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## Political Decisions, Defense and Growth

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### Abstract:

Considering the importance of military expenditures on political and economical success of a government, this empirical study analyzes the relations between political stability, economic growth and military expenditures. Based on the theoretical model developed by Blomberg (1996), the vector autoregression analyzes results for a democratic country indicates the significance of military expenditures on political stability and private sector investment decisions.

Key words: Defense, Political Stability, Growth, VAR

## Political Decisions, Defense and Growth

### 1. Introduction:

To achieve efficient allocation of resources, one core problem defense economics literature seeks to answer is to determine the aim and scope of military expenditures. The answer is obvious from many perspectives and not so clear and actually hidden from public eye from other perspectives. Most of the studies seeking answers stick themselves only to the classical economic factors and do not openly mention the political factors behind military expenditures. Even if they do, they define political factors as if it is only special to authoritarian regimes and link military expenditures with coups. This paper follows a rather different approach and takes military expenditures (besides others) as one determinant of economic and political stability, which is a prerequisite for sustained and stable economic growth.

Living in today's world of terror a question pops into mind whether if democratic governments lean into military measures to secure the land, economic returns and property rights. Political economics literature argues that the security of property rights is one important factor behind private sector investment decisions. Hence, political decision makers setting macro level targets as higher growth and employment levels together with lower inflation rate has to take measures to create a stable economic and political environment that will guarantee the security of economic rents. The question this paper seeks to answer to is, if military expenditure is seen as a way of securing the property rights and economic rents of private sector and so creating and/or sustaining the economic and political stability.

The rest of the paper is designed as follows. Section Two will state the theoretical arguments. Section Three defines the data, estimation methodology followed and the estimation results. Section Four is the conclusion.

## 2. Theoretical and Empirical Studies:

There are various studies examining defense expenditures / growth and political stability / growth relations. The motivation of studies on growth effects of military expenditures is the allocation of significant portion of resources to military sector. As is other types of expenditures, military expenditures create demand for goods and boost income. Besides this direct effect, there are indirect effects argued by various studies on the effects of military expenditures on labor / capital productivity, export / imports and technological improvements.

On the other side, the main stream economics literature focuses on the importance of political stability on growth. These models define political instability as an important factor of increasing uncertainty in socio-economic environment and so, effecting consumption and investment decisions of economic agents and decisions of monetary / fiscal policy authorities. The main idea is that higher political instability increases uncertainty and hence, creates a risky environment for economic agents. To hedge the risk they encounter economic agents become over cautious in implementing any projects. Under political instability there is a risk that fiscal and monetary authorities do not be able to implement commitment policies and the interest rate, budget deficit, inflation and growth rates may not reach to their target levels. Hence, political instability may have serious consequences on productivity, physical and human capital flows, security of property rights and on economic growth.

Based on the theoretical model and the properties of the state in question, different indicators of political instability, like coups, executive adjustments, various indicators of the credibility of monetary and fiscal policies, election times, coalitions, duration of government and so on, were used to document the possible macro economic effects of political factors.<sup>1</sup>

To capture the possible impact of political factors on macro economy Alesina, Ozler, Roubini, Swagel (1991) and Alesina (1996) (important studies on political economy literature) use country specific and world growth rates as proxies for political unrest that does create political instability. However, the possible differences between the definitions of political stability for a democratic and a non democratic state, opened room for studies in search for a link between military expenditures, political stability and growth.

The first attempt to model the “missing” link between economic growth and defense expenditures is Blomberg (1996). Blomberg (1996) defines political stability by the probability of being in power, which is for non democratic states, clearly depends on military strength. Hence, the theoretical argument follows Alesina, Ozler, Roubini and Swagel (1991) but models economic growth as a function of political instability and defence burden together with other endogenous and exogenous factors of growth.

Although Blomberg (1996) argues that the model is general enough to be applicable to democratic states, the empirical analysis of the study includes a panel data methodology for non democratic, authoritarian regimes.<sup>2</sup> The gross domestic production (GDP) growth rate, defense burden (defined as ratio of military expenditures on GDP), coups (as proxy for probability of being overthrown, which leads to political instability),

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<sup>1</sup> Carmignani (2003) is a very good literature survey on political stability / economic growth relation.

<sup>2</sup> Blomberg uses a restrictive definition of political instability: “political stability is defined through the paper as any irregular executive transfer of power”

executive adjustments (as proxy for political unrest), world growth rate and regional dummies were used to model a two equation system:

$$\Delta g_t = \alpha_0 + \alpha_1 m_t + \alpha_2 X_{1t} + \alpha_3 Z_{1t} + \alpha_4 \pi_t$$

$$\pi_t = \beta_0 + \beta_1 m_t + \beta_2 X_{2t} + \beta_3 Z_{2t} + \beta_4 \Delta g_t$$

where,  $\Delta g$  is country growth rate,  $m$  is defense burden,  $X_1$  is a matrix of factors affecting economic growth like primary school enrollment,  $X_2$  is a proxy for political unrest,  $Z$  is a matrix of the exogenous factors like world economic growth and dummies for times of crises and geographic impacts, and  $\pi$  represents political stability.

Besides stressing the argument in favor of higher political stability to prosper economic growth, the estimation results of Blomberg (1996) indicate the significance of military expenditures for a politically stable environment. This finding support the theoretical argument that higher military expenditures works as an insurance of a dictator to stay in power and so, help create a politically stable environment and higher growth rates.

Fosu (2001) is another attempt to search for the possible relation between political instability, defense expenditures and growth in case of an authoritarian regime. The theoretical model is based on the idea that political stability not just effects economic growth directly but also via its impact on the marginal productivities of capital and labor. Based on a Cobb Douglas production function, the model given below is estimated in cases of successful, abortive coups and officially reported coup plots, as proxies for political instability.

$$g_t = a_0 + a_1 p_t + a_3 l_t + a_4 k_t + a_5 (p * l)_t + a_6 (p * k)_t + e_t$$

where,  $g$  represents the level of output,  $l$  labor,  $k$  capital and  $p$  represents political instability. The estimation results indicate the importance of the definition of political instability on the relationship between economic growth and defense expenditures.

Fosu (2001) notes that, “.....the actual involuntary government changes as a measure of political instability, as is usually done in literature, may entail a misspecification of the political instability-growth relationship. In addition, such practice appears to result in a relatively poor fit for the model and to underestimate the impact of political instability on growth”

Blomberg (1996) and Fosu (2001) both define political instability for a non democratic state and argue that higher military expenditures increase the probability of an authoritarian regime to stay in power which leads to political stability. This study however, asks if the same argument is true for a democratic state. Do military expenditures increases the probability of a government to stay in power and thus, help create a politically stabile environment as argued? Considering the governments’ and publics’ high sensitivity to national security in today’s world of ongoing wars, terror and high tech wars, this is a legitimate question.<sup>3</sup>

To search for the possible relations between political stability, military expenditures and growth for a democratic state, first the question of “what is the purpose of military expenditures?” has to be answered. The answer is noted by Seiglie (1998):

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<sup>3</sup> Especially, the public pressures and political situation of United States of America, Great Britain, Italy and Japan in the war in Iraq is a very live case to examine a possible link between political and military factors.

“....the purpose of national security.....is to protect both the savings of the young for their retirement and the bequests of the old to their children from confiscation by an adversarial country which may attack”<sup>4</sup>

Hence, if the aim of national security is to protect the savings and so, to protect the property rights of the entrepreneurs, it is clear that military power, being one of most important actor of national security, effects economic growth not only via total consumption and investment but via its effect on economic agents’ investment decisions<sup>5</sup>.

Therefore, contrary to previous studies on defence / growth relationship, this study uses private sector investments to represent economic growth not the gross domestic product (GDP). Note that, GDP covers not just the private but also the public sector investment which obviously is not affected by the idea of the security of property rights.

Despite using coups as previous studies, this analyses uses government deficit as a proxy for political stability to search for the effects of the military expenditures on macroeconomic variables of a democratic state.

Based on the importance of fiscal policy arguments for the allocation of resources between public and private sectors, Gunluk-Senesen (2004), Seiglie (1998), Koliass, Manolas and Paleologou (2004) analyzes the role of government deficit / debt (and the solvency of the government budget constraint) for efficient allocation of public resources

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<sup>4</sup> Of course the definition is valid for any type of attack.

<sup>5</sup> It has to be noted that although the methods of fighting with terrorist activities may be rather different than fighting against an adversarial country, our experiences on cold war and today’s ongoing wars (especially war on Iraq) indicates that military strength still is the most important factor on security. Although for a democratic state all kind of security expenditures has to be included in security measures of war against terrorism together with adversarial country attack, military strength still is the most important factor. Hence, following Seiglie(1998) and others military expenditures used as a proxy for all security expenditures of the government. Moreover, it has to be noted that for Turkey’s military power is the most significant factor against all kinds of attacks from inside or outside of the country.



between military and non military sectors.<sup>6</sup> Moreover, the political economy literature focuses on the importance of the solvency of the government budget constraint on economic and political success of the policy authority which derives the probability of the government to stay in power. A literature review can be found in Carmignani (2003). Since this empirical study is for a country with high and long lasting fiscal problems for over a decade (which are regarded as the one of most important source of economic instability and serious macroeconomic problems) government deficit is an acceptable proxy to represent political stability.

It has to be noted that besides the total amount of the government deficit, the way of financing deficit is also important for the (economical and political) success of a fiscal policy. Based on a two generation model, Seiglie (1998) argues that military expenditures can be financed via taxes or government debt, depending on the welfare of the nation.

Given the government budget constraint,

$$(m_t + nm_t) + (1 + r_t)b_{t-1} = \tau_t + b_t$$

where,  $m$ ,  $nm$ ,  $\tau$ ,  $b$  and  $r$  are military and non military expenditures, tax revenue, debt and real interest rate respectively, it is clear that an increase in military expenditures has to be financed by either taxes or government debt. In case of tax financing, military expenditures at time  $t$  will be financed by taxes at time  $t$ . The burden of expenditures will be placed on the current generation and the solvency of the government budget constraint at time  $t$  is satisfied. However, debt financing is a form of capital transfer between

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<sup>6</sup> These studies is based on the following analysis: Policy authority makes a decision on allocating government tax revenue,  $\tau_t$  and bond seignorage,  $bs_t$  (a function of government debt,  $b$  and interest rate  $r$ ) between military,  $m_t$  and non military expenditures,  $nm_t$ , such that the intertemporal government budget constraint (equation (\*)) is satisfied.

$$\sum_{j=0}^{\infty} (m + nm)_{t+j} = \sum_{j=0}^{\infty} (\tau_{t+j} + ((r_{t+j} - 1) / r_{t+j}) bs_{t+j}) \quad (*)$$

generations in which case the solvency of government budget constraint becomes an intertemporal issue.

As long as "...a reduction in taxes or equivalently, an increase in debt increases the welfare of generation  $t$ , generation  $t$  will prefer to finance military expenditures using debt instead of taxes"(Seiglie,1998). Households consider defence expenditures as a form of bequest. Since, higher military expenditures at time  $t$ , increases national security of future generations, military expenditures do not need to be fully offset by taxes on the current generation but, partly financed by additional debt, placing the burden of military expenses on future generation.<sup>7</sup> For countries under continuous threat and high military expenditures for long time horizons, it is expected that the burden of expenditures is placed on future generations

Therefore, for countries of persistent military expenditures, it is possible for governments to increase military expenditures, postpone the burden and satisfy higher national security to future generations. This does support the idea of using military expenditures to increase the probability of staying in power without increasing taxes to finance the burden of expenditures.

Using these linkages derived by previous studies and the theoretical framework based on Blomberg (1996), this empirical study analyzes the possible relations between political stability, military expenditures and growth for Turkey.<sup>8</sup> Turkey is one of ideal country for the idea of using military power to secure the property rights. Being

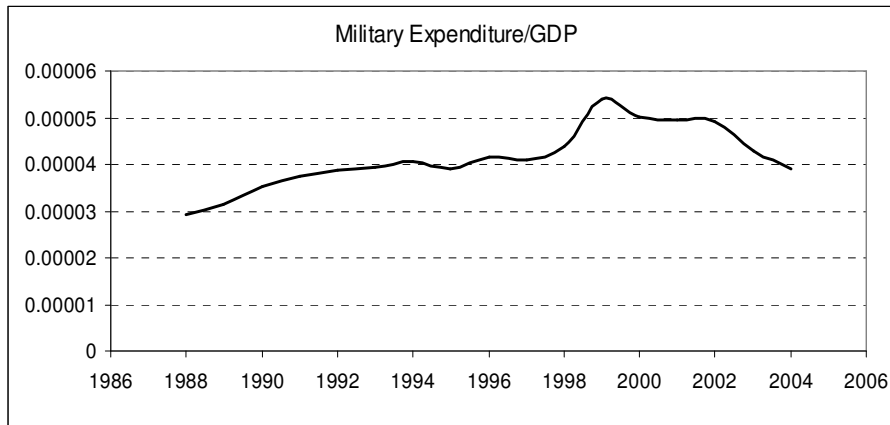
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<sup>7</sup> "The reason for the welfare gain for debt financing of military expenditures is that if these increase the viability of bequests actually being received by one's children, parents view this as an additional form of bequests. Therefore parents would like a portion of the cost to be borne by future generations in the form of taxes to finance these military bequests. The only instrument available to them to achieve this intergenerational transfer is debt" (Seiglie, 1998)

<sup>8</sup> Yildirim and Sezgin, S. (2005) is another study on democracy and the impact of military expenditures.

neighbors with Iran, Iraq, Armenia and Greece, and thus placed in between Europe and Asia and open to all kinds of terrorism and threat, Turkey is one country where security is an important issue for economic and political stability and for growth. Two coups took place in Turkey, one in 1960 and one in 1980. There is also an intervention by the military, in politics in 1997 which is defined by politicians and sociologists as “soft coup”. The empirical study covering for the time period of 1970-2004 take account of two of these attempts.

*Figure 1. Military Expenditures*



The 1980-2004 time period, is also the period of Turkey fighting with kurdish terrorist group PKK on political and military side and fighting with high inflation, interest rate and government deficits on the economics side.<sup>9</sup> As is seen in Figure 1, the year 1999, at which the head of PKK, Abdullah Ocalan captured is an important date in analysing Turkey’s defence burden.

<sup>9</sup> Gunluk-Senesen points the important relation between military and economic security too. “....Turkey’s recent strategic positioning against neighbouring Iraq and on the side of the US was justified by the Turkish government on the grounds of economic insecurity. High external indebtedness and dependence on US support in the international financial markets as well as significant military indebtedness to the US resulted in additional military insecurity. Hence, Turkey is a case where both internal and external military insecurity become intertwined with economic insecurity.”

### 3. Data, Methodology and Estimation Results:

To search for possible relations between economic growth, military expenditures and political stability for Turkey, a multi equation system approach, a Vector Autoregression (VAR) methodology is followed.

Data on military expenditures is obtained from SIPRI yearbooks and other country specific economic data are obtained from Central Bank of Turkey and State Planning Organization web pages. The military expenditure, private investment and government deficit series were used as a ratio of GDP and were taken for the time period of 1968 – 2004.

The Augmented Dickey Fuller and Philips Perron unit root test statistics calculated for the series in question indicates that the series in levels are I(1). The results given in Table 1 support the theoretical arguments and previous empirical studies that the annual differences of military expenditures,  $m$  and of government deficit,  $d$  and the annual growth rates of investment,  $I$  are stationary.

*Table 1. Unit Root Test Statistics:*

	M	Deficit	Investment	$m$	$d$	$I$
<b>Augmented Dickey-Fuller</b>						
$\tau_{\mu}$	-2.19	-1.46	-4.84 <sup>***</sup>	-3.86 <sup>***</sup>	-3.46 <sup>**</sup>	-3.45 <sup>**</sup>
$\tau_{\tau}$	-2.18	-2.28	-4.39 <sup>***</sup>	-3.56 <sup>*</sup>	-3.35 <sup>*</sup>	-3.82 <sup>**</sup>
<b>Phillips –Peron</b>						
$\tau_{\mu}$	-2.15	-1.72	-4.31 <sup>***</sup>	-13.15 <sup>***</sup>	-6.02 <sup>***</sup>	-4.56 <sup>***</sup>
$\tau_{\tau}$	-2.26	-2.66	-4.05 <sup>***</sup>	-13.47 <sup>***</sup>	-5.88 <sup>***</sup>	-4.88 <sup>***</sup>

\*1% significance level, \*\*5% significance level, \*\*\*10% significance level

Based on the theoretical arguments, the unit root test statistics and the Hannan-Quinn (HQ) and Akaike (AIC) information criteria statistics, the multi-equation system of  $m$ ,  $d$  and  $I$  is modeled with lag length one with three dummy variables. The dummy variables for 1980 and 1999 account for the impact of 1980 coup and the capture of PKK

leader in 1999 and the dummy variable for 1994 captures the impact of a serious financial crises. Since the estimation results indicate that the dummy variable for 1997 is not statistically significant, this dummy variable is not included in the model.<sup>10</sup>

Before going into the details of the Vector Autoregression (VAR) estimation results, it is important to analyze the multivariate Granger Causality test statistics. According to the statistics given in Table 2, military expenditures are exogenous in this system of variables. Neither private investment nor government deficit Granger causes military expenditures.<sup>11</sup>

*Table 2. Granger Causality Test Statistics*

Dependent Variable	<i>m</i>	
	<i>I</i>	<i>d</i>
Statistics	5.00	3.91
(p-value)	(0.54)	(0.68)

Dependent Variable	<i>I</i>	
	<i>m</i>	<i>d</i>
Statistics	21.9	18.6
(p-value)	(0.001)	(0.005)

Dependent Variable	<i>d</i>	
	<i>m</i>	<i>I</i>
Statistics	23.6	7.63
(p-value)	(0.001)	(0.26)

The Granger causality statistics results for government deficit are also not a surprise and support our theoretical arguments. The empirical result that military expenditures Granger causes government deficit is stressed by earlier studies analyzing the relations between government debt, deficit and military expenditures.

<sup>10</sup> The estimated and t statistics values (in paranthesis) for 1997 dummy are 0.11 (0.09), -0.26 (-0.04) and 3.54 (0.70) in the equation for m, I and d respectively.

<sup>11</sup> The analysis repeated for possible lag lengths, indicates similar Granger Causality results.

In terms of private sector decisions, the empirical results indicate univariate Granger causality. Although, government deficit is not affected by private sector investment, government deficit does effect investment decisions. The results support the arguments of the problem of allocation of resources between public and private sectors.

The significant result of this paper is that, military expenditures do Granger causes private sector investment. Therefore, Granger Causality test statistics support the theoretical argument that efficient allocation of resources to private sector and security of property rights are important factors for private sector investment decisions. Hence, it can be said that both political and military factors have a role for investments and growth.

To document the direction of the relationship between the variables of this system, impulse response and variance decomposition tables were calculated.<sup>12</sup>

In order to solve the identification problem in VAR models and gain robustness in the analysis, generalized impulse responses methodology is used. This methodology that is developed by Pesaran and Shin (1998) does not depend on the VAR ordering since the methodology do not orthogonalize the set of shocks before computing variance decompositons. The calculated impulse responses are given in Figure 2.<sup>13</sup>

The analysis indicates that the impact of shocks on variables of the system dies off in about 3 to 5 years. Although studies do not agree on the existence or the direction of the effect of military expenditures on growth, the impulse response analysis shows that a positive military expenditure shock increases investment and this impact dies off in about 5 years. Together with Granger causality test statistics, the results are in synch with the

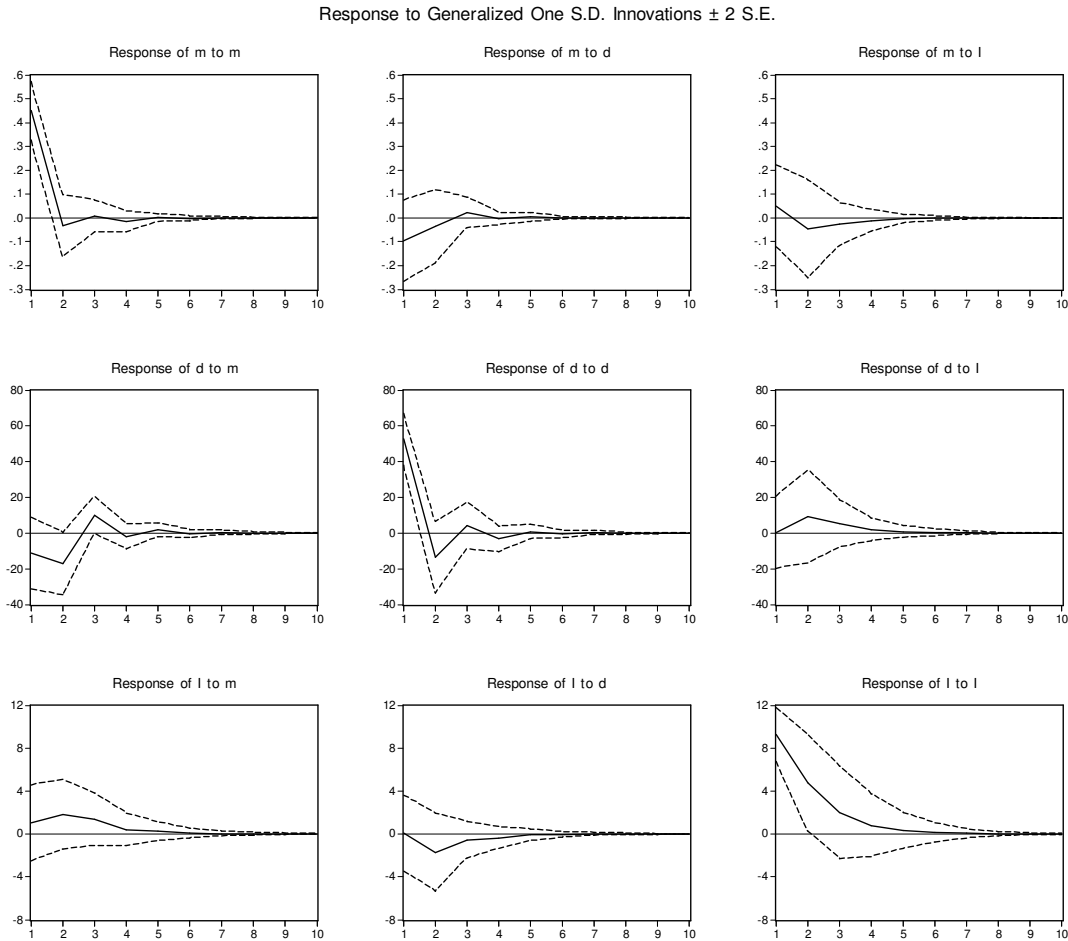
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<sup>12</sup> The VAR estimation results are available upon request.

<sup>13</sup> Using Chelosky decomposition –for the order of  $m$ ,  $d$  and  $I$  (which is based on Granger causality test statistics) indicates similar impulse response tables.

previous empirical studies stressing positive impact of military expenditures on growth rate of GDP.

*Figure 2. Impulse Responses:*



As for the impact of political factors, the impulse responses indicate a negative relation between government deficit and private sector investments. Higher fiscal deficit decreases the probability of government to stay in power and decreases private sector investments. The results support the negative impact of political instability on economic growth.

Following the Granger Causality test statistics, the impulse responses indicate a negative impact of military expenditures on government deficit. This results support the

idea that the financial burden of current period military expenditures is left to future generations. The impact of deficit, decreasing for a year and then increasing before dieing off indicates the transfer of burden of military expenditures from current to future generations. This intergenerational ability helps fiscal authority to increase the probability of government to stay in power.<sup>14</sup>

#### 4. Conclusion:

This empirical study argues that, besides economic factors and political stability, the idea of “security” has a significant role –at least worth examining, for economic growth.

In today’s world, where almost every country is open to terrorism and war, one of the most significant arguments of politicians is to guarantee what ever it takes to do to secure “people’s” rights. The point of this argument is to secure the property rights to achieve and sustain welfare of the nation. From that perspective military expenditure to satisfy national security, can be seen as a tool to determine the probability of the “politician” to stay in power. Therefore, based on theoretical and empirical studies linking defence and political stability literatures, a system of military expenditures, private investment and government deficit is modeled. The results of VAR analyses indicate the impact of military expenditures on fiscal policy variables and economic growth.

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<sup>14</sup> Seiglie (1998) applies the same empirical methodology for other types of government expenditures. The results indicate that the impact of expenditures on deficit is not so clear as one period budget constraint suggest.



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