

# **The System of Economic-Statistical Indicators of the Analysis of Foreign Economic Relations of the Country: A Case Study on Syria**

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## **Abstract**

In modern conditions of globalization, the quality of static data of foreign economic relations of the country plays an important role in decision-making about the foreign economic sphere of the country. This is without their quality leading to wrong static analysis of the indicators of foreign economic relations and methods of evaluation. As a result, it is impossible for correct decision not to be made by the government. Also, there are questions about what are the important priorities in the development of foreign economic relations of the country. According to the analysis of static indicators of foreign economic relations of Syria before and during the crisis, we noted that there was a deterioration of all indicators of foreign economic relations due to armed conflict. This includes the increase in the external debt 2.75 times in 2014 compared with the period before the crisis, the decline in exports and imports, and the improvement of e-government. In addition, work without high-quality cannot control foreign trade transactions.

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**Keywords:** External economic relations, foreign trade, economic sanctions, exports, imports, the financial crisis, globalization

## **Introduction**

In evaluating foreign economic relations, the author suggested the use of economic indicators on the basis where it became possible to reason the foreign economic policy of Syria. It is a detailed multi-criteria analysis which uses a reliable and qualitative data. However, it is able to display real situation of foreign economic relations and the prospects of their development and strengthening (Figure 1).

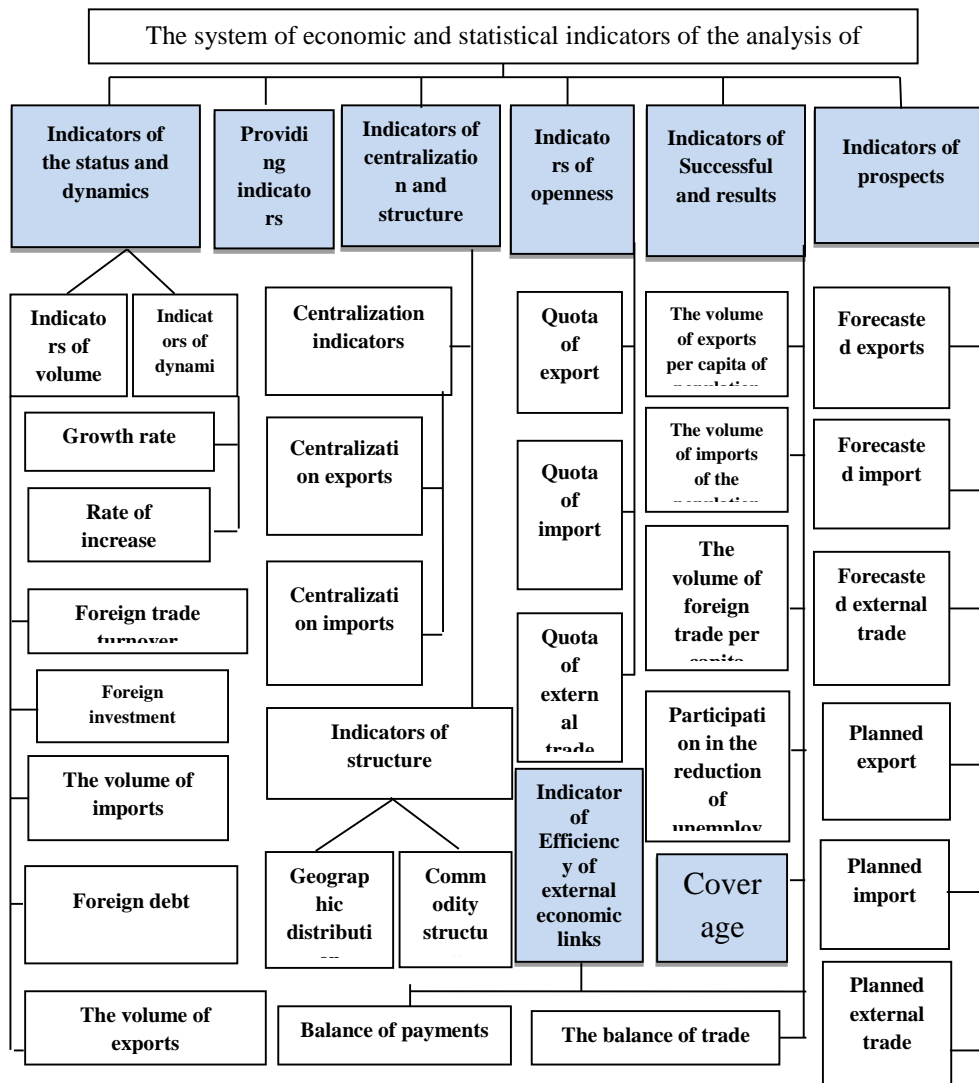


Figure 1. The system of statistical and economic indicators of foreign economic relations.  
 Source: Compiled by the author [6, page 17]

Consequently, economic openness gives the country an advantage in the development of foreign trade activities. Also, economic sanctions are barriers that limit the desire for openness. In order to assess the country's participation in the international division of labor in every way, the World Bank recommended the use of the indicators of quotas. The indicators of quotas can be defined as the ratio (in %) of exports, import, and external trade to GDP. However, those indicators do not reflect the differences between the economies of developed and developing countries according to

their level of economic development. Also, they do not include other forms of foreign economic relations (investment, financial, etc.).

Therefore, the following indicators are recommended for assessing the effectiveness of foreign economic relations at work (Table 1).

Table 1. Indicators for assessing the efficiency of foreign economic relations for developed and developing countries (%)

Indicator	Formula	For developed countries	For developing countries
<i>A</i>	$\frac{E}{I}(1)$	≥100%	≥100%
<i>B</i>	$\frac{FDI}{GDP}(2)$	≥15%	≥10%
<i>f</i>	$\frac{GDP}{ED}(3)$	≥113%	≥170%

A - Coverage ratio of imports by exports %;

β - The degree of participation of foreign direct investment to GDP %;

f - Coverage ratio of External debt by gross domestic product %;

E: Exports billion dollars U.S.;

I: The volume of imports billion U.S.;

FDI: Foreign direct investment billion dollars U.S.;

GDP: Gross Domestic Product (GDP) billion dollars U.S.;

ED: Billion external debt U.S. \$.

Source: Calculated by the author. Data Source: World Bank <http://data.worldbank.org>

Furthermore, we can build the following equation on the basis of Table 1. Therefore, the synthesis of performance is given as:

$$Y_{\text{COFER}} = A \times \beta \times f \times 100\% = \frac{E}{I} \times \frac{FDI}{GDP} \times \frac{GDP}{ED} \times 100\% \geq 17\%^{18}$$

$Y_{\text{COFER}}$  - Coefficient of the efficiency of foreign economic relations of the country

[6, page. 18]

The next step will identify the main reasons for ineffective implementation of Syrian economic relations before and during the crisis.

#### *Analysis Indicators of Macroeconomics and External Economic Relationship of Syria*

The investigation of the influence of socio-economic crisis is reflected in the comparative analysis of foreign macroeconomic indicators before and during the crisis (Table 2).

Table 2. The most important macroeconomic indicators of the Syrian economy in the period 2000 – 2014

Period		GDP bln. Dollars. USA	GDP per capita Dollars. U.S.	Unemployment rate %	Budget deficit to GDP%	The level of economic growth%
Before the crisis	2000	19,7	1201	9,5	-0,07	2,7
	2001	21	1282	10,3	3,14	5,2
	2002	21,8	1206	11,7	-1,07	5,9
	2003	20,9	1389	10,8	-3,27	5,6

<sup>18</sup> Calculated by the Author

	2004	24,5	1563	12,3	-5,26	6,9
	2005	28,4	1761	8,1	-5,3	6,2
	2006	33,1	2059	8,2	-3,56	5
	2007	40,3	2583	8,4	-3,42	5,7
	2008	52,6	3573	10,9	-7,44	4,5
	2009	54,1	2923	8,1	-8,65	6
	2010	60,5	2658	8,6	-5,85	3,4
In the conditions of instability	2011	56	2658	14,9	-5,37	-2,3
	2012	40	1867	35,4	-14,68	-3,6
	2013	33	1514	49,7	-16,56	-3,23
	2014	23	1038	57,7	-12,14	-3,2

Source: Calculated by the author based on UN data, world factbook CIA USA, GWB, Syrian Centre of Statistics, Syrian Investment Agency SIA, SCPR - Syrian Center for Policy Research

Comparative analysis of macroeconomic indicators Syria showed a significant reduction of economic indicators during the crisis. Thus, GDP declined by 2.6 times, GDP per capita - 3.4 times, and unemployment rate rose to 57.7%. Budget deficit to GDP ratio increased to - 12.1%. In addition, there was a recession as a result of the crisis.

The most important indicators of foreign economic relations is an indicator of openness (export quotas, import quotas), as well as indicators of external debt and foreign investment (Table 3).

Table 3. The most important indicators of Syrian foreign economic relations in the period 2000 - 2014

Period	Quota export%	Import quota%	The external debt to GDP%	A The coverage ratio import from export %	B Foreign direct investment to GDP%	∫ Coverage ratio of foreign debt%
2000	35,4	28,6	112,71	123,78	1,37	88,72
2001	35,4	29,2	100,36	121,23	0,52	99,64
2002	38,1	30,5	92,26	124,92	0,53	108,39
2003	33,5	28,6	91,79	117,13	0,77	108,94
2004	40,1	39,8	77,65	100,75	1,12	128,78
2005	40,4	41,6	19,66	97,12	1,76	508,65
2006	39,5	38,7	16,8	102,07	1,99	595,24
2007	38,6	37,8	14,1	102,12	3,08	709,22
2008	28,95	34,2	10,22	84,65	2,79	978,47
2009	19,37	28,21	10,49	68,66	4,75	953,29
2010	20,23	28,74	8,7	70,39	2,43	1149,43
2011	18,75	35,48	8,87	52,85	0,12	1127,4
2012	6,56	26,37	10,18	24,88	0,01	982,32
2013	3,98	17,61	14,4	22,6	23,53	366,67
2014	5,7	19,57	50,43	29,13	8,17	198,29

Source: Calculated by the author based on UN data, world factbook CIA USA, GWB, Syrian Centre of Statistics, Syrian Investment Agency SIA, SCPR - Syrian Center for Policy Research

Analysis of macroeconomic indicators shows a direct relationship between the decline in GDP and the indicators that characterizes the openness of the Syrian economy. Therefore, a decrease in GDP of export quota was reduced to 5.7%, the import quota to 19.6%, the external debt of Syria increased to \$ 11 billion, and its share in GDP rose up to 50.4%. On the other hand, the decline of economic openness indicators data does not determine the overall degree of efficiency of the foreign economic relations of the country.

When evaluating the foreign economic relations of Syria, the author proposes to characterize the efficiency of external economic links (EEL) in the calculation of the indicators.

However, the calculation of the rate of the efficiency of foreign economic relations of Syria, during the 2000 - 2010 biennium, show a gradual improvement through the action of the following factors:

- After a change of government in 2000, the new government began the process of economic transition from a closed economy to an open type;
- The Government's priorities were aimed at reducing the external debt, as well as attracting foreign investments;
- The volume of domestic production increased, while import coverage ratio of exports and became positive (greater than 100%).

As a result, the management of foreign economic activity in Syria during the analyzed period was effective as the external economic links (EEL) efficiency ratio (over 17%) (Graph 1).

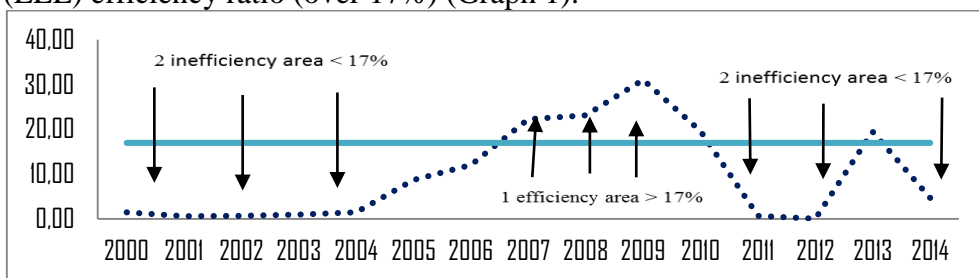


Figure 1. Dynamics of efficiency ratio of Syrian Foreign Economic Relations (YEEL) in the period 2000 - 2014

Source: Calculated on the basis of the author of the application of formulas (4) and a data in Table 3

The graph 1 defined the boundaries of the zone by characterizing the efficiency of foreign economic relations of Syria. During the period of social and economic crisis, the ratio below 17% is mainly due to a sharp decline in output (GDP), import and export coverage ratio (below 100%), and an increase in external debt. In 2013, the efficiency ratio was more than 17% increase in its impact factor based on the growth of FDI to GDP. This is

mainly due to the increase in foreign trade activities with SoyuzNefteGaz and other Russian companies in the field of oil production.

Consequently, this was performed on the basis of a comprehensive analysis of inter-related macroeconomic and external economic indicators identified in priority areas. Thus, this helps in the development of the foreign economic relations of Syria in conditions of instability.

In the course of the study, author disclosed institutional and legal factors which are influencing the conduct of the state's foreign economic policy. However, such factors include the lack of a permanent state of control over the adoption and enforcement of laws that is regulating the external economic links (EEL).

#### *Forecast Indicators of External Economic Relationships of Syria*

In this paper, the author proposes to use the short-term model (e.g., Brown model) to predict the development of various trends in foreign trade situation in Syria.

To implement the preferred direction of applied statistical research in the thesis, the following advanced scorecard was used:

**U1: The export quota (volume of exports / GDP (%))**

**U2: Import quota (imports / GDP (%));**

**X1: Foreign direct investment to GDP (%);**

**X2: The unemployment rate (%);**

**X3: US dollars on the world price of oil;**

**X4: The budget deficit to GDP ratio (%);**

**X5: The external debt to GDP ratio (%);**

**X6: The level of economic growth (%).**

To export quotas, calculated significance level P-value for the X2, X5 <0.05 (a measure of the significance of F in the ANOVA table as  $F_{\text{tab.}} = 2.79$  <  $F_{\text{ex.}} = 19.18$ ) confirms the importance of R2.

To import quota, U2 significance P-value for the X1, X6, close to 0.05 (the index value of F in the ANOVA table is expressed as  $F_{\text{tab.}} = 2.79$  <  $F_{\text{ex.}} = 7.18$ ).

Using regression analysis, the inclusion and exclusion of variables obtained the following regression equation of exports and import quotas.

$$Y_1 = 33.6 - 0.6 X_2 + 0.1 X_5; \dots \dots (5)$$

$$Y_2 = 30.4 - 0.5 X_1 + 0.8 X_6; \dots \dots (6)$$

Results of forecasting of Syrian export and import quotas in period 2015 - 2016 will be the following: (Count 5).

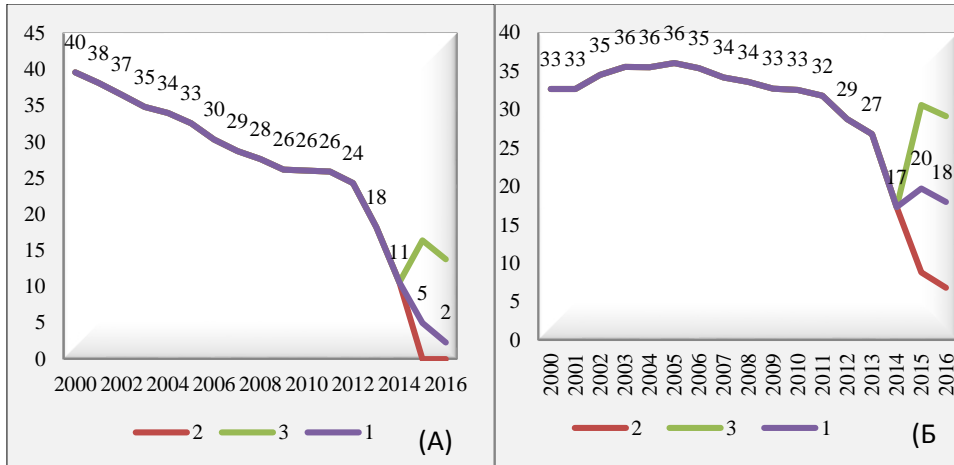


Figure 2. Confidence intervals, which may vary projected quota of exports and imports of Syria during the 2015 - 2016 (Chart 2)

1- quota (A) exports; (B) imports; 2- the lower bound; 3- upper boundary;

Source: Calculated by the author based on the data tables 3 and 4.

However, the confidence interval is an alleged export quotas in various stages:

In 2015, 16.39 % > Y1 > 0.008 % In 2015, 30.61% > Y2 > 8.85 %  
(graph. 2A) (graph. 2B)

In 2016, 13.81 % > Y1 > 0.008 % In 2016, 29.15 % > Y2 > 6.84%  
(graph. 2A) (graph. 2B)

According to the calculated data, the participation of Syria in the international division of labor will decline in 2015 and 2016. Due to the armed conflict, Syria has a closed type of economy.

Under certain conditions, the end of the armed conflict in Syria, the most important task is to restore the national economy. To do this, we must connect the Syrian economy into the world economy through the development plan for future economic development. When designing the development plan, it is advisable to use the adaptive model that gives the forecast in the short term. For example, F parameter characterizing the importance of the table Analysis of variance is in the following ratio:  $F_{ex} = 8.86 > F_{im} = 4.09 > F_{tab.} = 2.79$ . Also, R squared = 0.87 for y1, y2 = 0.62. Based on this, we obtain the following equation:

$$Y_1 = 20.4 - 0.08x_1 + 0.01x_2 + 2 \cdot 0.08 x_3 + 31.14x_4 + 0.03x_5 + 2.28x_6.....(7)$$

$$Y_2 = 33.3 - 0.37 x_1 - 0.24 x_2 - 0.37 x_4 + 0.39 x_6.....(8)$$

On this basis, the equation variables traced the opportunity to the Government of Syria to influence the resulting figures (export and import quotas) positively or negatively. For example, the Syrian government will be

able to influence the change of factors X1, X2, X3, X4, X5, and X6 (See Table 4). Therefore, the result will be as shown in Figure 3.

Table 4. Forecast export quotas and import Syrian government to account the alleged effects on the factors x1, x2, x4, x5, and x6 in the period 2017 - 2019.

Period	X <sub>1</sub>	X <sub>2</sub>	X <sub>3</sub>	X <sub>4</sub>	X <sub>5</sub>	X <sub>6</sub>	Y <sub>1</sub>
2017	2	50	50	-15	50	-2.5	3.654502
2018	4	45	50	-10	40	-1.5	11.05807
2019	6	40	50	-8	30	0.5	17.33361
Period	X <sub>1</sub>	X <sub>2</sub>	X <sub>3</sub>	X <sub>4</sub>	X <sub>5</sub>	X <sub>6</sub>	Y <sub>2</sub>
2017	2	50	-	-15	-	-2.5	24.76037
2018	4	45	-	-10	-	-1.5	23.79556
2019	6	40	-	-8	-	0.5	24.33163

Source: Calculated on the basis of the author of the data in Table 3

If the government in the implementation of foreign trade policy changes, then the performance variables will be achieved. Also, maybe the alleged quota exports and imports in the period 2017 - 2019 will be comply with the following parameters. (See. C. 3)

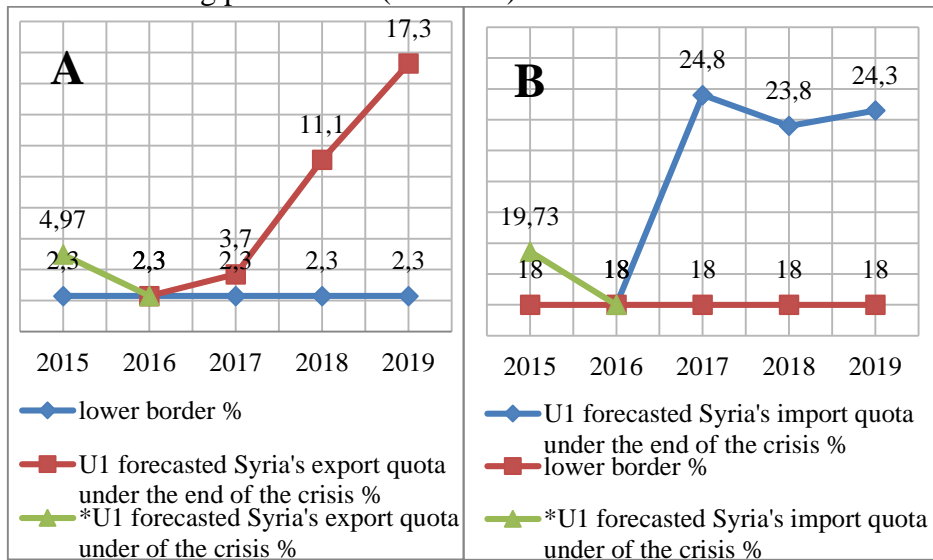


Figure 3. Forecast of export quotas (A) and imports (B) taking into account the expected impact of the government on the factors x1, x2, x4, x5, and x6 in the period 2015 - 2019.

Source: Calculated by the author

\* Calculations based on Brown's model

### Foreign Economic Models of Syrian National Economic Recovery in the Post-war Period, Taking into Account its Features and Drawbacks

At the end of the armed conflict in Syria, the government in the reconstruction phase proposes two possible directions for the funding of economic recovery: Western and Eastern models (See Table 5).



Table 5. The features and shortcomings of Western and Eastern models of funding the Syrian economy in the postwar period

Eastern model (Russia, China, Iran, and others)	The Western model (EU countries; USA, Canada, etc.).
<b>Features</b>	
Small cash flow as an external debt (from Russia, Iran); Ease of integration into the Eurasian Union BRICS; Long-term investments in the service sector (dams, bridges, railways, and airports & etc.); In the case of the coverage of external debt, discount can be obtained in the future; Political and economic independence.	Huge financial inflow as foreign debt (Marshall Model); Ease of integration into Western alliances (WTO, EU) and the Arab Union; In the future, Syria will be able to export its products and services to the Western and Arab markets; FDI inflows mainly in the technical-industrial sector; Increase in the number of international partners.
<b>Limitations</b>	
Long-term process of economic recovery; Limitation of production of new manufacturing technologies.	Political and economic dependence on Western countries (as a result of globalization); Short-term investments; Coverage of external debt with interest.

Source: Compiled by the author

However, some features of the eastern model, despite the strategy being implemented slowly, require a large period of time to carry out economic plans. This is because the effectiveness of this model can manifest itself in the long run.

In the future, if the eastern countries are not possible to finance the processes of restoration of Syria's economy, the government will have to depend on western sources.

For the results of the Western model, strategic plans are implemented quickly (by a large amount of money). Also, they receive future benefits possible in the short term. However, in the future, there is a risk of becoming dependent on the West. Therefore, this requires the intervention of international lenders in the economic and political decisions of the country.

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