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Cyclicality of Government Consumption in Selected MENA Economies

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OKA Ülkelerinde Kamu Harcamalarının Döngüselliği	**Cyclicality of Government Consumption in Selected MENA Economies**
Öz Ekonomik dalgalanmaların negatif etkilerini hafifletmek için mali otoriteler sıklıkla konjonktür karşıtı politikalara başvurmaktadır. Ancak, bazıları da mali disiplini korumak adına bu dalgalanmalara tepki vermeyerek konjonktür yanlısı politikayı tercih etmektedirler. Bu çalışma, bahsedilen bu ilişkiyi Ortadoğu ve Kuzey Afrika (OKA) ülkeleri için 1981-2017 yıllarını kapsayacak şekilde incelemektedir. Vektör Otoregresif (VAR) metodolojisi kullanılan çalışmanın sonuçlarına göre incelenen ülkeler arasında Cezayir, Bahreyn, Mısır, Ürdün, Suudi Arabistan ve Tunus'un konjonktür karşıtı politika uyguladığı görülmektedir. Ancak, etki-tepki fonksiyonları detaylı incelendiğinde Cezayir, Mısır ve Ürdün için istatistiksel anlamlılık bulunamadığı tespit edilmiştir. Bölgede daha güçlü ve istikrarlı yönetim yapısına sahip ülkelerde ekonomik dalgalanma dönemlerinde krizin etkilerini önlemeye yönelik adımların daha kolay atıldığı söylenebilecektir.	**Abstract** To alleviate the negative impacts of fluctuations, fiscal authorities frequently resort to counter-cyclical policies while some of them do not follow a pro-cyclical stance for fiscal discipline. Based upon this nexus, this study investigates how selected Middle East, and North African (MENA) countries respond to the movements in the economic growth through fiscal policies in the period between 1981-2017. The Vector Autoregression (VAR) methodology is employed to analyze the cyclicality of fiscal policies. The results demonstrate that Algeria, Bahrain, Egypt, Jordan, Saudi Arabia, and Tunisia tend to follow counter-cyclical policies in terms of government final consumption expenditure. However, the impulse responses of government consumption are not significant for Algeria, Egypt, and Jordan. It is concluded that countries with stronger and stable government structures tend to give quick responses to economic fluctuations.
Anahtar Kelimeler: Maliye politikası, Mali duruş, Konjonktür karşıtı, Ekonomik dalgalanmalar, Ortadoğu ve Kuzey Afrika (OKA) ülkeleri	**Keywords:** Fiscal policy, Fiscal stance, Counter-cyclical, Business cycles, Middle East and North African (MENA) countries
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Araştırma ve Yayın Etiği Beyanı	Bu çalışma bilimsel araştırma ve yayın etiği kurallarına uygun olarak hazırlanmıştır.
Yazarların Makaleye Olan Katkıları	Yazar 1'in makaleye katkısı %50, Yazar 2'nin makaleye katkısı %50'dir.
Çıkar Beyanı	Yazarlar açısından ya da üçüncü taraflar açısından çalışmadan kaynaklı çıkar çatışması bulunmamaktadır.

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1. Introduction

The high level of fluctuations and instability in economic growth always poses a risk to the health of the overall economy and hence policymakers are highly stressed the role of the fiscal apparatus regarding the output volatility. Ramey & Ramey (1994), in their research for a sample of 92 countries, proved that higher volatility in the output significantly causes lower growth. Output fluctuations directly lead to uncertainty about the economy, which causes the expectations of households and businesses to deteriorate and therefore, results in lower consumption and investment. To alleviate these negative impacts of fluctuations, fiscal authorities frequently resort to counter-cyclical policies that suggest spending more to bolster the dampening economic growth in recessionary periods, and less in boom periods to stabilize the overheated economy. However, some governments do not implement policies in the reverse direction of the economy and spend in expansionary times and save in contractionary times because of limited fiscal space or sustaining fiscal discipline, which refers to pro-cyclicality of the fiscal policy. Based upon this nexus between the fiscal position and business cycles, in this study, we will investigate how selected the Middle East and North African (MENA) countries respond to the movements in the economic growth through fiscal policies.

Because some MENA economies are heavily based upon oil exports, any movement in oil prices directly affects the economic volatility in the region. Even the countries, that do not export oil products, get influenced by the price changes because of the foreign trade with oil-exporting countries. Therefore, a crash in oil prices directly stalls the region's output growth while a hike in the prices boosts it, which results in a considerable level of volatility. To overcome this cyclicality, some of the resource-rich countries establish wealth funds and invest in non-oil sectors to reduce the vulnerability of the economy to oil price shocks (Anshasy & Bradley, 2012:22). The simple logic behind this action is saving in good times to be able to spend in bad times. When we look at the examples of these funds in the region, Saudi Arabia, the biggest oil exporter country in the region, has a sovereign wealth fund named the "Public Investment Fund (PIF)." Also, there are other wealth funds in oil-exporting countries of the region as follows: the "Revenue Regulation Fund" (RRF) in Algeria, "Mumtalakat" in Bahrain, "Oman Investment Fund" (OIF), and "The Sovereign Fund of Egypt" (TSFT). Additionally, the purpose of these funds is to prepare for the negative consequences of the depletion of non-renewable resources in the future.

Another important feature in the region is political instability, which remarkably influences economic activity. Along with oil revenue dependency, this political characteristic creates a highly volatile economic environment, and therefore, it provides a remarkable opportunity for us to analyze business cycles. Another motivation of this study is filling the gap in the literature about the fiscal policy stances in MENA economies. To date, a limited number of studies have tried to investigate the relationship between fiscal policy and business cycles for MENA economies.

To investigate the fiscal policy response of the government to business cycles, we followed the VAR approach based upon the cross-country data differently from the existing literature on the fiscal policy in the MENA region using Generalized Method of Moments and/or Instrumental Variable estimation with panel data. The superiority of this method is that it takes into account dynamic interactions between variables and treats all the variables as endogenous, which eliminates the simultaneity and endogeneity bias without an instrumental or a proxy variable (Lütkepohl, 2005:45). For this empirical analysis, we have included 10 MENA

countries (Algeria, Bahrain, Egypt, Israel, Jordan, Morocco, Oman, Saudi Arabia, Tunisia, Turkey) and covered yearly data for the period 1981-2017.

The rest of the paper proceeds as follows: Section 2 summarizes the literature about the discussion of business cycles and fiscal policies. In section 3, the data is presented, and the main aspects of our methodology are explained. Next, we provide the empirical results. The last section is the conclusion.

2. Cyclicality of Fiscal Variables Against the Economic Fluctuations

Business cycles are deviations from trends in main macroeconomic variables like output, employment, and prices (Long Jr. & Plosser, 1983:32). Governments sometimes implement pro-cyclical fiscal policies to avoid these deviations to stabilize the economy while some of them adopt counter-cyclical fiscal behavior. Counter-cyclicality in fiscal policy is defined as increasing government spending or decreasing taxes in economic downturns while doing the opposite in upturns. In contrast, a pro-cyclical policy means spending more in upturns, less in downturns.

There are two opposing views about the impacts of fiscal policies in the literature. On the one hand, classical economics has been built upon the theories of Adam Smith (1723 - 1790), favors the efficiency of the free-market economy, and criticizes government intervention. In accordance with this theory, the vast amount of the literature has stressed the crowding-out effect of fiscal policies on the economy, and further mentioned the drawbacks of counter-cyclical fiscal behavior (Afonso & Sousa, 2012:321; Ahmed & Miller, 2000:24; Buiter, 1977:67).

On the other hand, the Keynesian view, dating back to the 1930s, advocates the impossibility of full employment in the economy by itself and addresses the role of government suggesting expansionary fiscal policies in economic downturns to prevent deep economic crises (Greenwald & Stiglitz, 1987:342). Accordingly, the theories about the counter-cyclicality of fiscal policy have emerged in the context of Keynesian fiscal policies. Notwithstanding the fact that there are many arguments relating to the crowding-out effect of Keynesian fiscal policies, Aghion et al., (2014) claim that they have a remarkable growth-enhancing capability in economic downturns.

Apart from the relative efficiency of pro- or counter-cyclical fiscal position, the country-specific factors also determine the policy choice of the countries. The countries with high or unsustainable public debt tend to carry out pro-cyclical fiscal policies (Alesina et al., 2008:21; Égert, 2014:56; Combes et al., 2017:45). Because in economic downturns government revenues decline and the countries with limited fiscal space cannot resort to expansionary fiscal policies to foster economic growth. In a similar vein, Slimane & Tahar, (2010) assert that the limited fiscal space, borrowing constraints, and low-quality institutions coerce central planners to follow pro-cyclical fiscal policies. It is also revealed that responses to business cycles become more countercyclical as the government size increases (Égert, 2014:59). Furthermore, Bova et al., (2016) and Koh (2017) point out that resource-rich countries implement pro-cyclical fiscal policies. Koh (2017), however, finds evidence that wealth funds based on oil revenue allow the countries, having qualified institutions, to follow counter-cyclical policies.

3. Data and Methodology

3.1 Data

Annual data from 1981 to 2017 is covered in the study. To investigate the fiscal policy response of the government to business cycles, we employ government expenditures as a fiscal policy indicator since the best available data is general government final consumption expenditures (% of GDP) for our selected sample of countries. Likewise, there is a vast number of studies, in the literature, examining the fiscal policy of a country by estimating the cyclicality coefficient based upon government budget components (Bova et al., 2016:213; Koh, 2017:87; Lane, 2003:34; Woo, 2009:56). Note that, there are also some studies assessing fiscal policies through the overall stance of the government such as budget deficit and government debt (Égert, 2014:51).

Using government consumption as an indicator of fiscal policy reaction indicates both the exogenous and endogenous response of fiscal policy to output. It is because government consumption could raise due to both automatic stabilizers (endogenous) and discretionary (exogenous) fiscal policies. If the fiscal authority hikes personnel wages more than expected, which is a discretionary policy, then government consumption will go up. Similarly, any increase in the unemployment rate during a recessionary period will automatically raise unemployment benefits resulting in an increase in government consumption, which clearly exemplifies how an automatic stabilizer (non-discretionary fiscal policy) affects government consumption. Therefore, as the share of automatic stabilizers in the government consumption rises, the fiscal policy stance of the government will be more countercyclical.

The government consumption data is gathered from the World Bank's World Development Indicators (WDI) database. For the business cycle indicator, we employed real GDP following Ilzetzki & Végh (2008), Mountford & Uhlig, (2009), and Woo, (2009). The data source is again the WDI database. The other variable is the current account balance that is provided from the IMF's World Economic Outlook (WEO) database. We included current account balance (Percent of GDP) in the model because it is a significant determinant of output in the region therefore ignoring it leads to a misinterpretation of the results. According to the World Bank and the OECD National Accounts data, the average openness to trade (export + import volumes) ratio is 82 percent of GDP for the period 1980-2017 in our selected sample of countries. The lowest is 42 percent in Turkey and the highest 166 percent in Bahrain. The sources are the World Bank national accounts data, and the OECD National Accounts data files.

As we follow the VAR methodology in this paper, all our variables must be stationary. Tables 1 and 2 present the unit root test results for each country's variables. To ensure stationarity of the variables, we use two different methods–Augmented Dickey-Fuller (ADF) and Philips-Perron (PP) test statistics. According to these statistics, the stationary variables at the level are directly used in the analysis, and others are made stationary through a necessary number of differences. All the variables are stationary at the first difference for all countries except Egypt's government consumption data, for which we take the second difference.

Table 1: Augmented Dickey-Fuller Unit Root Test Results

	Level			Difference		
	y	**g**	**cab**	**Δy**	**Δg**	**Δcab**
Algeria	0.561	-2.458	-1.666	-2.854	-4.208	-4.198
	(0.985)	(0.157)	(0.441)	(0.066)	(0.01)	(0.01)
Bahrain	-0.334	-1.227	-2.973	-6.465	-3.676	-6.383
	(0.907)	(0.598)	(0.05)	(0.01)	(0.01)	(0.01)
Egypt	-1.017	-1.729	-2.508	-3.077	-4.510	-4.387
	(0.673)	(0.418)	(0.139)	(0.041)	(0.01)	(0.01)
Israel	-0.964	-2.862	-3.317	-3.909	-7.338	-4.135
	(0.692)	(0.065)	(0.024)	(0.01)	(0.01)	(0.01)
Jordan	-0.087	-1.008	-2.947	-3.069	-6.370	-4.268
	(0.94)	(0.676)	(0.053)	(0.042)	(0.01)	(0.01)
Morocco	-1.029	-1.972	-2.078	-5.124	-3.920	-3.931
	(0.669)	(0.331)	(0.293)	(0.01)	(0.01)	(0.01)
Oman	-2.148	-1.686	-2.649	-3.318	-4.171	-4.147
	(0.268)	(0.433)	(0.095)	(0.024)	(0.01)	(0.01)
Saudi Arabia	-0.195	-1.680	-1.901	-3.280	-4.363	-6.189
	(0.925)	(0.436)	(0.356)	(0.025)	(0.01)	(0.01)
Tunisia	-1.554	1.061	-1.828	-3.768	-4.402	-3.516
	(0.481)	(0.99)	(0.382)	(0.01)	(0.01)	(0.016)
Turkey	0.162	-1.127	-1.878	-4.320	-3.482	-5.221
	(0.963)	(0.634)	(0.365)	(0.01)	(0.017)	(0.01)

*Probabilities are given in parenthesis.

**For Egypt, we take the second difference of government consumption to make it stationary.

Table 2: Philips-Perron Unit Root Test Results

	Level			Difference		
	y	**g**	**cab**	**Δy**	**Δg**	**Δcab**
Algeria	-3.720	-7.355	-5.298	-21.129	-21.769	-36.213
	(0.898)	(0.664)	(0.796)	(0.024)	(0.021)	(0.01)
Bahrain	-18.478	-9.748	-13.933	-23.045	-35.990	-28.737
	(0.055)	(0.51)	(0.241)	(0.014)	(0.01)	(0.01)
Egypt	-12.841	-6.470	-7.002	-23.775	-30.791	-35.963
	(0.311)	(0.721)	(0.687)	(0.011)	(0.01)	(0.01)
Israel	-4.404	-14.543	-14.465	-27.217	-39.762	-32.442
	(0.854)	(0.202)	(0.207)	(0.01)	(0.01)	(0.01)
Jordan	-7.323	-20.763	-16.909	-24.687	-48.190	-36.479
	(0.666)	(0.028)	(0.085)	(0.01)	(0.01)	(0.01)
Morocco	-20.488	-17.797	-12.826	-62.033	-39.505	-32.639
	(0.031)	(0.068)	(0.312)	(0.01)	(0.01)	(0.01)
Oman	-9.326	-10.424	-18.238	-20.137	-46.224	-35.403
	(0.537)	(0.467)	(0.06)	(0.035)	(0.01)	(0.01)
Saudi Arabia	-18.673	-16.690	-15.271	-36.812	-31.106	-28.497
	(0.051)	(0.089)	(0.155)	(0.01)	(0.01)	(0.01)
Tunisia	-4.247	-5.178	-7.917	-41.888	-39.370	-31.967
	(0.864)	(0.804)	(0.628)	(0.01)	(0.01)	(0.01)
Turkey	-12.206	-14.972	-21.553	-37.459	-34.708	-41.603
	(0.352)	(0.174)	(0.022)	(0.01)	(0.01)	(0.01)

*Probabilities are given in parenthesis.

**For Egypt, we take the second difference of government consumption to make it stationary.

3.1 Methodology

Regarding the estimation of the fiscal policy cyclicality, various methodologies have been followed in the literature. Some followed Generalized Methods of Moments (GMM) methodology and Instrumental Variable (IV) regression to estimate an equation describing the fiscal stance by an income variable (Égert, 2014:55; Combes et al., 2017:87; Slimane & Tahar, 2010:56). In addition, some benefited from Vector Autoregression (VAR) models to specify the cyclical behavior of a fiscal policy indicator (Ilzetzki & Végh, 2008:90; Koh, 2017:85). All of these methods aim to deal with the endogeneity problem originating from the interrelationship between the output and fiscal variables. The output level has an influence on fiscal variables and responses to any fiscal shock as well.

The essential requirement of GMM and IV methods is to determine at least one instrumental variable to cope with the problem of endogenous variables. However, we suffer from the limited data available for our sample of countries, which makes it impossible to find relevant and robust instrument variables for the endogenous variables. Besides, the VAR methodology allows us to see the impacts of unexpected shocks in output to fiscal stance contemporaneously through impulse responses, which is not possible in GMM and IV (Ilzetzki & Végh, 2008:93). For these reasons, in this paper, VAR methodology is employed to examine the cyclical behavior of government consumption against output volatility, which allows us to analyze the interrelationship between the variables affecting each other, and eliminates the simultaneity and endogeneity bias (Lütkepohl, 2005:13). To increase the robustness of the results, we also incorporated a current account balance variable in the model. The equation expressing this interrelationship is defined as follows:

$$y_t = \alpha + \emptyset_1 y_{t-1} + \emptyset_2 y_{t-2} + \ldots + \emptyset_p y_{t-p} + \epsilon_t \qquad (1)$$

where y_t includes the set of endogenous variables, α is the constant term, p is the lag length, and ϵ_t is the error term. Following Abell (1990), we placed the output as the first order in our recursive VAR model. The second and third variables are respectively government consumption and current account balance. Notice that we adopt the Cholesky decomposition thus the ordering is critical in interpreting the causalities between variables.

4. Empirical Analysis

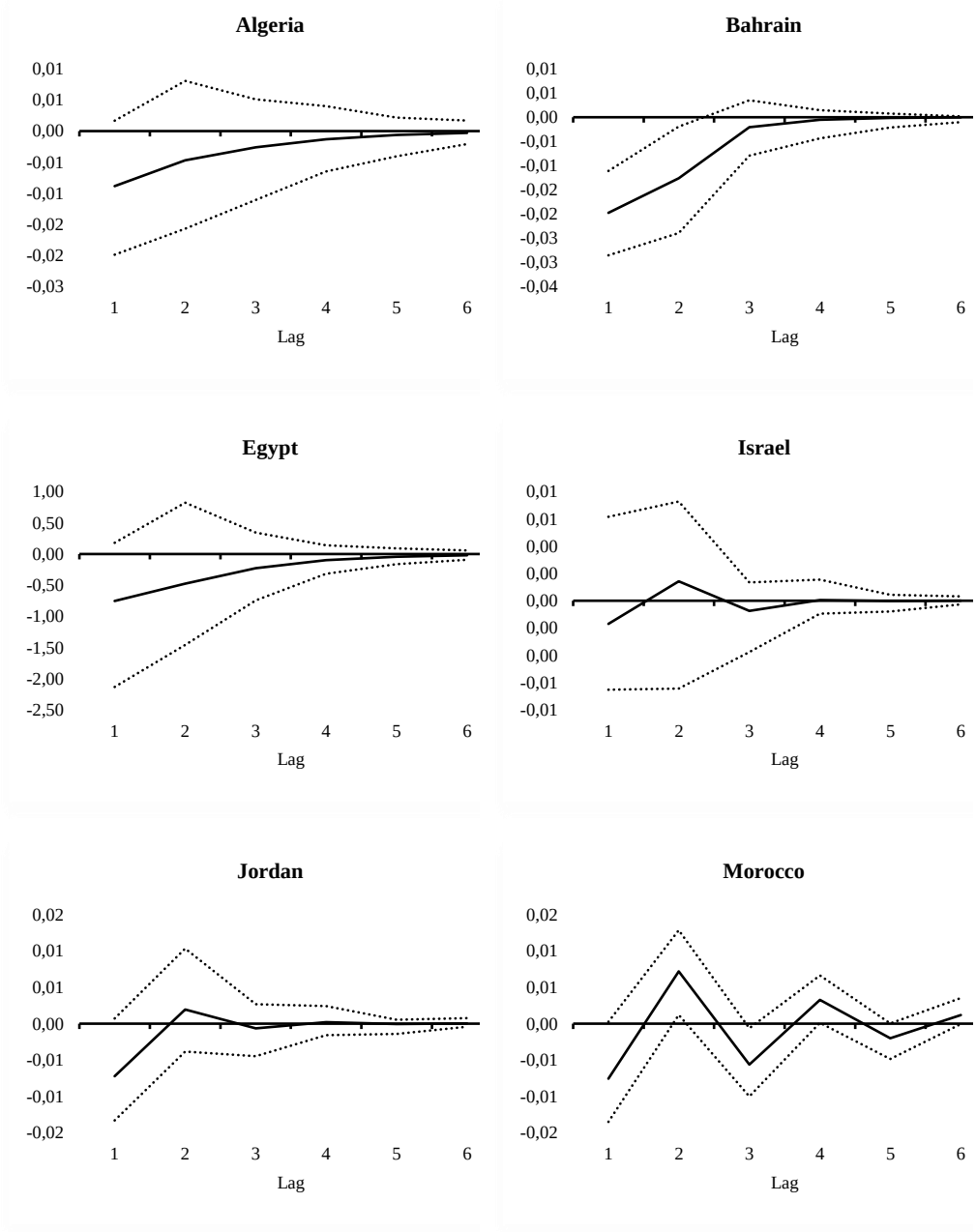
We here stress the fiscal policy responses of the countries to the business cycles and evaluate the results generated by impulse response functions originated from a VAR model. With the help of these functions, we try to investigate whether the fiscal policy is counter- or pro-cyclical in our selected sample.

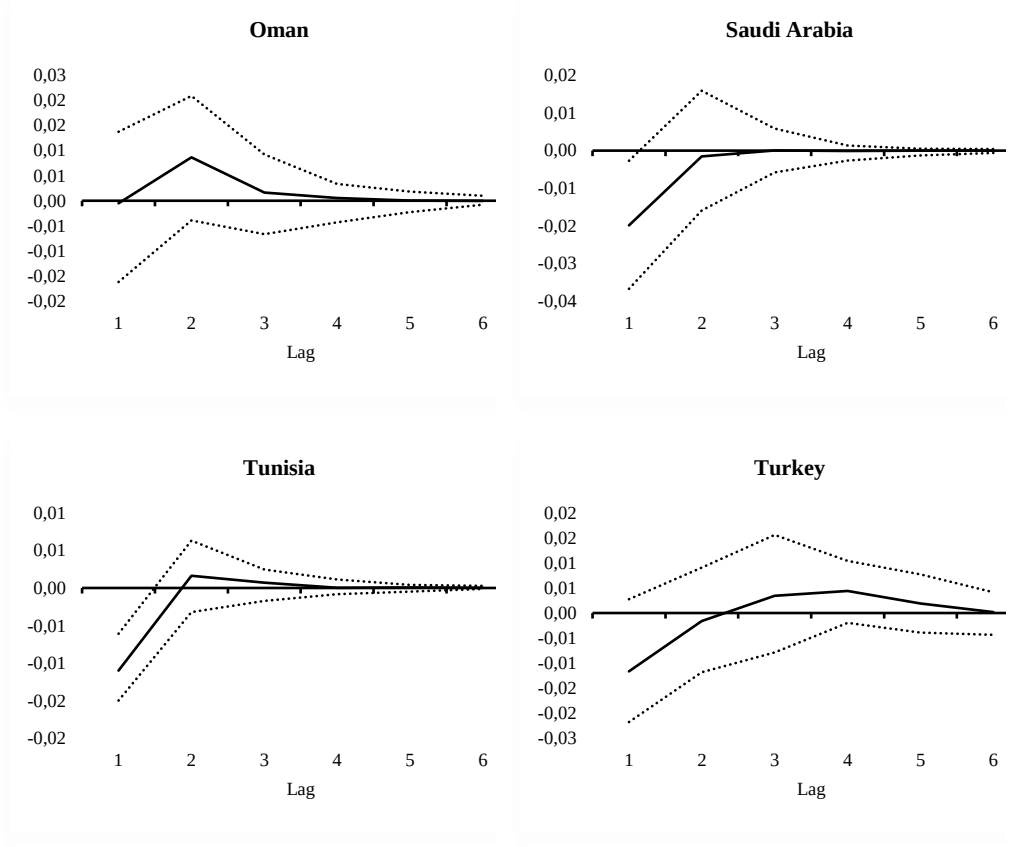
4.1. VAR Model Investigation of the Cyclicality of Government Consumption

We estimated our VAR model for each country separately and reported the impulse response graphs in Figure 1. We checked the autocorrelation and the stability for each country's model and did not find any evidence of a problem in either. The Figure 1 indicates the reactions of government consumption to output shocks for our selected economies. It is seen that there is a significant negative response of government consumption to output shocks in Bahrain, Saudi Arabia, and Tunisia. The responses are significant only at the first lag for Saudi Arabia and Tunisia while the reaction lasts 2 lags in Bahrain. Additionally, government consumption negatively reacts to output shocks in Algeria, Egypt, and Jordan but the response is not significant as the confidence band includes zero for all lags. For Israel, Morocco, Oman,

and Turkey, we could not find any evidence about the causal connection between output and government consumption.

Figure 1: The Impulse Response of Government Consumption to and Output Shock





Source: Authors' calculations

When we look at the general picture in the region, the first implication is that government consumption looks countercyclical in six countries (Algeria, Bahrain, Egypt, Jordan, Saudi Arabia, and Tunisia) among the selected ten and this causality is significant for three (Bahrain, Saudi Arabia, and Tunisia) of them. Besides, the fiscal policy is pro-cyclical only in Oman, but the impulse responses are not significant.

From a different point of view, it should be kept in mind that these results do not completely cover all the aspects of the fiscal policy stance because we only include government consumption due to unavailable data like the budget deficit, debt, government investment expenditures, and taxes/revenues. Therefore, in case the data is provided in the future, this research can be furthered by adding these indicators to the model.

4.2. Country-specific Dynamics and the Counter-Cyclicality of Government Consumption

Above, we revealed the significance of the counter-cyclicality of government consumption against output volatility in Bahrain, Saudi Arabia, and Tunisia. In this section, we further look at the dynamics behind these implications for these countries. Firstly, when we look at an oil-exporting country Bahrain, it can be said that the government consumption also seems counter-cyclical against oil prices. Figure 2 demonstrates this connection, and the implication is that government consumes more when the oil prices go down or vice versa. It is mainly because of the positive relationship between the oil prices and output since the share of oil and gas production is considerably high in output. Woertz (2018) presented that the share of the oil and gas sector is nearly 19 percent of GDP in 2017 according to the data of the Central Informatics Organization of Bahrain.

Any downward movement in oil prices leads to a decline in output growth. After that, the government reacts by spending more to stabilize the growth rate, which is known as Keynesian fiscal policy in the literature. Put differently, any surge in oil prices boosts the growth and fiscal authority executes contractionary fiscal policy. The logic behind contractionary policies is preventing overheating in the economy and fiscal sustainability, i.e., saving in good times to spend in bad times.

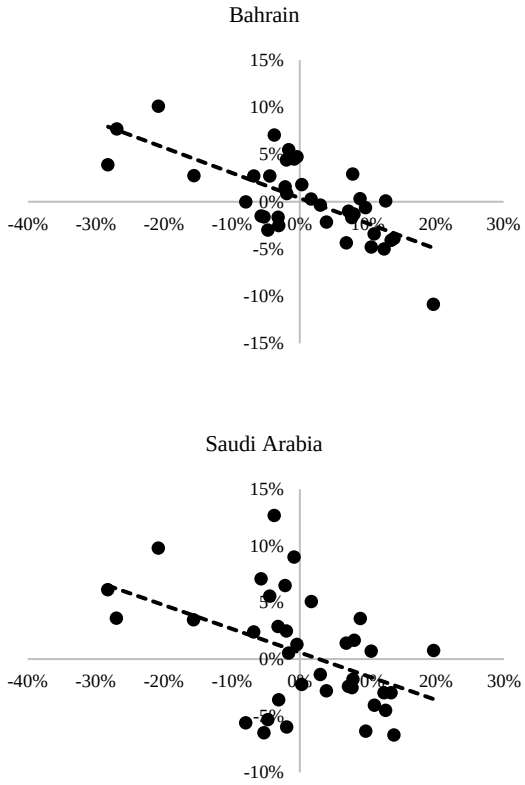
To investigate this interaction further, we should look into the details of the sources of government consumption. On one side, oil revenues constitute the greater part (76 percent in 2016) of the government revenues (Woertz, 2018:34). The question is how the government responds by increasing consumption while the oil prices go down and revenues diminish. On the other side, Bahrain has a sovereign wealth fund, Mumtalakat, that provides a fiscal space during these periods and eliminates the short-run effects of oil price movements on government revenues. In line with this hypothesis, Abdih et al., (2010) assert that oil-exporting MENA countries, compared to oil-importing ones, are more inclined to implement counter-cyclical fiscal policies in economic downturns.

When we look at Saudi Arabia, which is another oil-exporting country following counter-cyclical fiscal policy in the region, the same negative connection between oil prices and government consumption is also valid as Figure 2 displays. It implies again that any upward/downward movement in oil prices is responded to by a decrease/increase in government consumption. Parallel to this claim, Mehrara & Oskoui (2007) found that the main source of volatility in the country is oil prices. Like Bahrain, Saudi Arabia also has a wealth fund named PIF, by which we draw attention to the importance of wealth funds in oil revenue-dependent countries. Thanks to this fund, Saudi Arabia reacts to economic downturns with counter-cyclical policies. Indeed, Alkhateeb et. al (2021) and Al-Hamidy (2012) proved that Saudi Arabia follows counter-cyclical policies in the short run, which is parallel to our results.

Another country following counter-cyclical fiscal policies in the region is an oil-importing country, Tunisia, which is also proved by Diop & Ben Abdallah (2009). The country has a sustainable level of government debt and fiscal space allowing it to implement counter-cyclical policies. Belguith & Gabsi (2019) concluded that Tunisia puts an emphasis on public debt sustainability in their studies covering the period 1965-2013. Parallel to our findings, they further pointed out that the government tends to react to downturns in the economy with expansionary fiscal policies. Governments, having a sustainable fiscal position, is inclined to implement counter-cyclical fiscal policies. Égert (2014) asserted that the countries having budget deficits higher than 3 percent or debt-to-GDP ratio is higher than 90 percent tend to

implement pro-cyclical fiscal policies. Below these critical levels, counter-cyclical policies are adopted. His study covers 25 developing and developed OECD countries for the period 1970-2008. Additionally, Combes et al., (2017) found that countries carry out pro-cyclical policies if their debt-to-GDP ratio is higher than 87 percent for the sample of 56 countries and the period 1990-2011.

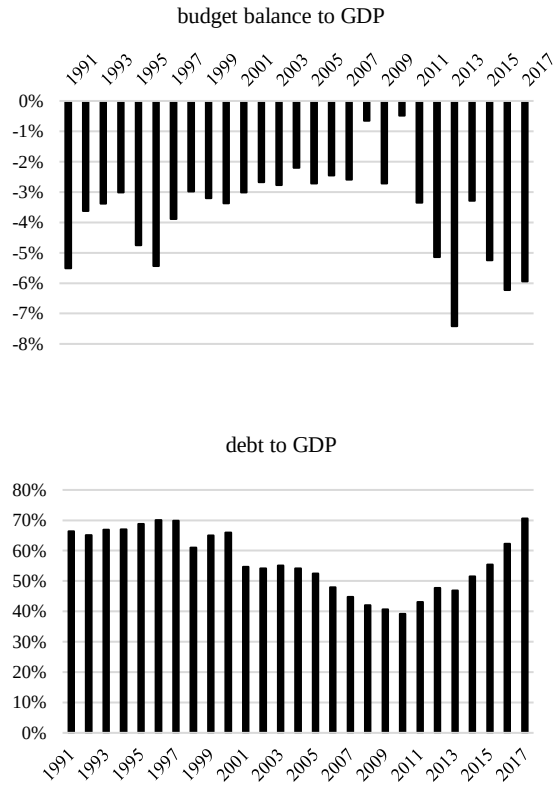
Figure 2: The Correlation between Oil Prices and Government Consumption (% of GDP) in Oil Exporting Countries



Source: St. Louis Fed, World Bank

Figure 3 demonstrates that the Tunisian government tries to hold the budget deficit to GDP ratio close to the 3 percent level except in the 2010s. In parallel to this, the debt to GDP ratio has been sustained below 70 percent. Based upon these statistics, we claim that fiscal sustainability may be one of the causes encouraging counter-cyclical fiscal policies. However, it is not claimed that fiscal sustainability directly causes counter-cyclical policies because policy choice is a government's preference. Even if a country has a sustainable debt level, it may favor pro-cyclical policies.

Figure 3: Tunisia's Government Budget Statistics



Source: IMF, World Economic Outlook Database

5. Conclusion

In this paper, we analyzed some MENA countries whether they use fiscal policies to provide economic stability against this volatile economic environment. According to our results, Algeria, Bahrain, Egypt, Jordan, Saudi Arabia, and Tunisia follow counter-cyclical policies in terms of government final consumption expenditure. However, the impulse responses of government consumption are only significant for Bahrain, Saudi Arabia, and Tunisia but not for Algeria, Egypt and Jordan. Therefore, our main finding is that only three countries Bahrain, Saudi Arabia, and Tunisia among our sample follow counter-cyclical fiscal policies. This finding is consistent with the literature as Koh (2017) reveals that resource-rich countries, having sovereign wealth funds, are tended to implement counter-cyclical fiscal policies. Alkhateeb et. al (2021), Al-Hamidy (2012), and Diop & Ben Abdallah (2009) also prove our findings for Saudi Arabia and Tunisia. However, we could not find any specific study about the cyclicality of fiscal policy in Bahrain.

In addition to the impulse responses of government consumption to output, we also revealed the negative correlation between oil prices and government consumption in two oil-exporting countries Bahrain and Saudi Arabia. The implication is that fiscal authorities in these countries respond to any contraction (expansion) in the output originating from downward (upward) movement in oil prices.

Another essential point about the cyclicality of the fiscal stance is fiscal sustainability. Needless to say, that following counter-cyclical fiscal policies necessitates a sound budgetary position. In line with this argument, in Tunisia, we observe that the budget deficit is sustainable and government debt is not exceeding critical levels based upon the results of a wide range of studies in the literature. This paves the way for counter-cyclical fiscal policies in the country.

Lastly, it should be noted that the present study suffers from data availability. Most of the Middle Eastern and North African countries' governments have started to record statistical data on macro-economic variables after the 1980s. This makes it very hard to employ comprehensive econometric methods and creates methodological limitations. Therefore, when the data availability improves for these countries, further research is required to conclude the tie between macroeconomic dynamics and fiscal variables.

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