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Do natural resources of Rentier states promote military expenditures? Evidence from GCC countries

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ARTICLE INFO	ABSTRACT
	This study aims to explore the effect of natural resources of rentier states on military expenditure using the panel data from GCC countries. The principle findings suggest that types of natural resources matter and that the rent from oil only appeared to fuel the military expenditure of GCC, other natural resources such as gas and minerals are not. Further, the study found that Gulf War I and II as well as Arab Spring is statistically insignificant in explaining the military expenditure of GCC.

1.0   Introduction

The global military expenditure is falling, whereas it remains very robust in the Rentier States of GCC namely: UAE, Oman, Saudi Arabia, Kuwait, Qatar and Bahrain (SIPRI, 2014). The oil states of GCC have long been among the world's biggest military spenders, allocating nearly a third of their current expenditure to the military sector. A recent data compiled by the Stockholm International Peace Research Institute (SIPRSI) reveals that in the year of 2013 the military expenditure of GCC relative to their GDP reached 6.4% which is higher than the world average of 2.4% (SIPRI database, 2013).

The literature on relationship between military expenditures and economic growth began with the seminal study by Benoit (1973) which found that military spending exerts a positive effect on economic growth; the study, then stimulated a great deal of further studies with varying and concurring or/and conflicting empirical results.

In general, the literature is elusive in reaching a consensus regarding the exact nature of the link between military expenditures and economic growth (Smith, 1980; and Yildirim et al., 2005). The literature reveals that there are several arguments concerning the relationship between economic growth and military expenditure, and all of these arguments are empirically supported (Yildirim et al., 2005). One of the arguments is that defense expenditures may retard economic growth by crowding out the government spending on investment, health and education (Batchelor et al., 2000; and Dunne et al., 2002). On the other hand, other studies argued that military expenditure do enhance economic growth through Keynesian type aggregate demand effects due

the positive externalities and technological spin-offs (Shieh et al., 2002; Yildirim et al., 2005; and Dimitraki and Ali, 2013)

Although the literature on the link between economic growth and military expenditure is nearly bloated; it paid almost no attention to the role of natural resource revenues in determining the military expenditures except for two studies; by Perlo-Freeman and Brauner, (2012) and Ali and Abdellatif (2013). The former study found that some resourced-based countries experienced huge rises in military expenditure as results of increasing in their oil revenues; and latter study found that natural resources such as oil and forest leads to increase in military expenditures.

The motivation for this study comes from the fact that the previous studies on military expenditures and economic growth; although quite comprehensive, have generally overlooked at role of natural resources in promoting military expenditures in a region which already possess the highest level in the world in terms of military expenditure relative to GDP. With this gap in the literature, the main objective of this study is to estimate and analyzed the effects of the natural resources on military expenditures of Rentier States of GCC from 1987-20012.

This study provides first empirical investigation of the role of natural resources of GCC in promoting its military expenditure. The study will also investigate whether different types of natural resources (oil vs. gas) have different effects on military expenditures, furthermore, the study will also look at the effect of Gulf War I and Gulf War II as well as the Arab Spring in promoting the military expenditures in the Rentier Stats of GCC.

The organization of the paper proceeds as follows: Section II explains the link between the military expenditures and natural resources. The data and estimation method are detailed in III. Section IV presents the empirical results and discussion. The concluding remarks are presented in the final section of this paper.

2.0   Military expenditures and natural resources

A considerable literature exits to explore the link between natural resources and armed conflicts (Le Billon, 2001; Ross, 2004; Varisco, 2010). However, the literature on the link between military expenditures and availability of nature resources is very limited. The present literature has mainly focused on so called "resource curse" that is caused by the revenues generated by the availability of the natural resources (Bannon and Collier 2003).

Natural resource extraction can generate conflict and create an imperative to protect resource infrastructure from internal or external threats (Ali and Abdellatif, 2013). The study supports "resource curse" arising from the abundance of certain natural resources especially the rent from the oil and forest resource which found to lead to increase in the military spending, further, the study found that other natural resources such as coal and gas has negative impact on natural resources whereas the rent from the minerals has no impact on the military spending.

An earlier study by Perlo-Freeman and Brauner, (2012) on the link between the natural resources and military expenditure in Algeria found that that oil revenue has strong positive effects in determining Algerian military expenditures. The study outlines four ways in which natural resources revenues are fuelling military expenditures, the ways are as follows: Firstly, links to the rentier effect: As natural resource revenues are a source of income outside of taxation, then it can be easily used for arms purchases than tax payer's money. Secondly, when natural resources fuel conflict, military expenditures are used to finance actual fighting and/or to protect resource extraction sites from attacks.

Thirdly, a lack of transparency surrounding the management of resource revenues from natural resources such as oil favors off-budget military expenditures. Finally, normally the regimes of the natural resources are interested in keeping the revenues flowing to help them stay in the power by increasing the military spending.

A latest study by Guesnet (2013) examined the above mentioned four ways on how natural resources fuel the conflicts in Chad and found out that the increase in the military expenditure in Chad is linked to the regime survival strategies which are paid for with oil revenues. The study has confirmed the four links between effects of natural resources endowment and military expenditure as previously identified by Perlo-Freeman and Brauner, (2012).

3.0   Data and estimation method

The analyses in this study utilize panel data of GCC countries (i.e. Kuwait, Oman, Saudi Arabia, Qatar, Bahrain and UAE) for twenty-five years, 1987 and 2012. The dependent variable is military expenditure (Milexit) at time

t (i.e. year 1987 through 2012); it was collected from SIPRI database (2013) and measured as a percentage of GDP. Data for the dependent variables are GDP, GDP growth, GDP per capita, oil rent as a percentage of GDP, natural gas rent a percentage of GDP, there were obtained from the World Bank (2013). The study also employs three different dummy variables that are expected to play a role in explaining the military expenditures of GCC. The first one to cater for Gulf War I in 1991 in which a coalition of countries led by the United States drove the Iraqi army out of Kuwait; and the second dummy variable is for Gulf War II in 2003 which resulted in the overthrow of Saddam Hussein's regime. Third dummy variable designed to cater for the effects of "Arab Spring" which was started in 2010.

In designing the modeling specifications of the relationship between the military expenditures and natural resources, the study follows the standard specifications as in the latest study by Perlo-Freeman and Brauner, (2012) and Ali and Abdellatif (2013) and more recently Böhmelt and Bove (2011). The baseline model is as follows:

$$\text{Log\_(Milex}_{it}) = \beta_0 + \beta_1 \text{(GDPG}_{it-1}) + \beta_2 \text{(GDPP}_{it-1}) + \beta_3 \text{(Oil}_{it-1}) + \beta_4 \text{(Gas}_{it-1}) + \beta_5 \text{(Min}_{it-1}) + \beta_6 \text{(GW1}_{it}) + \beta_7 \text{(GW2}_{it}) + \beta_8 \text{(ARSP}_{it}) + \upsilon_i + \theta_t + \varepsilon_{it}$$

In this relationship: country (i), time is lagged by one year (t-1), military expenditure (Miles), GDP annual growth rate (GDPG), GDP per capita in constant 2000 US$ (GDPP), oil rents as percent of GDP (Oil), natural gas rents as percent of GDP (Gas), natural mineral as percentage of GDP (Min), dummy for Gulf War I (GW1), dummy for Gulf War II (GW2) and dummy for the Arab Spring (ARSP); the country effect (υ), the time effect (∅), and the error term (ε).

4.0   Empirical results and discussion

The econometric analysis in this study starts off by estimating the constant coefficient approach, by the pooled Ordinary Least Squares (OLS). Further, to account for the possibilities of unobservable factors that might affect the military expenditures of GCC, the study also employs both fixed effect model as well as random effect model in spite that the test results of Breusch-Pagan (1980) and Hausman (1978) favor random effect model.

Generally, the overall empirical results are quite satisfactory in terms of robustness of the estimates; as the study run several diagnostic tests including tests for: panel unit root test using Augmented Dickey-Fuller test (AD) and Im et al. W-stat (2003).; heteroskedasticity using the Breusch-Pagan and Cook-Weisberg tests; multicollinearity test using correlation matrix and variance inflation factor (VIF); normality test using skewness/kurtosis test and normality graphs; model specification test using link specification test; and omitted variables test using Ramsey RESET test. All results show that the chosen model is well specified except for some minor issues such as heteroskedasticity that has been corrected by using robust standard errors.

Table 01: Estimation Results			
Dependent Variable: Military Expenditures as a Percentage of GDP	Specification (1)	Specification (2)	Specification (3)
Explanatory Variables	The constant coefficient approach (OLS)	Fixed Effects (within) Estimation	GLS Random Effects Estimation
Constant	1.882657 (-0.73)	5.25124 (-1.94)	1.882657 (-0.73)
GDPG it-1	-.0105878 (--0.38)	-.0064433 (--0.25)	-.0105878 (--0.38)
GDPP it-1	-.0000612* (--4.83)	-.0000314 (--0.58)	-.0000612*** (--4.83
Oil it-1	.0193* (-2.00)	.753* (-1.21)	.0193* (-2.00)
Gas it-1	.0121115 (-0.50)	.1112911*** (-2.68)	.0121115 (-0.50)
Min it-1	-2.169254 (--0.83)	1.469399 (-0.55)	-2.169254 (--0.83)
GW1it	-.9306605 (--1.51)	-.6013992 (-1.09)	-.9306605 (--1.51)
GW2it	..6165314 (-1.22)	.4008316 (-0.88)	.6165314 (-1.22)
ARSPit	-.1997424 (-0.23)	.5016857 (-0.61)	-.1997424 (-0.23)
R-square	0.29	0.36	0.29

Notes: t-statistics for the OLS and Fixed Effect Models and the corresponding z-statistics for the Random Effects Model are given in the parentheses. The Asterisks: *, **, *** indicates the given variable is statistically significant up to 10 %, five%and 1% level of significance respectively; otherwise the variable is statistically insignificant. The reported R-square is overall R-square.

The main interest of this paper is to determine whether natural resources of Rentier States of GCC are sensitive to military expenditures. The results above shows that in three specifications that rent from oil is significantly and positively contribute to the military expenditure of GCC, whereas the role of the rent from gas in determining GCC military expenditures is generally ambiguous as it is insignificant in the case of the fixed effects. However, the rent from minerals is not significant in the three specifications; this may attributed to the fact that rent from minerals is marginal relative to the rents from oil.

The statistical insignificant of the growth of GDP in all specifications does support the propositions that there is something different about natural resources revenues that allows it to affect military expenditure differently, this results is consistent with results of Perlo-Freeman and Brauner, (2012).

Surprisingly, the three dummies for the Gulf War I and II and Arab Springs are not statistically important in determining the military expenditure of GCC, which could be attributed to the fact that GCC military expenditure has been increasing at times regardless of the conflicts in the Region.

5.0   Concluding remakes

The study has provided an empirical validation to the hypothesis that the revenues from natural resources fuel military expenditures. The study also confirms that not all natural resources are "curse" as some of the GCC natural resources such as gas and minerals are not important in determining the military expenditures of GCC. However, the rent from oil is the only type of natural resources that has significant effects in determining GCC military expenditure. Finally, the study did not find any statistical relationships between GCC military expenditures and Gulf War II, Gulf War II nor for the Arab Spring which is surprising but understandable as GCC military expenditures have been steadily increasing over time regardless of the conflicts in the Region.

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