

INVESTIGATION OF THE RELATIONSHIP BETWEEN CURRENT ACCOUNT DEFICIT AND SAVINGS IN MENA ECONOMIES: AN EMPIRICAL APPROACH

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ABSTRACT: The current account deficit is considered one of the leading indicators of crises. According to popular belief, current account deficits are caused by insufficient national savings. The purpose of this study is to discuss whether the inadequacy of national savings is the reason for the current account deficit. For this purpose, the MENA countries, which has a significant share due to their energy resources and geopolitical risks, will be addressed and the causality relations between the fact of savings and current account deficits, and whether they are co-integrated or not will be analyzed. Cointegration Tests and the Bounds Test will be used. Savings / gdp and current account deficit / gdp data for the period of 1971-2015 will be considered as variables. This study is important in terms of proving the importance of savings empirically in MENA Countries.

KEY WORDS: MENA Countries, Current Account Deficit, Savings, Bounds Test, Cointegration Test.

JEL Classification Number: C10, E20, F20, F30.

1. INTRODUCTION

Current account balance is an important indicator of the performance of any economy and plays an important role in the analysis of economic developments and crises. Although there are various researches on the current account deficit, studies on the effects of savings on the current account deficit are insufficient. However, Middle East and North Africa (MENA) countries have not been the focus of these studies as the area consists of many oil-exporting countries with uncomplicated external positions.

MENA, which gains importance for the world, is one of the most sensitive regions in the world with its energy resources and has problems in terms of security and stability. The identification of the main cause of the current account deficit problem in such a sensitive region is important in terms of the selection of correct policies.

The purpose of this article is to determine whether savings are the reason for the current account deficit in selected MENA countries (Bahrain, Egypt, Jordan, Kuwait, Libya, Morocco, Saudi Arabia, Sudan, Syrian Arab Republic, Tunisia) between 1971 and 2015. Due to insufficient data, Algeria, Iran, Iraq, Israel, Lebanon, Oman, Palestine, Qatar, United Arab Emirates and Yemen could not be included in the analysis. To our knowledge, no attempts have so far been made to investigate the relationship between current account deficit (CAD) and savings (S) in the selected countries. The theoretical model will then be empirically tested and in section 2, we substantiate the above-explained findings empirically using Engle-Granger and Bounds Test. And finally, section 3 provides some concluding remarks.

2. EMPIRICAL ANALYSIS

The existence of causal relations between the variables will be investigated in this section. Figure 1 shows the parallels between current account deficit and savings in MENA Countries.

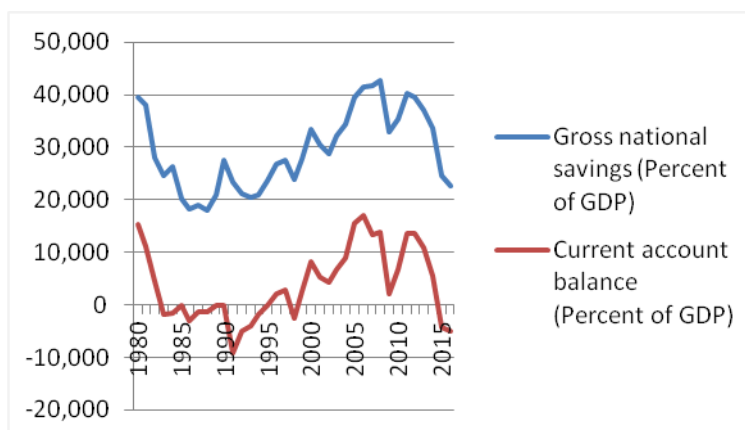


Figure – 1: Current Account Deficit/Gdp and Savings/Gdp in MENA Countries (1980-2016)
Source: IMF.

The charts for the series in MENA Countries are given at the end (Figure 2).

2.1. METHODS

In the study, unit root research is carried out and the stability of the series is examined using the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests developed by Dickey and Fuller (1979) and Phillips and Perron (1988). Augmented Dickey-Fuller (ADF) unit root tests are taken as the level and first difference. Schwarz information criterion is used to determine appropriate delays. In the series, where cointegration is applied, compliance with the MacKinnon criteria is also examined. Different methods have been used to determine the causality relations between the variables according to the characteristics of the series. Cointegration Tests and the Bounds Test is applied according to the characteristics of the series. In order for cointegration to be applied, the series must demonstrate the same characteristics; Engle-Granger test could be applied to all except Kuwait and Sudan. In addition, the long-term relationship between the series has been analyzed with the Bounds Test, which allows application of cointegration to the series with different degrees of cointegration, in Kuwait and Sudan.

2.2. THE DATA AND THE EMPIRICAL RESULTS

It is a common opinion that low saving ratios lead to current account deficits. To analyze this, it is possible to express the hypothesis of the study carried out as follows;

H_0 : Savings does not causes Current Account Deficit

H_1 : Savings causes Current Account Deficit

To be able to do the work, I use annual time series data on savings/gdp and current account deficit/gdp for the period of 1971-2015 for MENA Countries were obtained from IMF. The econometric model is formed as follows;

$$CAD_t = \alpha_0 + \alpha_1 S_t + \epsilon \quad (1)$$

CAD and S refer to the current account deficit and savings. In the econometric model, the causality relationship between savings and current account deficit and whether they are co-integrated or not will be analyzed. In the regression analysis, the current account deficit and savings will be considered as dependent and independent variables, respectively.

In the first step of the analysis, the unit root properties of the data are investigated by using Augmented Dickey Fuller (ADF) and Philips and Perron (PP) unit root tests. The unit root results can be seen in Table 1.

Table 1: The Results of Unit Root Tests

		Variables	Test Statistics	Critical Values		
				0,01	0,05	0,1
Bahrain	ADF	CAD, level	-3.102477	-4.252879	-3.548490	-3.207094
		CAD, 1st differance	-6.688644	-4.262735	-3.552973	-3.209642
		S, level	-1.993800	-4.252879	-3.548490	-3.207094
		S, 1st differance	-5.624492	-4.262735	-3.552973	-3.209642
	PP	CAD, level	-2.960152	-4.252879	-3.548490	-3.207094
		CAD, 1st differance	-1.120753	-4.262735	-3.552973	-3.209642
		S, level	-1.973199	-4.252879	-3.548490	-3.207094
		S, 1st differance	-5.679107	-4.262735	-3.552973	-3.209642
Egypt	ADF	CAD, level	-2.496589	-4.226815	-3.536601	-3.200320
		CAD, 1st differance	-5.580103	-4.243644	-3.544284	-3.204699
		S, level	-1.984463	-4.180911	-3.515523	-3.188259
		S, 1st differance	-7.285750	-4.186481	-3.518090	-3.189732
	PP	CAD, level	-2.437364	-4.226815	-3.536601	-3.200320
		CAD, 1st differance	-6.824823	-4.234972	-3.540328	-3.202445
		S, level	-1.756013	-4.180911	-3.515523	-3.188259
		S, 1st differance	-7.547219	-4.186481	-3.518090	-3.189732
Jordan	ADF	CAD, level	-3.790792	-4.186481	-3.518090	-3.189732
		CAD, 1st differance	-6.149568	-4.198503	-3.523623	-3.192902
		S, level	-2.272080	-4.211868	-3.529758	-3.196411
		S, 1st differance	-6.766897	-4.219126	-3.533083	-3.198312
	PP	CAD, level	-3.599965	-4.186481	-3.518090	-3.189732
		CAD, 1st differance	-16.79977	-4.192337	-3.520787	-3.191277
		S, level	-2.272080	-4.211868	-3.529758	-3.196411
		S, 1st differance	-7.121214	-4.219126	-3.533083	-3.198312
Kuwait	ADF	CAD, level	-5.143329	-4.205004	-3.526609	-3.194611
		S, level	-2.703277	-4.180911	-3.515523	-3.188259
		S, 1st differance	-7.876745	-4.186481	-3.518090	-3.189732
	PP	CAD, level	-5.136706	-4.205004	-3.526609	-3.194611
		S, level	-2.703277	-4.180911	-3.515523	-3.188259
		S, 1st differance	-9.543129	-4.186481	-3.518090	-3.189732
Libya	ADF	CAD, level	-2.306356	-4.467895	-3.644963	-3.261452
		CAD, 1st differance	-6.075919	-4.440739	-3.632896	-3.254671
		S, level	0.066196	-4.667883	-3.733200	-3.310349
		S, 1st differance	-6.928621	-4.667883	-3.733200	-3.310349
	PP	CAD, level	-2.381093	-4.416345	-3.622033	-3.248592
		CAD, 1st differance	-6.030529	-4.440739	-3.632896	-3.254671
		S, level	-1.905139	-4.571559	-3.690814	-3.286909
		S, 1st differance	-8.609750	-4.616209	-3.710482	-3.297799
Morocco	ADF	CAD, level	-2.120435	-4.205004	-3.526609	-3.194611
		CAD, 1st differance	-6.895611	-4.211868	-3.529758	-3.196411
		S, level	-2.711843	-4.180911	-3.515523	-3.188259
		S, 1st differance	-7.489273	-4.186481	-3.518090	-3.189732
	PP	CAD, level	-2.120435	-4.205004	-3.526609	-3.194611
		CAD, 1st differance	-8.016222	-4.211868	-3.529758	-3.196411
		S, level	-2.701784	-4.180911	-3.515523	-3.188259
		S, 1st differance	-8.257425	-4.186481	-3.518090	-3.189732
Saudi Arabia	ADF	CAD, level	-2.188761	-4.180911	-3.515523	-3.188259
		CAD, 1st differance	-6.669423	-4.186481	-3.518090	-3.189732
		S, level	-1.503833	-4.180911	-3.515523	-3.188259
		S, 1st differance	-5.259933	-4.186481	-3.518090	-3.189732
	PP	CAD, level	-2.222995	-4.180911	-3.515523	-3.188259
		CAD, 1st differance	-6.819089	-4.186481	-3.518090	-3.189732
		S, level	-1.503833	-4.180911	-3.515523	-3.188259
		S, 1st differance	-1.503833	-4.180911	-3.515523	-3.188259

		S, 1st difference	-5.195851	-4.186481	-3.518090	-3.189732
Sudan	ADF	CAD, level	-4.365362	-4.219126	-3.533083	-3.198312
		S, level	-3.068295	-4.211868	-3.529758	-3.196411
		S, 1st difference	-7.117480	-4.219126	-3.533083	-3.533083
	PP	CAD, level	-4.321179	-4.219126	-3.533083	-3.198312
		S, level	-3.037228	-4.211868	-3.529758	-3.196411
S, 1st difference		-7.459909	-4.219126	-3.533083	-3.198312	
Syrian Arab Republic	ADF	CAD, level	-2.951793	-4.296729	-3.568379	-3.21382
		CAD, 1st difference	-5.386619	-4.309824	-3.574244	-3.221728
		S, level	-2.974904	-4.234972	-3.540328	-3.202445
		S, 1st difference	-5.362890	-4.262735	-3.552973	-3.209642
	PP	CAD, level	-3.027520	-4.296729	-3.568379	-3.218382
		CAD, 1st difference	-5.993229	-4.309824	-3.574244	-3.221728
		S, level	-2.901566	-4.234972	-3.540328	-3.202445
		S, 1st difference	-16.50773	-4.243644	-3.544284	-3.204699
Tunisia	ADF	CAD, level	-2.258136	-4.219126	-3.533083	-3.198312
		CAD, 1st difference	-6.181487	-4.226815	-3.536601	-3.200320
		S, level	-2.829548	-4.180911	-3.515523	-3.188259
		S, 1st difference	-9.386635	-4.186481	-3.518090	-3.189732
	PP	CAD, level	-2.355693	-4.219126	-3.533083	-3.198312
		CAD, 1st difference	-6.275745	-4.226815	-3.536601	-3.200320
		S, level	-2.806471	-4.180911	-3.515523	-3.188259
		S, 1st difference	-1.134761	-4.186481	-3.518090	-3.189732

Note: *** represents a significance level of 1%. The number of delays in the ADF tests is determined according to the Schwarz criteria. In the PP tests, the number of delays determined according to Newey-West Bandwith is taken. As a test format, fixed and trend equation options are used for all variables at the level value. The fixed equation option is used to obtain the first difference of the variables.

MacKinnon critical values are contemplated.

As can be seen from Table 1, the series have different characteristics.

In Bahrain, Egypt, Jordan, Libya, Morocco, Saudi Arabia, Syrian Arab Republic and Tunisia; in Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) analyzes, it was found that the series had a unit root value at the level. By taking the first differences, the series have been stabilized. In Kuwait and Sudan, the cad / gdp series are stationary at the level. At the next stage, the Bounds Test and the Engle-Granger Test were applied to determine the existence of long-term relationship.

2.2.1. THE ENGLE-GRANGER TEST

The H_0 hypothesis is rejected, as can be seen from Table 2, obtained after the regression equation is established, in Bahrain, Jordan, Morocco, Saudi Arabia the series are co-ordinated. A long-lasting relationship has been established between the series.

Table 2: The Engle Granger Test Results

Countries	T Statistics	Mac Kinnon Critical Values (%1)	Mac Kinnon Critical Values (%5)	Mac Kinnon Critical Values (%10)	Result
Bahrain	-4.613256	-4.252879	-3.548490	-3.207094	Long run relationship
Egypt	-2.581972	-4.226815	-3.536601	-3.200320	
Jordan	-3.616393	-4.211868	-3.529758	-3.196411	Long run relationship
Libya	-2.915706	-4.571559	-3.690814	-3.286909	
Morocco	-3.257158	-4.205004	-3.526609	-3.194611	Long run relationship
Saudi Arabia	-4.000473	-4.180911	-3.515523	-3.188259	Long run relationship
Syrian Arab Republic	-2.867765	-4.296729	-3.568379	-3.218382	
Tunisia	-2.380024	-4.219126	-3.533083	-3.198312	

The Engle Granger Test can not be applied to Kuwait and Sudan: variables are at I_0 .

2.2.2. THE BOUNDS TEST

The bounds test was applied to the two countries (Kuwait, Sudan) that did not apply the Engle-Granger. The Bounds Test results show that there are long term cointegration relations between variables in countries in Sudan .

Table 3: The Bounds Test Results

Country	k	F Statistics	I_0	I_1	Cointegration Relation
Kuwait	2	1.518.837	3,79	4,85	
Sudan	2	5.381.333	3,79	4,85	Long run relationship

Critical values are taken from Table CI (iii) of Pesaran et al. (2001).

2.2.3. THE RESULTS

The results of analyzes, where the long-term causality relationships between savings and current account deficit are tested, can be summarised as follows:

In the long run, in Bahrain, Jordan, Morocco, Saudi Arabia, Sudan, it is determined that savings and current account deficits are cointegrated. That is to say, existence of long-term relationships between the series has been found in these countries. No cointegration was found between the series in Egypt, Kuwait, Libya, Syrian Arab, Tunisia. (Table 2-3).

3. CONCLUDING REMARKS

This chapter investigates empirically the relationship between current account deficit and savings in ten MENA countries, Bahrain, Egypt, Jordan, Kuwait, Libya, Morocco, Saudi Arabia, Sudan, Syrian Arab Republic, and Tunisia, over the period 1971-2015. In half of MENA economies, the series were found to be cointegrated in the long run. With this result it was emphasized that savings were an important factor in the formation of the current account deficit in MENA Economies.

Since the Arab Spring 2011, MENA region, which is engaged in slow economic growth, increasing violence and civil war, macroeconomic imbalances caused by low oil prices, must develop policies to increase its savings in order to solve the current account deficit problem.

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Figure 2: Current Account Deficits and Domestic Savings in MENA Economies (1971-2015)

