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SOME ASPECTS OF MILITARY ECONOMY IN CENTRAL EUROPE

Abstract:
Based on statistical analysis the article proves that the military expenditures in Central-European countries are in line with international trends. As an example, significant stochastic relationship between military expenditures and patent activity could be proven for Hungary. Analysis of factors, influencing national security in a broader sense, highlights the importance of harmonic socio-economic development, as a necessary precondition of increasing of national security of central-European states in a globalising word.

1 INTRODUCTION

During the last two decades there were drastic changes in place and role of militaries in societies and national economies all over the world, and especially in former socialist countries (Graph 1). After decades of "overheated" and "forced" military development, as a consequence of changes in the political environment new principles and directions have been followed.

Graph 1
The change of military expenditures in 2006 USD value, compared to the current level of defence spending
Source: own calculations, based on information of Correlates of War project, (www.correlatesofwar.org), and International Monetary Fund database (www.imf.org)

2 SCIENTIFIC BACKGROUND

2.1 EFFECTS OF MILITARY EXPENSES ON DEVELOPMENT

At the beginning of nineties there were wide range of research efforts for determining the "peace-dividend" resulted from military conversation (Knight et al.,1996; Gupta et al., 2002). The general effect of decreasing of military expenditures on economy of Central- and Eastern European post-transition countries is practically impossible to indicate and analyse, since parallel with this transition there were numerous other, profound socio-economic changes in these societies, making it impossible to conduct an economic or econometric analysis based on "ceteris paribus" principle. To analyse the military spending – macroeconomic stability and to have a complex meta-analysis of existing results would be highly desirable but this goes well beyond the scope of this paper.

2.2 EFFECTS OF MILITARY EXPENSES ON RESEARCH AND DEVELOPMENT

According to the literature studied (Cowan et al., 1995; Coe et al., 1997; Kaldor, 2002), defence, particularly defence oriented R&D, might divert resources from private sector R&D activities affecting both technology and spin-offs. The resources diverted embrace both physical and human capital. At the same time, in opinion of Blatt et al. (2004) in depth studies are required of the time-series experience of each nation with a careful disaggregation of the components of defence spending with specific focus on defence R&D.

3 HYPOTHESIS DEVELOPMENT

Based on the scientific literature studied, two working hypotheses have been set up:

These are as follows:

1. In the case of most states, being in normal military situations (e.g. no extreme and direct military threat), there is a positive correlation between the level of economic development and military expenditures, calculated on a per-capita basis.
2. The defence-related spending for research and development contributed considerably to innovation, and this can be proven by time series analysis, based on statistical data.

4 RESEARCH METHODS

The relation between the level of economic development and military expenditures were estimated by regression analysis. Base of calculations was on the one hand the GDP per capita, expressed in USD, converted on purchasing power parity, using the database of IMF. The military expenditures were collected, based on SIPRI electronic database.

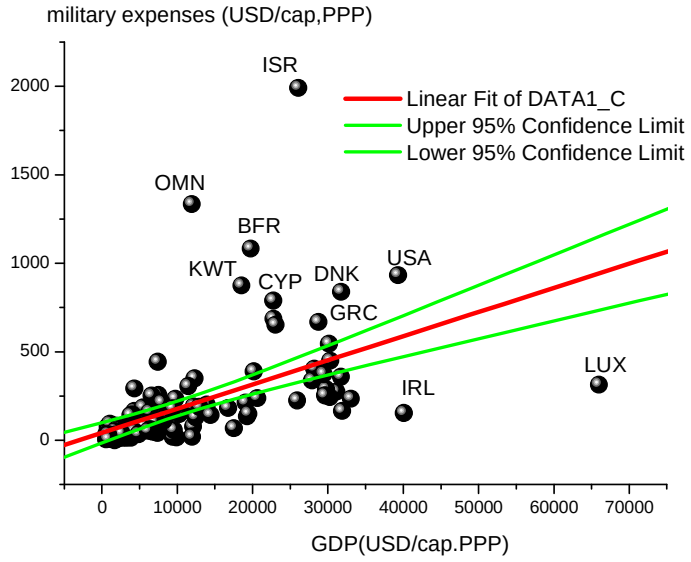
The states for calculations were selected on professional considerations. That's why we have Russia has been eliminated due to lack of transparent and reliable data (Schleifer et al., 2004). The regression analysis has been based on least square method.

Effects of military expenditures on intensity of research and development had been studied by regression analysis of military expenditures and the number of patent applications from the residents of different countries.

5 RESULTS AND DISCUSSION

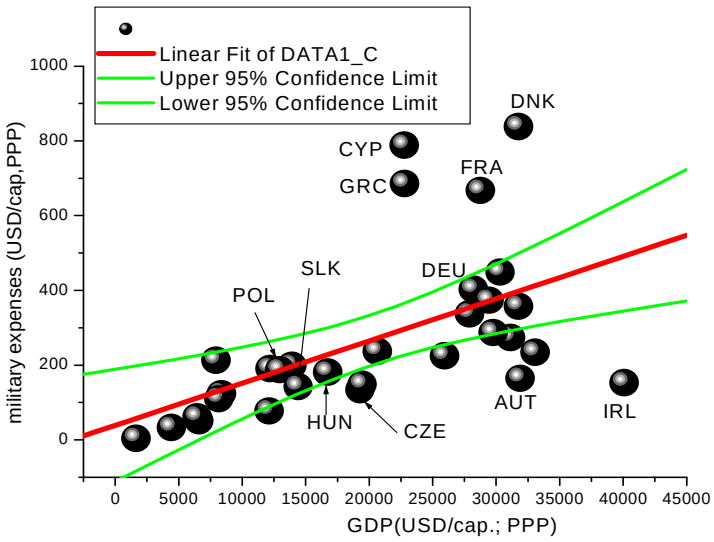
5.1 MILITARY EXPENDITURES IN INTERNATIONAL COMPARISON

Analysing the relation between the level of economic development and military expenditures on a per-capita base (**Graph 2**) it is obvious, that there is a statistically significant positive correlation between these two variables, but there are numerous outlayers: some states in special external or internal situations (e.g. Israel, Cyprus, Greece) or some rich states, with very limited military forces (e.g. Ireland or Luxemburg).



Graph 2
Regression between level of economic development and military expenditures in the world
Source: own calculations, based on SIPRI and IMF databases

A more Europe-oriented analysis highlights a narrower interval of military expenditures, and a similar relation between the level of economic development and military expenditures. An important lesson of this figure is the fact that military expenditures of Central European states lie on the line of regression (Graph 3). This proves that the military expenditures of these states harmonise with international trends.

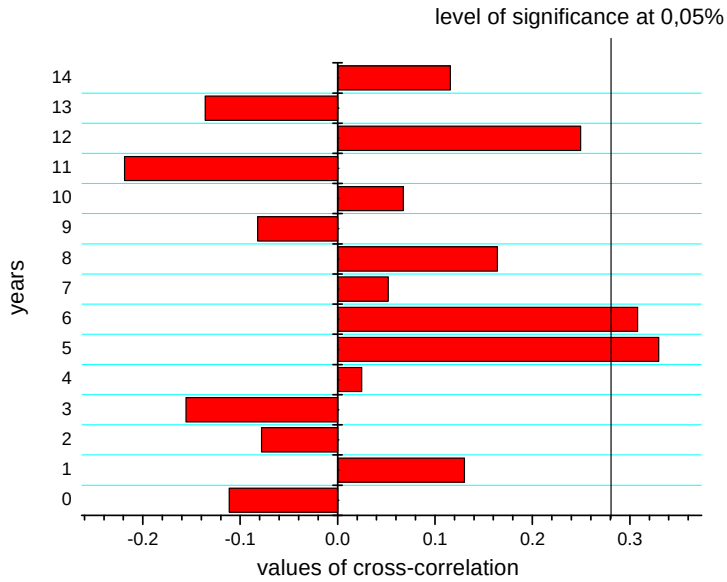


Graph 3
Regression between level of economic development and military expenditures in the Europe
Source: own calculations, based on SIPRI and IMF databases

5.2 EFFECT OF MILITARY EXPENDITURES ON R+D

The effect of military expenditures on R+D has been examined based on one country, Hungary. Based on time-series analysis of patent-application and time-series of military expenditures, a statistically significant correlation has been determined.

Of course, the ups and downs of military expensed exercise a "lagged" effect on scientific activity, so the cross-correlation of the time series of military spending and patent activities have been applied (**Graph 4**). It is obvious, analysing the figures of different countries, a rather strong correlation can be determined between the lagged values of these two time series. This means, that the effect of military spending exercises a statistically significant effect of patent applications.



Graph 4

Results of cross correlation between the time series of military spending and patent applications in Hungary

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