyond one country and be imported into the neighboring (as it was during the Arab Spring of 2011), but this is only possible within regional systems with relatively homogenous prerequisites to instability. Therefore, $I_{UNST}$ gives only an idea of the potential and possible scope of sociopolitical upheavals, but it cannot be used to predict the level of an actual destabilization in a particular region in a specific time period.

On the other hand, note that if we had calculated $I_{UNST}$, e.g., for Egypt and Tunisia in 2000, the scores that we would get (13.23 and 13.83 accordingly) would rather correspond to the situation in 2011 in Yemen and Jordan. Indeed, 10 years ago, the

fact that the regimes of Mubarak and Ben Ali would have fallen so fast, seemed unlikely, more likely, it can be argued that a slight advantage after all was on the side of the ruling regimes. And the scores that equation (2) produces correspond to this point rather well.

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