

Interactions among military expenditures in MENA countries: a dynamic panel analysis

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Proposal

The military burden in the Middle East and North Africa (MENA) has been among the highest in the world for many years.

Determinants of military expenditures in the MENA region have been extensively studied, because of the prolonged state of hostility among these countries, the salience of oil revenues and the attitude of using military as a policy instrument (Chen et al., 1996; Lebovic and Ishaq, 1987, 2004; Linden, 1992; Yildirim et al., 2005).

Many scholars considered the Middle East in a strategic context. There are arms races between Israel and the Arab countries; patterns of alliances between Arab states; common economic shocks such as oil price variations, internal and external political shocks such as the Algeria civil war, the Iran-Iraq war, the 1st Intifada. Hence, there may be important common effects to which military expenditures in the region respond. These commonalities may be exploited in empirical analysis. This paper investigates whether modern dynamic panel techniques can shed further light to explain MENA military expenditures interactions.

The theory of interactions encompasses arms races and alliance models but the two streams have not been well integrated: previous econometric works have usually imposed a-priori restrictive assumptions while explaining military expenditures interactions between two or more countries (such as the assumption

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I am grateful to my supervisor, Prof. Ron Smith, for advice. All the remaining errors are mine.

of bilateral interactions in arms race models or restrictive aggregation assumptions in alliance models). Usually, a crucial modelling choice is whether to fit in the group of arms races models or that of alliances.

In this paper we claim that, in strategic regional context such as the MENA region, arms races and alliances are often intertwined aspects and it will be informative to model their cross-countries interactions.

Thus, this paper aims to examine the interactions among military expenditures in 15 MENA countries over the period 1975-2007 with a more open approach. It investigates whether there is some evidence of common factors affecting the military expenditures in the region and it attempts to interpret such factors.

This preliminary structural investigation will serve the objective to exploit such commonalities using panel data techniques to allow for more flexible representations of the relative effect of threat and resources on military expenditures in these countries.

We answer these questions by using the Analysis of Principal Components and by testing for endogenous structural breaks in the series of military expenditures shares. Also, we try to control for the presence of such common factors with the common correlated estimator (CCE) developed by Pesaran (2004).

The main conclusion is that there is some evidence of cross-sectional dependence across the region which may be exploited in a panel framework.

The PCs Analysis on the shares of military expenditures highlights the importance of two main components to explain up to 71% of the variation of military expenditures shares in the region. The first component, roughly equal across the region, may be related to some regional security need. The analysis seems to suggest that Algeria and Kuwait have different behaviour within the region and their military expenditures may be driven by domestic country-specific issues, such as the Gulf War for Kuwait and the civil war in Algeria.

The second component which has similar sign for Bahrain, Kuwait, Oman, Saudi Arabia, UAE, Tunisia and Egypt may be related to domestic resources availability or domestic political relationships vis-à-vis the West. Also, there is some evidence that year 1979 and 1991 are outliers observations.

From the PCs Analysis on the residuals from the selected specification of military expenditures demand we notice a clear dichotomy between countries directly involved in conflicts and relatively peaceful countries in the region.

The CCE does not perform well in our selected military expenditure demand. The difficulty for this estimator to appropriately capture the nuisance from the common factors may be due to the fact that countries respond to regional shocks very differently. Hence the average regional effect is insignificant.

The analysis of structural breaks has shown that most of the countries have breaks in the late 80s. This may reasonably reflect the end of the Cold War,

or the end of the Iran-Iraq confrontation or shocks driven by the oil price fluctuations. However, there is no clear-cut evidence of systematic breaks across the region. A break-event correspondence suggests that domestic issues and influences of the West may play an important role in determining military expenditure shares. Hence, military outlays in some of these countries may be weakly linked to the economic structure but being driven by political imperatives, either internal or externally enforced.

In conclusion, despite there is evidence of the presence of common unobserved factors, their interpretation is difficult because there is a large number of similar factors, which have different weights in each country.

Interactions across the region may come through different channels:

1. Threat, as it is treated in the arms races models. This may include the Arab-Israeli conflict, regional antagonisms, internal dissents primary due to Islamists or political opposition, geopolitical issues such as the Cold War and the position of the US, etc.
2. Alliances and support. This encompasses the possible occurrence of free-rider effects as explained in Sandler and Hartley (2001) and the theory of benefits from leadership.
3. Ability to pay. This includes any economic effects such as oil price shocks, aid inflows, the convergence process (spread of technologies).

The difficulty to assess the single impact of each of these factors creates a case to treat them together.

The further extensions of this paper include an additional attempt to quantify and interpret the unobserved common factors identified as Principal Components through the use of the multiple-indicator multiple-cause model (MIMIC). The next step will be to develop a better dynamic representation of military expenditures interactions modeling both aspects of alliance behavior and arms races within the region, eventually considering arms races among opposing alliance groups. At a later stage this paper intends to investigate the effect of military expenditures on the growth process of the region. It will estimate this effect using a dynamic panel analysis allowing for less restrictive assumptions on the cross-countries dependence.