THE TRINITY OF BUDGETARY INSTITUTIONS, POLITICAL INSTITUTIONS AND FISCAL CYCLICALITY: EVIDENCE FROM EGYPT[1]

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ABATRACT

Fiscal policy is empirically proven in many papers as procyclical in developing countries as a result of longstanding weaknesses in political and fiscal institutions. The paper investigates the problem of cyclicality of fiscal policy in Egypt and the impact of budget and political institutions on fiscal indicators during economic cycles. We measure the cyclicality of different components of the Egyptian budget in a disaggregated manner. The most important result in this regard is that current spending in Egypt is countercyclical only at the beginning of the cycle. However, after reaching specific deficit and debt threshold, it turns to be procyclical since the government start adopting contractionary fiscal policy. Golden rule violation in Egypt had positively impacted fiscal aggregates and contributed to adopting a countercyclical behavior during economic cycles. Moreover, common pool and principal-agent problems in Egypt have also influenced the cyclicality of fiscal policy in Egypt as they have lead into an exacerbated pressure on fiscal spending during booms and recessions during the examined period. We recommend the urgent need for re-adopting the Golden rule to control the current spending trends. We also recommend the change of the electoral system towards a party-based, rather than an individual-based system in order to diminish individualized control over fiscal aggregates and hence enhance the quality of political institutions.

INTRODUCTION

Fiscal responses to output cycles in developing countries have been vastly examined theoretically and empirically. While the Keynesian conventional wisdom affirms that fiscal policy should behave countercyclically to ensure the efficiency of the stabilization function, empirical literature show that in many developing countries and emerging markets, fiscal policies tend to be rather pro-cyclical. This is attributed to many underlying structural determinants such as weak budgetary and political institutions, social and political instability in times of crises as well as structural inefficiencies in fiscal performance. Pro-cyclicality of fiscal policy is claimed to have detrimental effects not only on fiscal performance; but also on equality and social justice.

A number of studies have analyzed the cyclicality of fiscal policy in Egypt. However, evidence on the role of political and budgetary institutions on the cyclicality of fiscal policy in Egypt is still ambiguous. Egypt witnessed a lot of changes with regards to its fiscal discipline as well as budgetary and political institutions since end 1970s. Changes in fiscal and political settings have impacted fiscal

performance in several manners. Further recent changes in political and institutional settings pre and post January's revolution are argued to have extended adverse impacts on fiscal performance. The paper intends to address the interrelationships between fiscal and political institutions in determining the cyclicality of fiscal policy in Egypt.

While many research contributions have examined the impact of budget institutions on fiscal cyclicality, few incorporated political institutions into the analysis as potential determinants of the cyclicality of fiscal policies. We hence analyze the cyclicality of fiscal policy in Egypt during the period 1978-2017 and analyze the role of both political and fiscal institutions during the economic cycles in Egypt. The paper is organized as follows: in section one, we start by reviewing the theoretical and empirical literature on the cyclicality of fiscal policy, its determinants and the role of budget institutions and political institutions altering the cyclical trends of fiscal policy. In section two we empirically examine the cyclicality of the Egyptian fiscal policy during the period 1978-2017. The impact of political and fiscal institutions on fiscal cyclicality is also examined using Vector Error Correction Mechanism. The paper finally concludes and defines some policy recommendations to improve fiscal performance in Egypt; particularly during business cycles and recession times.

I.   THE CYCLICALITY OF FISCAL POLICY – ORIGINS FROM ECONOMIC THEORIES

The origins of arguments supporting countercyclical fiscal policy belongs back to "Keynes conventional wisdom". Keynes theory is the origin of countercyclical fiscal policy arguments with the notion that increasing deficit spending during business cycles will increase aggregate demand and growth rates during a business cycles. Keynes policies were applied following the famous Great Depression in U.S. and other Western economies. They were applied several times in major economic history events and most recently they were applied in the International Financial Crisis. It was even said the President Obama was Keynesian as he enacted tax cut programs and other countercyclical discretionary fiscal policies during the crisis.

Keynes countercyclical policy relies on the assumption that fiscal policy should act to smooth the business cycle by lowering taxes and increasing spending during recessions through the social components of the budget. While Keynes advocates for the discretionary forms of fiscal policy, the neoclassical model addresses fiscal policy from a close, but different perspective as it focuses on automatic stabilizers. According to Barro's (1979) neoclassical model and the tax smoothing hypothesis, budget balance should work to absorb changes to tax revenues during cycles. However,

although the neoclassical model assumes that the pattern of fiscal expenditure is exogenously determined, government consumption in the neoclassical model can also be perceived as counter-cyclical (Halland & Bleaney, 2009) [4] .

Advocators of countercyclical fiscal policy argue that governments should decrease discretionary government spending during booms since automatic stabilizers are supposed to work and in times of recession, governments would increase discretionary spending. This is under the assumption of the presence of effective automatic stabilizers such as tax rates; especially progressive types (Alesina et al., 2008) and social programs such as unemployment benefits. Oppositely, in times of recession, government should increase discretionary spending in the form of increased spending and decreased revenues in order to stimulate aggregate demand and raise employment

However, several economic writings have mentioned to poor relevance of Keynesian economics to developing economies. The nature of the cycle in developing countries might be different than in developed countries. A lot of developing countries suffer from persistent structural fiscal problems regardless of the nature of the economic cycle. Those countries suffer from poor budget process as a result of political disruptions, inherited big government from previously adopted socialist policies and the related deformities. Political pressures and principal-agent problems as well as common pool problems are proven to be sounder in developing countries with loose fiscal rules and political Institutions (Zaky and El-Khishin, 2016).

II.   WHAT MAKES FISCAL POLICY PROCYCLICAL? DO BUDGET AND/OR POLITICAL INSTUTIONS PLAY ANY ROLE? EVIDENCE FROM LITERATURE

Our hypothesis is that the cyclicality of fiscal policy is a function of both political and fiscal institutions. In this section we present evidence on procyclicality of fiscal policy in developing countries and the factors determining this behavior in general. We then focus on the scope of this paper which is the political institutions and budget institutions as two examined determinants of fiscal policy in developing countries prior to our examination of the Egyptian case.

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[4] For more information on the theoretical arguments supporting the counter-cyclicality of fiscal policy, review Halland & Bleaney, 2009

a. Evidence on Procyclicality of Fiscal Policy in Developing Countries

Fiscal responses to output cycles in developed and developing countries have been vastly empirically examined. As mentioned earlier, Keynesian conventional wisdom affirms that fiscal policy should behave counter-cyclically to ensure the efficiency of the stabilization function (Leith and Wren-Lewis, 2005; Venes, 2006), empirical literature show that in many developing countries and emerging markets, fiscal policies tend to be rather pro-cyclical; that is: spending too much in booms which leads to a forced cut back in recessions (Frankel, 2011). This is not the case in developed countries as many literature claim.

Ilzetzki (2010) reviews a wide strand of literature that affirms that fiscal policy in most high-income countries follow a counter-cyclical behavior with regards to both expenditure and taxation. In the same manner, Frankel et al. (2013), evidently proves that fiscal policy is procyclical in developing countries and countercyclical in developed ones. Moreover, the paper argues that countries shift from procyclical to countercyclical behavior causes a welfare shift since optimal fiscal policy is empirically proven to be countercyclical. More literature are mentioned in this regard such as Gavin and Perotti (1997) that find fiscal policy to be highly procyclical in Latin America. Alesina et al. (2008) and Ilzetzki and Vegh (2008) also affirm a procyclical behavior in developing economies opposite to a countercyclical behavior in developed countries.

In a close manner, Venes (2006) concludes that government expenditure is procyclical in Latin America, but weakly countercyclical in OECD countries. In addition, He proposed evidence that higher level of income inequality leads to stronger expenditure procyclicality, while leads to less procyclical on revenue side. Manasse (2006) provide evidence that appropriate fiscal frameworks may improve the long-term sustainability of fiscal policy and concludes that both developing and developed countries are acyclical in bad times and procyclical in good times, the difference is that bad times in developing countries are much worse than in developed countries.

b. Determinants of Procyclicality in Developing Countries

Evidence of pro-cyclicality of fiscal policy in developing and emerging economies is mixed. A lot of reviewed literature assumed that procyclicality of fiscal policy is linked to financial, political and administrative determinants. Nevertheless, three main determinants of procyclicality of fiscal policy in developing countries have be consistently mentioned in the reviewed literature: First: imperfect

access to credit during crisis times, limited access to financial markets and lack of financial depth; especially external financing. Second, political factors that impact spending decisions during booms and recessions. Inefficiencies in political institutions during social and political instability and crises directly impact fiscal performance; A result that has been proven theoretically and empirically very well. Third, the quality of budget institutions also lead to structural inefficiencies in fiscal performance; whether in equilibrium or during cycles. Procyclicality in developing countries is attributed to a number of underlying determinants related weak budgetary and political institutions and inadequate institutions to limit government expansion in good times which makes it harder to resist pressures to increase expenditure and lower taxes during booms. In general, countries with structural fiscal problems tend to have more procyclical policies (Venes, 2010; Woo, 2008; Bova et al., 2014; Zaky and El-Khishin, 2016; Ilzetzki, 2010). Stabilization programs and policies implemented in developing countries and supported by international financial organizations such as the IMF are also included in literature as determinant factors of the cyclicality of fiscal policy (Venes. 2006). In this paper, we only focus on the second and third determinants of the cyclicality of fiscal policy.

c.   Impact of Budget Institutions on Procyclicality of Fiscal Policy

Efficient budgetary institutions are proven to play a strong role in adjusting fiscal responses; particularly during crisis and economic downturns. Ilzetzki and Vegh (2008) suggest that if fiscal rules are present, countercyclical fiscal policies would be optimally producing proper solutions to business cycles. Bova et al. (2014) argue that imposing countercyclical fiscal rules during recessions might sound conceptually ambiguous, since it means that governments have less tools to react to business cycles during recessions. However, such rules could initially limit large expenditure expansions during booms and sudden contractions during recessions.

Bova et al. (2014) argues that sudden economic cycles make it harder for countercyclical fiscal policy; particularly discretionary fiscal policy, to work in weak governments. Designing fiscal stimulus packages and tax cut programs take longer times to be effectuated in weaker budget cycles. However, having strong institutions might lead to less dependence on discretionary fiscal policy, and should give a space for automatic countercyclical stabilizers to operate. Dabla-Norris and others (2010) examined the responses of fiscal policy changes to the quality of budget

institutions in low-income countries and found that countries with stronger budget institutions would be able to better conduct countercyclical policies.

Several studies have examined the fiscal aggregates as determinants of the cyclicality of fiscal policy. For example, Combes et al. (2017) investigated the reaction of fiscal policy to the business cycle in a set of developed and developing countries. Their interesting finding was that the non-linear response of fiscal policy to business cycle is attributed to the level of public debt to GDP ratio. The paper claims that once this ratio exceeds "a threshold" of 87%, fiscal policy becomes procyclical. In a close manner, IMF (2003) suggests that the response of the primary surplus to the economic cycle weakens as the debt-to-GDP ratio rises, and simply stops when debt exceeds 50% of GDP.

Bova et al. (2014) finds that not all fiscal rules are efficient in addressing procyclicality. Some fiscal rules were insignificant, while some "second generation" rules, such as cyclically-adjusted targets, well-defined escape clauses, together with stronger legal and enforcement arrangements, was found to be associated with less procyclicality.

Golden Rule and fiscal Cyclicality

The Golden rule is one of the most important fiscal rules that manage the operation of fiscal policy. It states that, during the economic cycle, the government shouldn't borrow except to finance capital spending or investment. Hence, a government can't borrow, neither during recessions nor during booms, to finance current spending such as subsidies, wages and debt service. Following the rule means that the government budget should either balance or form a primary surplus, there can't be primary deficit while applying the golden rule.

Combes et al. (2017) examined several forms of fiscal rules and concluded that the most significant fiscal rules when public debt is high are Golden rules. That is, when public debt is high, golden rules can play a role in switching fiscal policy from procyclical into countercyclical. Other fiscal rules are insignificant once debt to GDP ratio exceeds a certain threshold. However, a number of literature, including Combes et al. (2017) highlights the fact that in general, fiscal rules are significantly affecting the cyclicality of fiscal policy conditional on the presence of certain factors and institutions. Their results also affirms other similar results of Bergman and Hutchinson

(2015) that fiscal rules reduce procyclicality in fiscal policy only in the case of a strong and efficient government[5]. In our previous work (Zaky and El-Khishin, 2016; 2017), we measured the quality of budget institutions in Egypt and we mentioned how the weaknesses in budget institutions in Egypt, especially weaknesses in transparency, credibility and comprehensiveness' rules, impact fiscal performance. The soundest institutional weakness in this regard was the violation of the golden rule in 2005 that opened the floodgates to exacerbate fiscal imbalances in Egypt.

d. Political Institutions as Part of Institutions Affecting Cyclicality

The role of political institutions and factors, such as electoral rules, partisan political cycles and quality of democracies, have been also investigated recently as determinants of fiscal cyclicality (Venes, 2006; 2010). Gavin and Perotti (1997), Garayeva and Tahirova (2016) and Bova, Carcenac and Guerguil (2014) presented evidence of pro-cyclical government spending in developing countries as a result of political distortions, principal agent problems, as well as other political pressures; particularly when accompanied with poor fiscal institutions and "when policymakers are allowed to freely manipulate government spending".

Frankel and others (2013) find that the cyclicality of a country's fiscal policy is inversely related the quality of specific political institutions such as law effectiveness, bureaucracy and control of corruption. Ilzetzki and Vegh (2008) argue that political institutions are key determinants of the cyclicality of fiscal policy through encouraging rent-seeking activities. In the same manner, Halland & Bleaney, 2009 argue that fiscal procyclicality is in itself a sign of political distortions.

More specifically, in our previous work (Zaky and El-Khishin, 2016; 2018), we highlighted two main political institutions problems that affect fiscal performance significantly, especially when budgetary institutions aren't strong enough: The common pool problem and the principal-agent relationship between voter (the principals) and politicians (the agents). The two problems are empirically proven to have affected fiscal performance significantly in many world countries. The effect is clearly larger fiscal deficits and higher debt levels[6].

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[5] For more findings on the conditionality of fiscal rules significance on procyclicality, see Combes et al (2017).
[6] For a detailed literature review and analysis, see: Zaky & El-Khishin (2016).

Common pool problem results when politicians take biased decisions to spend money in favor of their constituencies at the expense of the whole economy of tax payers. In this case, targeted individuals or constituencies just pay a fraction of the total costs of the provided service. This creates a high incentive for externalities where interest groups free-ride on each other's contributions; thus indicating a bias towards overspending. Common pool problem directly results in a spending bias and the net benefits for taxpayers become lower than the net benefits of the targeted groups. On the other hand, principal-agent problem occurs when the demands and preferences of voters are not consistent with the priorities of their political representatives. This is a result of politicians' biased actions that seek to extract rents from being in office and spend public money on projects other than those the voters desire and that serve their own interests. The consequence of the political principal-agent problem is political catering to special interests. Elected politicians usually use fiscal "redistributive policies" to influence the provision and distribution of targeted public goods. This is generally their strategic tool to guarantee their re-election or staying in office (Zaky and El-Khishin, 2016; Potrafke, 2013; Perrson and Tabellini, 2003; and Von Hagen, 2005; 2006).

In this paper, we further investigate the impact of political institutions reflected into those two problems on fiscal cyclicality. Hence, it is crucial to review relevant literature in this regard. Alesina et al. (2008) argue that fiscal policy is procyclical in developing countries as a result of what he names "political agency" problems, where voters demand more public goods during booms and lower taxes and politicians respond to these demands in light of the political principal-agent and rent-seeking behaviors. Alesina et al. (2008) empirical evidence affirms that procyclicality of fiscal policy is more sound in more corrupt democracies.

Woo (2009) empirically examines the impact of social polarization on procyclicality and finds a strong evidence that countries with strong social polarization are more likely to exhibit procyclical fiscal policies[7]. In this regard, he argues that the heterogeneity of policy makers may lead to a bias in spending that appear to be |individually rational but collectively inefficient Zoo (2008). This is another way to explain a common pool problem that creates free riders of a public spending decision; particularly if it is a discretionary policy. Woo (2009) affirms that political

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[7] Social polarization of preferences arises from inequality.

system with high plurality – "in which power is diffused among a number of agents" – will lead to a greater pro-cyclicality.

Ilzetzki (2010) argues that fiscal policy is procyclical in developing countries as a result of several distortions; top of which is the political distortions resulting from high political fragmentation and disagreement on the desired distribution of public expenditures.

A number of literature (e.g. Venes (2010) and Ilzetzki (2010)) have mentioned the voracity effect- first introduced by Tornell and Lane (1999) – as a cause of political cyclicality in developing economies with poor political institutions. Tornell and Lane (1999) explains the voracity effect as a case when powerful political groups significantly affect the fiscal process in a way that slows growth in equilibrium times and generates a "*more-than-proportionate change* in fiscal redistribution and reduces growth" during economic cycles; hence a procyclical behavior. The paper argues that decreasing the political concentration of power will lead to decreasing the power of political groups to affect the budget process and will eventually lead to lower pro-cyclical responses to economic cycles. However, Tornell and Lane (1999) argues that the democratization process that only results in diluting powerful interest groups, will lead to a better fiscal and economic performance.

Venes (2010) also addresses the voracity effects as he argues that, during booms, common pool problem is sound as a result of higher availability of resources and conflicts on the abundant common resources intensifies, leading to higher budget deficits.

III.   **EXAMINING THE IMPACT OF FISCAL RULES AND POLITICAL INSTITUTIONS ON THE CYCLICALITY OF FISCAL POLICY IN EGYPT**

Since the adoption Infitah policy in the late 1970s, the Egyptian government has been attempting a transition into a market economy. However, with a long inheritance from the socialist policies, this transition had been slow and opposed by several political and economic factors; varying between weak budget and political institutions as well as the cyclical interruption of reform attempts. Budget and political institutions in Egypt have also witnessed several changes during the mentioned period. Egypt witnessed a lot of changes with regards to its fiscal discipline as well as budgetary and political institutions since end 1980s. Changes in fiscal and political settings

have impacted fiscal performance in several manners. Since the second half of the 1980s and till 2010, Egypt was following a majoritarian run-off electoral system where candidates competed on 222 two-member constituencies and had to obtain 50%+1 of votes to win a parliamentary seat. This electoral system meant that majoritarian, candidate-based voting had dominated the electoral context before January 2011 revolution. As indicated in table (1), absolute majoritarian electoral system applied in Egypt for both the individual and list seats based on the new constitution ratified in 2014 does not differ from the system that was in place before January's Revolution. It is a kind of candidate – ballots' electoral systems not 'party-ballots' systems. The candidate – ballots' systems are based on political individualism and opportunism. Direct relationship between candidate and voters makes the top priority of MPs, is to increase public spending for their constituencies (Zaky & El Khishin, 2016).

Table (1): Fiscal and Political Institutions in Egypt –Important Milestones

Year	Legislative changes	Changes in budgetary & political institutions	Implications on fiscal performance and budget cycle
2005	Modifying Budget Law	- Adopting a complete new economic classification and modifying functional classification, to be consistent with GFS system. - Enforcing numerical ceilings on contingency funds and aggregated appropriations in the executive's budget draft. - Applying numerical ceilings on the authority of Finance and Planning Ministers in transferring budget appropriations between chapters during budget implementation.	Enhancing budgetary transparency and credibility
2005	Modifying Budget Law	- Violating the golden rule and allowing for financing current expenditure through borrowing. - Adopting cash basis of accounting in all budget chapters including capital investment (chapter 6).	Increasing current budget deficit substantially.
2007	Constitutional Amendments	- Granting the parliament, the authority to amend the executive's budget proposal provided the agreement with	- Increasing the role of parliament in budget processes.

Year	Legislative changes	Changes in budgetary & political institutions	Implications on fiscal performance and budget cycle
		- the government on how to obtain required resources for finance. - Amending submission timing of executive draft budget to parliament to three months prior to the end of fiscal year instead of two months and the submission timing of final accounts (year-end report) to six months after the end of fiscal year instead of twelve months. - Preventing the government from increasing public spending during the fiscal year without obtaining prior approval from the parliament.	
2007	Constitutional Amendments	- Keeping majoritarian run-off electoral system where candidates competed on 222 two-member constituencies and had to obtain 50%+1 of votes to win a parliamentary seat.	- The majoritarian electoral system in Egypt produced an extreme case of candidate-ballots where voters do not pay much attention to candidates' party affiliations but to their ability to deliver targeted constituency spending.

Source:

Further recent changes in political and institutional settings pre and post January's revolution are argued to have extended impacts on fiscal performance as a result of combined effects of: (1) Remarkable political fragmentation in Egyptian Parliament compared to the majoritarian rule prior to January's revolution; (2) Significant increase in mandatory expenses since 2005 and after constitutional commitments regarding education and health[8] (3) Essential changes in budgetary institutions, especially Violating the golden rule since 2005.

On the other hand, the examined period, 1976-2017, witnessed several business cycles in Egypt. In the recent years, Egypt witnessed a set of political and economic downturns; particularly

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[8] For example: the new constitution commits the government to allocation of an annual percentage of GNP not less than 3% for spending on health and increasing this percentage gradually

after the 25th of January revolution in 2011Real economic growth rates slowed down, to negative figures in some quarters, budget deficit and public debt exacerbated, exchange rates depreciated and accordingly the economy witnessed a general economic slowdown that continued until the beginning of 2015. . The revolution has not just resulted in an economic setback and a sound deterioration in fiscal performance, but also it resulted in radical changes in the political setting and electoral systems.   In the midst of these political and economic dynamics, a new constitution was ratified in Egypt that contained minor amendments in electoral system and consequently the budget process.

Most recently, the fiscal sector in Egypt had witnessed dramatic changes as part of the IMF- supported structural reform program in an attempt to reform the longstanding structural problems in the Egyptian budget. The components of the program, though focusing on general structural reforms, appear to be procyclical, since they mostly focus on decreasing the subsidies components and increasing the revenues through introducing new tax measures. However, we cannot claim that the Egyptian fiscal policy have always been procyclical without an empirical examination. In this paper we attempt to investigate the cyclicality of the Egypt fiscal policy. We additionally measure the role of budget and political institutions in impacting the cyclicality of fiscal policy in Egypt. We examine the following three questions*:*

1. *Is the fiscal policy in Egypt pro or countercyclical?*
2. *How did fiscal institutions influence the cyclicality of fiscal policy in Egypt as opposed to* political *institutions? Which of these two forms had the dominant effect on the fiscal cyclicality?*
3. *Does the cyclicality of fiscal policy in Egypt alter when fiscal deficit exceeds a specific threshold in Egypt?*

A limited number of empirical studies have examined the cyclicality of fiscal policy in Egypt, and they tend to focus on the aggregate figures of fiscal policy variables when analyzing the fiscal cyclicality and its determinants. Hassan (2007) and Husseiny (2016) include total expenditure and total revenues as measures of fiscal policy. However, the two papers proposed different conclusions, Husseiny (2016) findings indicate that the countercyclical behavior of public expenditure and the procyclical behavior of public revenues tend to get stronger during recessions than during expansions. This is due to the fact that Egyptian government can raise

its spending during recessions easily, expenditure contraction during expansion times might be much more difficult due to political economy and institutional factors. On the other hand, Hassan (2007) concludes that the relationship between fiscal policy and the economic activity is very weak, and that's why using fiscal policy to stabilize the output fluctuations is not efficient.

In this paper, we attempt to address the cyclicality of fiscal policy in Egypt in a rather disaggregated manner and from a different perspective – both methodologically and empirically - as we will clarify in the next section.

A- Methodological review of relevant literature

Empirical literature has proposed different approaches in selecting fiscal policy variables to explain fiscal cyclicality. One of these approaches is using fiscal variables in an aggregated form, for example, Venes (2006) used total government expenditure and total revenues to analyze the role of political and institutional variables on cyclical pattern of government in OECD and Latin America countries. Manasse (2006) analyzes the roles of shocks, rules and institutions as sources of procyclical in fiscal policy in 49 emerging and industrial countries using public debt and primary balance variables. Boiciuc (2015) uses SVAR to analyze the effect of fiscal policy shocks on macroeconomic variables such as GDP, inflation and interest rate in Romania. The paper used total government expenditure and tax revenues as fiscal policy shocks and concluded that real output shows a weaker response to fiscal shocks, the fiscal multipliers are positive and small meaning the economic activity is not significantly influenced by fiscal policy in an emerging country.

On the other hand, a limited number of empirical studies preferred to disaggregate the fiscal variables, for example, Calderón and Hebbel (2009) disaggregated the government expenditure into current and capital expenditure and used tax revenues not total revenues. Their empirical results conclude that countries are unable to conduct counter-cyclical fiscal policies if they have poor institutions or lack access to credit markets inside and outside. The also concluded that institutional factors have a larger weight than financial variables in explaining the differences in cyclical behavior of fiscal policy between developing and industrial countries. Hallerberg and Strauch (2002) further disaggregated total expenditure into transfers, wage

compensation, purchases, investments, and on the revenue side they disaggregated taxes into direct and indirect taxes. They found that public investment also displays a consistent procyclical pattern in Europe, where permanent shock to output induces inconsistent fluctuations in taxes and expenditures in the year of the shock and in periods thereafter.

Besides, Mukherjee (2014) analyzes cyclicality of fiscal policy in India using different approaches such as correlation approach, elasticity approach and error correction approach. This paper depended in the analysis on expenditure side, where the model includes revenue expenditure and capital expenditure. The findings of this paper reveal that aggregate government expenditure is largely procyclical, however there is a variation in cyclical behavior across different components of expenditure.

B- Methodology and Data

Based on reviewing the empirical literature and methodologies as well as identifying gaps, we hence aim to assess both fiscal and political institutions as determinants of the cyclicality of fiscal policy. Hence, we investigate the interrelationships between the economic, political and fiscal institutions dynamics in Egypt in a multi-directional manner across the three pillars of this trinity. The examined hypothesis is that the budget and political institutions in Egypt have positively contributed to conduct countercyclical policies in times of crisis.

Our contribution in this regard lies in three aspects: First we attempt to measure the cyclicality of fiscal policy in Egypt in a disaggregated manner; following Calderón and Hebbel (2009) and Hallerberg and Strauch (2002). We disaggregate government expenditure into current and capital spending. We also disaggregate revenues into taxes and non-tax revenues. The cyclicality of each component is investigate separately. Second, the paper makes compares the incidence of political institutions as opposed to budget institutions on fiscal cyclicality. We attempt to measure which determinant had the stronger influence on cyclicality of fiscal policy in Egypt in the long run.

Third, and most importantly, instead of depending on dummy variables, as the case in many reviewed literature, we define new variables for political and budget institutions. Regarding budget institutions, we use the golden rule as a proxy for budget institutions as recommended in reviewed

literature (e,g. Combes et al. (2017)). Egypt used to apply the golden rule until 2005. Since then, the Egyptian government was legally granted the right to finance current expenditure through borrowing. Reviewed literature usually use dummy measures as a proxy for fiscal rules in general and golden rule in panel analysis. However, since our analysis is limited to Egypt, we use the "Primary Deficit" as a new proxy for the golden rule; that is the difference between current revenues and current expenditure. It should be mentioned here that violating the golden rule in 2005 resulted in classifying capital investment above the line of cash deficit within budget expenses. We argue that this amendment enabled the government to finance increased current expenses through borrowing and hence had exacerbated the fiscal deficit (Zaky & El Khishin, 2016). When the golden rule is abolished, primary deficit is expected to increase due to relying on financing current expenditure from loans.

Regarding political institutions, we are interested to measure the influence of political institutions –both legislative and/or executive- in imposing changes on the budget during the implementation phase. Hence, the proxy we define in this regard is "Deviation between Actual and Enacted Budget Spending"; that is, the difference between actual total expenditure and approved executive budget proposal. It should be mentioned here that before 2005, Ministry of Finance had the right - through general directives - to increase public spending during budget implementation without the parliament's approval. This had resulted in a wide gap and deviation between actual expenditure and budget appropriations enacted by the parliament. In 2005, Budget Law amendments resulted in constraining the authority of Minister of Finance to amend the budget through applying numerical ceilings on transferring budget appropriations between chapters during budget implementation. The new law had also prevented the executive government from increasing public spending during budget implementation without the parliament's approval.

Moreover, the 2007 constitutional amendments affirmed the restriction of executive authorities over budget at one side, however, they went further with the widening of the scope of authority of the parliament to amend the executive's budget proposal provided the agreement with the government on how to obtain required resources for finance. The new constitutional amendments also gave the parliament longer time to discuss and enact the budget and audit final accounts (Zaky & ElKhishin, 2016). We assume that granting the parliament the authority to

participate effectively in budget process should be reflected minimizing the deviation between actual expenditure and budget appropriations.

Vector Autoregression Analysis (VAR) and Vector Error Correction Model are constructed in order assess the multi-dimensional impact of the economic shocks on fiscal performance and fiscal institutional performance. We test the above questions using Vector Autoregression (VAR) and Vector Error Correction Mechanism (VECM). VAR model is used to identify the nature of cyclicality in Egyptian economy. The second model is VECM to illustrate the short run and long run impact of political and budget institutions on cyclicality.

VAR is considered one of the optimum tools to address the bi or multi-causality relationships. It also addresses long run as well as short-run dynamics through the impulse response functions. VAR is empirically proven to be appropriate to analyze and illustrate the fiscal policy cyclicality, since it relies on shocks of variables and their impact on others. Hence it enables us to determine how fiscal policy components are reacting to output shocks (business cycle). Accordingly, we believe VAR will be suitable to examine the long run dynamics of the defined Fiscal- Political-Economic trinity in Egypt, as well as examine the responses of the pillars of this trinity to the recent economic and political dynamics. In addition, some relevant empirical studies that use time series analysis rely on VAR or SVAR models in studying the cyclicality of fiscal policy, for example the studies of Boiciuc (2015) and Hassan (2007). On the other hand, the second model which is VECM has been used to analyze the impact of budget and political institutions on cyclicality. Variables and source of data are presented in Annex (1).

In the remainder of this section, we run two empirical models: In the first model, we test the cyclicality of the fiscal policy in Egypt during the examined period (1976-2018). The first model includes current expenditure, capital expenditure, tax revenues, other non-tax revenues, overall deficit (all as percentage of GDP). Control variables are current account balance as a percentage of GDP, lending interest rate and real exchange rate. The variable we use to proxy for the output cycle in the first model is real GDP growth rate.

In the second model, we test the impact of both political and fiscal institutions on the cyclicality of fiscal policy in Egypt. The model includes the output gap as a proxy of output cycle, primary deficit % GDP, current account balance % GDP and real exchange rate, in addition to budget

institutions and political institutions proxies. The estimated model uses Egyptian annul data from 1976 to 2017.

It's worth mentioning that while the first model relies on real GDP growth rate and the second model uses output gap as proxies for business cycle[9]. This is mainly because the first model aims at analyzing the reaction of fiscal policy to change in GDP. So, real GDP growth rate is more appropriate variable for this analysis. While, the second model aims at studying the effect of political and budget institutions on fiscal aggregates during business cycle, so, the model uses the interaction variables between output gap and both political and budget institutions.

Model I: Testing the Cyclicality of Fiscal Policy in Egypt

Ho: Fiscal policy in Egypt is countercyclical during the period 1978-2017

H1: Fiscal Policy in Egypt is procyclical during the period 1978-2017

We start by testing the cyclicality of fiscal policy in Egypt through testing the correlation between fiscal variables and GDP growth rate (as a proxy for output cycle). The following table shows the correlation matrix for the system variables which clarifies the direction and the degree of the relationships between the variables. Correlation results primarily indicate that relationship between current and capital expenditure and real GDP growth rate is positive and significant which means that the fiscal policy in Egypt is procyclical. This means that, when the economy is growing, government tends to increase its expenditure.

Table (1) correlation matrix

Variable name	Correlation Probability	REAL_GDP_GR
Tax revenues as a percentage of GDP	TAX_GDP	0.452337* (0.0026)

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[9] The output gap is defined as the difference between the actual and potential output in percent of potential output. When the output gap is zero, there is no upward or downward pressure on inflation, as actual demand coincides with economy's potential. If the output gap is positive, so that actual output is greater than potential output, inflation will begin to rise in response to demand pressures. Similarly, if the output gap is negative, so that actual output falls below potential output gap, prices will begin to fall to reflect weak demand (IMF, 2015). In this study, the Hodrick-Prescott (HP) filter has been used to filter the actual GDP data and extract from it the trend which represents potential output. Then, the output gap series was calculated by the difference between the series of actual GDP and the series of trend.

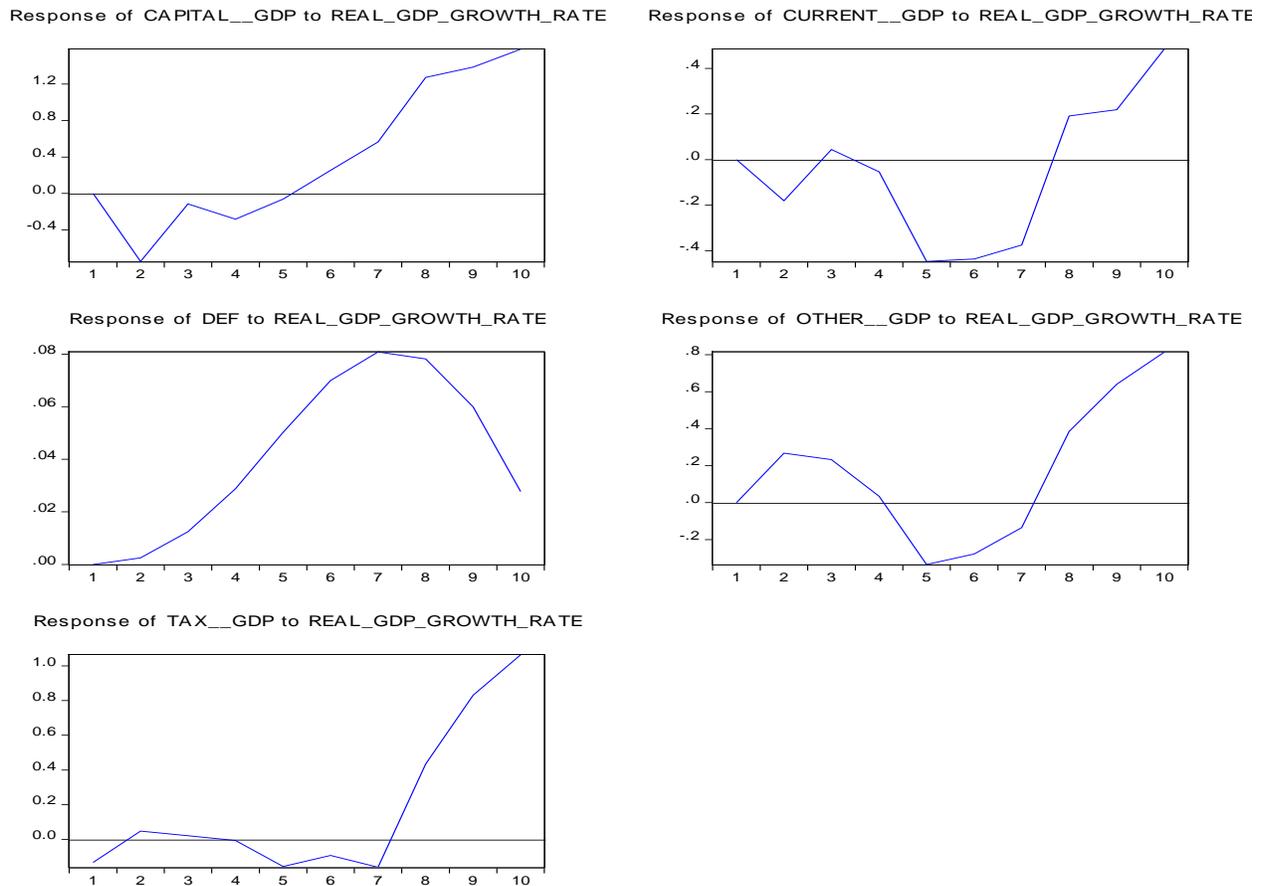| Non-tax revenues as a percentage of GDP	OTHER_REV_GDP	0.275374** (0.0776)
Real GDP Growth rate	REAL_GDP_GR	1.000000
Overall Budget Deficit as a percentage of GDP	OVERALL_DEF	0.482092* (0.0012)
Total current expenditure as a percentage of GDP	CURRENT_GDP	0.552908* (0.0001)
Total current expenditure as a percentage of GDP	CAPITAL_GDP	0.435206* (0.0040)

*significant at 5%.
**significant at 10%.

Following the correlation results, we move to test the cyclicality of fiscal policy in Egypt through VAR model[10]. We estimate the Impulse Function (IRF) as the main output of VAR model (Figure 1). IRF explains how each variable responds to change in the other variables. In this paper, we tend to focus on how fiscal policy- explained in fiscal variables such as expenditure, revenues and deficit − respond to business cycles, represented by real GDP growth rate. This is in order to determine if fiscal policy is pro or countercyclical.

Figure (1): IRF results for testing the Cyclicality of Fiscal Policy in Egypt

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[10] Prior to running the VAR model, we attempt to test the stationarity of the variables to avoid spurious results. We use Augmented Dicky-Fuller (ADF) unit root test and lag length is determined based on Akaike Criterion. The results of stationarity tests and other diagnostic checks are presented in Annex (2).

Response to Cholesky One S.D. (d.f. adjusted) Innovations

Response of CAPITAL__GDP to REAL_GDP_GROWTH_RATE

Response of CURRENT__GDP to REAL_GDP_GROWTH_RATE

Response of DEF to REAL_GDP_GROWTH_RATE

Response of OTHER__GDP to REAL_GDP_GROWTH_RATE

Response of TAX__GDP to REAL_GDP_GROWTH_RATE

IRF graphs affirm the positive relationship between capital expenditure and real GDP growth rate. This means the government increases investment spending when the economy is growing and tends to tighten this type of spending in times of economic slowdown. Capital spending in Egypt is hence proven to be procyclical. It is worth mentioning that the capital spending component of total spending is generally very weak. In its highest values in 2008 it was around 14.4% of total spending. It decreased to around 6.8% after the revolution and then recently started to show a positive trend reaching around 11% in 2018 (Ministry of Finance).

On the other hand, current expenditure response was in the opposite direction. The variable responds negatively to economic growth through until fifth lag after which that it starts to change its direction and show an increase as a reaction to increase in GDP growth. Hence, current spending starts by being countercyclical then becomes procyclical. This reflects the nature of Egyptian government policies tending to increase current expenditure at the start of recession periods and can be interpreted as follows: When the Egyptian budget deficit and public debt are in contained

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numbers/thresholds, the government tends to finance recessions through increasing current spending; mainly in the form of wage and subsidy increase. Later, when the government deficit and debt levels exceeded the contained levels, the government started to pursue contractionary policies. This reaffirms the early mentioned results of Combes et al. (2017) and IMF (2003); that fiscal policy is countercyclical as long as debt levels are contained. Once debt to GDP ratio exceeds a specific threshold, fiscal policy turns to be countercyclical.

 This trend in Egypt is particularly clear after the violation of golden rule in 2005. When Egypt witnessed the first cycle of 2008, there was a dramatic increase in wages, pensions and ration card subsidies. As a result, government increases wages in recession years and refuses to cut subsidies. For example, during the 2008 recession, the Egyptian Parliament approved an unprecedented increase in basic salaries of central government's employees by 30% in addition to increasing the incentive of local administration employees from 25% to 75%. This is as well as increasing pensions payments by 20%. Additionally, it approved multiplying the quantities of ration cards goods received by citizens. In the long run the overall deficit kept increasing and the government started to control the deficit by decreasing current expenditure even in recession periods. Non-tax revenues have shown the same response to real GDP growth as current expenditure.

Concerning budget deficit, theory indicates that an increase in budget deficit during recession happens through either increasing spending or decreasing revenues. Hence a countercyclical fiscal policy would imply an increasing budget deficit during recession; through the Keynesian famous mechanism of deficit spending. In our model, IRFs indicate a positive relationship between overall deficit and real GDP growth rate during the first 7 lags after which the effect of GDP growth on deficit starting to be negative. This result is intuitive and indicates that budget deficit in Egypt follows the same trend of current spending; that it is, it starts as countercyclical in the beginning of the cycles then turn to be procyclical; possibly after exceeding certain limits. As mentioned above, when the economy is in a recession, current spending increases in the beginning; indicating an increase in budget deficit in the start of the cycle. This is a clear implication of the trend in current spending and affirms the above interpretations.

Regarding tax revenues, they don't have a significant response to business cycles until the 7th lag; after which they start to respond to GDP growth in a positive manner; implying a countercyclical

response to the business cycle. This can be justified by the fact that taxation policies in Egypt are not the prime discretionary tools resorted to during recessions. Egyptian government usually resorts to spending policies as a result of having a poor tax administration. Egypt suffers from a very high tax evasion rates in addition to informality problems which weakens the impact of any tax-based policy intervention and hence weakens the significance of this policy in the model. In this manner, the only effect of tax revenues in Egypt is the automatic stabilizer effect which is normally countercyclical.

Model II: Testing the impact of political Institutions and Budget Institutions on the Cyclicality of Fiscal Policy

H0: Political and budget Institutions significantly impact on the cyclicality of fiscal policy in Egypt.

H1: Political and Fiscal Institutions don't impact on the cyclicality of fiscal policy in Egypt.

After applying unit root tests and deciding on the proper lags[11], Cointegration tests are performed to determine whether there is long run relationship among the variables[12].

VECM is applied to illustrate the short and long run interactions between political institutions, budget institutions and output gap. As indicated earlier, other control variables in this model are current account balance % GDP and real exchange rate, and λ represents error correction term.

We attempt to measure the impact of both fiscal and political institutions on the fiscal aggregates during economic cycles. Interaction variables explain the interactions between the cycles and both political and fiscal institutions. Our VECM model specification examines how both variables is as follows:

$$\textbf{Primary deficit}_t = \beta_0 + \beta_1 \textbf{ Polit\_inst*Output\_Gap}_t + \beta_2 \textbf{ Budg\_inst}_t\textbf{*Output\_Gap} + \beta_3$$

$$\textbf{CA\_GDP}_t + \beta_4 \textbf{ REXR}_t + \lambda \textbf{ ECM}_{t-1} \textbf{ (1)}$$

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[11] Stationarity and diagnostic checks are in annex (3).
[12] Johansen Cointegration test has been chosen to test the long run relationship. Trace and maximum Eigen values are used to determine the presence of Cointegration between variables. The results of Cointegration results illustrate that there is one Cointegrating equation based on Trace test and Maximum Eigen value test at 5% level of significance.

After running the VECM, the results are:

$$\text{Primary deficit}_t = -13.843 + 0.029\ \text{Polit\_inst}*\text{Output\_Gap}_t + 0.0049\ \text{Budg\_inst}_t*\text{Output\_Gap}$$

$$+ 3.038\ \text{CA\_GDP}_t + 1.280\ \text{REXR}_t -0.096\ \text{ECM}_{t-1}\ (2)$$

With regards to the long-run relationship, the above equation shows that both political institutions and budget institutions variables impact primary deficit in a positive manner. These results have very important implications. First, earlier we defined political institutions as the deviation of actual expenditure from appropriated draft budget, hence, larger deviation means that discretionary measures - pursued by either the parliament or the executives- were imposed to increase spending. If this happens during a recession; that is an increased output gap, this means that fiscal policy is countercyclical. In the above equation, the positive coefficient of political institutions in the equation indicates a strong positive influence of the political institutions, whether the legislative or the executive, to amend fiscal appropriations during the budget cycle. Accordingly, political institutions have a strong and significant countercyclical impact on primary deficit in Egypt in the long run. This result implies that political institutions in Egypt have played a role in making fiscal policy countercyclical in the long run through discretionary interventions during recession times.

This result could be justified in light of the structure of the Egyptian political powers and the concentration of power, indicating Tornell and Lane (1999) voracity effect or the "more than proportionate change" as a result of political powerful groups as earlier explained in the paper. Moreover, the strong positive coefficient indicates that our earlier assumption, that granting the parliament the authority to participate effectively in budget process should be reflected minimizing the deviation between actual expenditure and budget appropriations, didn't hold. Even after granting the parliament the power over budget amendments, this hasn't led into a significant decrease of the deviation between actual and planned spending. Again this affirms the previously mentioned sound influence of Common Pool and Principal-Agent problems by both the executives and legislative authorities in Egypt.

On the other hand, violating the golden rule and allowing primary deficit finance during business cycles had also resulted in an expanded deficit; hence a long run tendency towards acting in a countercyclical manner in the long run. The Golden rule violation, in the absence of other fiscal rules, had resulted in increased deficit spending during cycles which indicate the significance of discretionary tools to increase spending during cycles over the long run. Nevertheless, previous short run IRFs indicate that these long run trends are not always the case in the short run and that after reaching specific deficit and debt levels, the government tends to act in a procyclical manner with regards to deficit spending.

Finally, it is also worth noting that the larger coefficient of political institutions indicates a stronger effect on primary deficit compared to budget institutions. Hence, political institutions in Egypt have played a stronger role in affecting fiscal aggregated during economic cycles compared to fiscal institutions. While countercyclical behavior is advocated by Keynesians, it is not always a preferred policy in developing countries suffering from structural problems as mentioned earlier as the nature of the cycle in developing countries might be different than in developed countries. Egypt suffers from a lot of problems in the budget process that are magnified during political disruptions.

CONCLUSIONS AND POLICY IMPLICATIONS

In this paper, we attempted to investigate the problem of cyclicality of fiscal policy in Egypt and the impact of political and fiscal institutions on fiscal indicators during economic cycles. In addition to examining the long run relationship between fiscal and political institutions and fiscal aggregates, we also measured the cyclicality of different components of the Egyptian budget.
We examined the cyclicality of fiscal policy in Egypt in a new way; that is, measuring the cyclicality of different components of the Egyptian budget in a disaggregated manner. The most important result in this regard is that current spending in Egypt is countercyclical only at the beginning of the cycle. However, after reaching specific deficit and debt threshold, it turns to be procyclical since the government start adopting contractionary fiscal policy. Golden rule violation in Egypt had positively impacted fiscal aggregates and contributed to adopting a countercyclical behavior during economic cycles. We also noted the procyclicality of capital spending expressed in the positive relationship between capital expenditure and real GDP growth rate. Government increases investment spending when the economy is growing and tends to tighten this type of spending in times of economic slowdown.

To test the impact of budget Institutions and political institutions on the cyclicality of Fiscal Policy, we used the golden rule as a proxy of budget institutions. A contribution of the paper is defining a proxy of the golden rule and its violation in Egypt. We used the primary deficit as a proxy for golden rule and examined the increase in its trend after violating golden rule in 2005. We also define the political institutions as the deviation of actual expenditure from enacted budget. This explains the political pressures expressed by the legislators and/or the executives to amend the budget during the implementation phase; hence identify the impact of Common Pool and Principal-Agent problems in Egypt.

Empirical results have shown that political institutions- whether the legislative or the executive - have a strong positive influence in amending fiscal appropriations during the budget cycle in the long run. The earlier proven common pool and principal-agent problems in Egypt are argued to have influenced the cyclicality of fiscal policy in Egypt as they have lead into an exacerbated pressure on fiscal spending through discretionary interventions in booms and recessions during the examined period. Given the nature of electoral system in Egypt before and after January's Revolution in 2011[13], the direct relationship between candidate and voters makes the top priority of MPs is claimed to have caused a further spending bias. Meanwhile, the executive government is argued to have the upper hand in increasing public spending even after strengthening the parliament's role in budget cycle in 2005.

Accordingly our key recommendations include the importance of designing effective fiscal rules to limit the authorities of both the legislative and the executive over the budget and to minimize the procyclical behavior of fiscal policy; particularly during booming times. In addition to numerical ceilings, we recommend reinforcing golden rule again to limit financing current spending through borrowing. Golden rule and other fiscal rules should act as proper automatic stabilizers and are supposed to minimize discretionary interventions that are proven to have hazardous impacts on fiscal performance in countries with loose budget and political institutions. The Egyptian government has already implemented an IMF-supported Reform program that include a radical transformation in the structure of the current spending; particularly the subsidies component. Nevertheless, another current spending component is increasing dramatically which is the interest payments. Consequently, it is not proper to target only the primary deficit as an

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[13] It is a kind of candidate – ballots' electoral systems not 'party-ballots' system.

indicator of fiscal performance; rather the overall deficit should be the proper indicator to be targeted as it includes the currently largest component which is the debt service. Hence, it is still crucial that the government re-applies the Golden Rule even after these reforms to avoid future pressures on the debt justified by debt service.

Regarding political institutions, we recommend changing the nature of electoral system to a party-based rather than an individual based system; in order to strengthen the role of parliament in keeping government accountable and avoid spending bias occurring from the voracity effects, common pool and principal-agent problems in Egypt.

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Variables and Sources of Data

Thirteen variables have been used in two models are specified in the below.

Variable	Sources
1. current expenditure % GDP	Ministry of Finance, The budget and unpublished data
2. capital expenditure % GDP	
3. tax revenues% GDP	
4. other non-tax revenues% GDP	
5. overall deficit %GDP	
6. primary deficit %GDP	
7. current account balance% GDP	Central Bank of Egypt
8. lending interest rate	Central Bank of Egypt
9. real exchange rate	Central Bank of Egypt
10. real GDP growth rate	Ministry of Planning
11. output gap	Author calculations
12. budget institutions	Author calculations
13. political institutions	Author calculations

Model (1) Stationarity tests and Diagnostic Checks

ADF uses the following regression equation for testing stationarity of variables;

$$\Delta y_t = \propto y_{t-1} + x'_t \delta + \sum_{p=1}^{k} \beta_p \Delta y_{t-p} + {}^v{}_t$$

ΔYt is the first difference of the testing variable, K is lag length, X't includes external variables as (constant, constant and trend or none) as follows;

With constant and trend: $Dx_t = \propto + \beta x_{t-1} + \delta T + {}^v{}_t$

With constant: $Dx_t = \propto + \beta x_{t-1} + {}^v{}_t$

No constant and trend: $Dx_t = \beta x_{t-1} + {}^v{}_t$

The null hypothesis is the series has unit root, while the alternative hypothesis is the series has not unit root.

As indicated in table (2), the results of ADF test shows that all variables in this model are stationary at level I (0) at 5% level of significance. It is worth noting that overall deficit and lending interest rate variables are stationary at level after using HP filter for de-trending the series.

Table (2.1) ADF unit root test results

	t-statistics	Exogenous
Real GDP growth rate	-4.827	Constant and Trend
Current exp. _ GDP	-3.753	Constant and Trend
Capital exp. _GDP	-3.212	Constant
Tax _GDP	-3.127	Constant
Other _ GDP	-4.533	Constant and Trend

Overall _def	-3.667	Constant
Current account balance	-2.414	None
Lending interest rate	-5.872	Constant and Trend
Real exchange rate	-3.586	Constant and Trend

Author Findings.

Performing some diagnostic check based on VEC residual serial correlation LM tests, the null hypothesis has been rejected. This means that the residuals have no serial correlation. At the same time, the residuals follow normal distribution at 5% level of significance. In addition, the residuals are white noise as following;

Table (2.2) white noise residuals

Lag	Q-Stat	Prob.
1	4.656	0.031*
2	5.306	0.070
3	6.740	0.081
4	7.183	0.127
5	7.345	0.196
6	8.497	0.258
7	9.063	0.291
8	9.098	0.337

*significant at 1%

Model II Stationarity tests and Diagnostic Checks

We start by examining stationarity of the model variables through Phillips Perron (PP) test; The results are close ADF test results and hence it increases the robustness. This paper uses PP and ADF to make sure the robustness of the model of the model results and that's because unit root tests are weak tests so using two different tests to reinforce the results. The lag length is determined using Newey-West Bandwidth. The PP test results show that all variables in the model are not stationary at level. After taking the first difference and run the test, all variables become stationary at first difference I (1).

Table (3.1) Phillips Perron unit root test results

	Constant	
	At level	**First difference**
Primary deficit_GDP	-2.048	-6.787
Output gap	-2.767	-4.035
Budg _ Inst.	1.063	-5.843
Polit. _ Inst.	3.973*	-8.246
Current account_GDP	-2.470	-6.977
Real exchange rate	-2.569	-6.445
Critical value at 5%	-2.935	-2.936

*trend and intercept, significant at 1%.

Performing some diagnostic checks based on VEC residual serial correlation LM tests, the null hypothesis has been rejected. This means that the residuals have no serial correlation. At the same time, the residuals follow normal distribution at 5% level of significance. In addition, the residuals follow white noise distribution as follows:

Table (3.2) white noise residuals

Lag	Q-Stat	Prob.
1	0.0004	0.995

2	0.024	0.988
3	0.501	0.919
4	0.842	0.933
5	2.018	0.847
6	2.208	0.900
7	2.842	0.899
8	4.684	0.791