
THE LINK BETWEEN CORRUPTION, DEVELOPMENT, AND MILITARY EXPENDITURES: MAKING THE CASE FOR ACCESSION TO NATO

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Abstract

This article examines the relationships between corruption, development, and military expenditures among NATO and non-NATO countries. It is argued that the recent accession to NATO of Eastern European countries was not only a military process, but also a comprehensive reform process that will have important economic growth and human development consequences. Integration into the NATO structures is also expected to lower corruption.

I. Introduction

For Eastern European nations the relatively recent accession to NATO was not only a military process, but also a comprehensive reform that will have important long-term economic consequences. Reforming the defence system of a NATO candidate country is not possible without developing a

sustainable market economy. To prepare the accession to the NATO structures, the governments of candidate countries had to adopt new legislation meant to strengthen economic growth and improve the climate for businesses. For instance, Romania adopted legislation to reduce corruption (legislation requiring politicians to disclose information about their assets, a law governing conflicts of interest for government officials, and a law regulating the financing of political parties), and introduced important economic and legislative measures to attract foreign capital. Despite recent legislative improvements to prepare for NATO and EU membership, however, various indicators that measure corruption continue to indicate a high level of corruption in some of the former Eastern European countries. Yet many observers expect that the economic reforms and the gradual alignment of national legislations to the new requirements imposed by NATO and EU will reduce corruption in the long run.

The consequences of corruption for economic development have been well documented by economists. The corruption level of a country has been linked to its economic growth rate, stimulating or discouraging native and foreign investment, and influencing the size and use of public expenditures. Mauro (1996), for instance, established that a corrupt country will achieve investment levels of almost 5 percent less than a relatively uncorrupt country and will lose about half a percentage point of domestic product growth per year. Corruption has also been found to lead to

inefficient use of public funds in financing public services (Klitgaard, 1990). In addition, Wei (1997) presented evidence that investing in a relatively corrupt country, as compared with an uncorrupt one, is equivalent to an additional 20 percent tax on investment.

Corruption is also associated with an increase in military expenditures. Poor decisions are taken by corrupt bureaucrats, who often tend to favour expensive, complex, capital-intensive defence projects that make it easier to skim significant funds. As Kaufmann (1997) remarked, a large defence infrastructure contract may be favoured over the construction of hundreds of schools and health clinics. By increasing the percentage of military expenditures in total government spending, corruption distorts public expenditures and hampers developmental objectives; corrupt countries spend less on education than uncorrupt countries.

Given the serious consequences corruption has on the development of emerging economies in Eastern Europe, the purpose of this study is to examine the relationship between corruption, development, and the funding of defense systems. The analysis will compare NATO members to non-NATO nations.

The paper is organized as follows. Section II discusses ways to measure corruption and estimate hidden economies. Section III presents the empirical results of a model that links corruption to

human development. Section IV examines the relationship between corruption and military spending. A discussion of the empirical results is included in Section V.

II. Background

In recent years academics and international development agencies (i.e., International Monetary Fund, the World Bank) have become increasingly interested in estimating the corruption levels and the hidden economies throughout the developing world. Among the most influential works in the field of measuring corruption and its effects on economic development one notes the studies of Krueger (1974), Rose-Ackerman (1975), Mauro (1995), Bardhan (1997), Tanzi (1998), and Wei (1997) .

Corruption and hidden economies often lead to a serious decline in the amount of financial resources states have at their disposal and lower efficiency in the use of these funds. Financial resources are weakened directly through the granting of funds in a preferential manner, and indirectly through a reduced tax base, thus resulting in weaker defense, education, and health systems.

The sudden crash of centrally planned economies in the early 1990s and the erosion of the role the state played in economic planning, the lack of efficient solutions for privatisation, and an inefficient justice system have all contributed to the

emergence of new types of corruption. Within a relatively short period of time, a small number of individuals have accumulated massive fortunes and built influence. High corruption and the underground economy created the conditions for the emergence of powerful interest groups, who through their long-reaching influences have managed to undermine the law and gained influence over politicians and ministerial positions.

Corruption tends to reach higher levels in those countries where the state is excessively involved in the economy (i.e., economic units with state capital hold an important weight in GDP creation and the government's policy favours certain groups), the political system is subordinated to interest groups, and public officials' salaries are much lower than those of professionals working in the private sector. Even though one could argue that, to a certain extent, corruption breaks some of the bureaucratic barriers imposed by a heavily controlling state, in the long run it leads to slowing economic growth and an increasing risk of weakening a country's national security as funds can be easily diverted to terrorist groups.

To assess a country's corruption level, international agencies calculate several indices. Indicators of corruption typically include the following measures: corruption ratings based on "expert opinions" (the most widely known indicator in this class is the International Country Risk Guide – ICRG, which has been calculated annually

since 1982); corruption ratings based on surveys of firms and citizens (Global Competitiveness Report – GCR corruption index, World Development Report – WDR corruption index); corruption ratings based on “a poll of polls” (Transparency International – TI corruption index); and corruption ratings based on more “objective” data.

To calculate a nation’s corruption index, one usually takes into account the assessment provided by foreign businessmen who conduct business in that country. Although these indicators tend to be relatively subjective, economists have established strong correlations between the values of this series of indices and various development indicators.

One of the most frequently used indicators to assess corruption is the Transparency International Corruption Index¹ (TICI). Economists have found a strong correlation between this indicator and economic growth. While developed countries have for decades enjoyed low levels of corruption, corruption in developing countries tends to be a generalized phenomenon, permeating large sectors of the society. For the 2001 TICI and HDI data, the value of the coefficient of correlation between the two series for all countries in the world was .77. For NATO member states only, the value of this coefficient was .71.

¹ The methodology used to calculate this index can be found in Lambsdorff Johann Graf, *Transparency International Corruption Index, Responding to the Challenges of Corruption, Act of the International Conference, Milan, 19-20 November 1999, p.257-277.*

In addition to estimating a nation's overall level of corruption, economists are also interested in assessing the size of its hidden economy. In France, for instance, INSSE estimated that 4.3 percent of the GDP was represented by the hidden economy, of which 3 percent was accounted by frauds and fiscal evasion. Throughout the developing world the size of hidden economy is considerably higher. For instance, in Columbia, 39 percent of the country's economy can be attributed to undeclared activities (Bruno, 1994). Within the Central and Eastern European region, underground economy and corruption have existed since 1989 in various forms. Through less orthodox methods, a select number of individuals turned rich overnight while a large part of the population fell into deep poverty. In 2001 for instance, almost 30 percent of Romanians lived in poverty. During the same year, Romania had the highest corruption index among the group of Eastern European countries.

As Germangue-Debare (1996) noted, in the poorest countries where the underground economy created a high number of jobs and ensured a certain solidarity among underground economy workers, the excessive development of this sector represents a real danger for the economy and the political systems of these countries. Manifesting under a wide range of forms, the parallel economy has concentrated material and financial resources into the hands of a few individuals. The high level of corruption and weight of hidden economy could

eventually lead to a decline in economic growth as native and foreign investors begin withdrawing their investments. The State's fiscal basis weakens gradually, thus diminishing the quality of the public services offered.

To avoid such declines, it is imperative that governments tackle seriously the issue of corruption. According to Mauro (1996), an improvement in the corruption level from 6 to 8 on the TICI index would result in a four percent growth in the volume of investments in the economy and an overall growth of 0.5 percent in the per capita GDP. At the same time, a lower corruption would lead to a change in the distribution of public spending. The same IMF study reveals that an improvement in the corruption index from 6 to 8 yields a 0.5 percent increase in educational expenditures.

III. Corruption and Development

Using regression models with panel data, one can illustrate the link between corruption and development (as measured by the Human Development Index) for the NATO members and non-NATO countries. Potential positive effects of the recent NATO accession include improved prospects for the development of the business climate and an improvement in the use of public funds.

The Human Development Index (HDI) is a comparative measure of poverty, literacy,

education, life expectancy, childbirth, and other factors for countries worldwide. It is a standard means of measuring well-being, especially child welfare. The index was developed in 1990 and has been used since 1993 by the United Nations Development Programme in its annual Human Development Report. The index measures the average achievements in a country in three basic dimensions of human development: a long and healthy life, as measured by life expectancy at birth; knowledge, as measured by the adult literacy rate (with two-thirds weight) and the combined primary, secondary, and tertiary gross enrolment ratio (with one-third weight), and; a decent standard of living, as measured by gross domestic product (GDP) per capita at purchasing power parity (PPP) in USD.

Overall, the regression models indicate that lower corruption is associated with an improvement in the Human Development Index (HDI). The regression linear model M_1 is defined as follows:

$$M_1: hdi_{i,i} = \beta_0 + \beta_1 ic_{i,i} + \beta_2 d_{i,i},$$

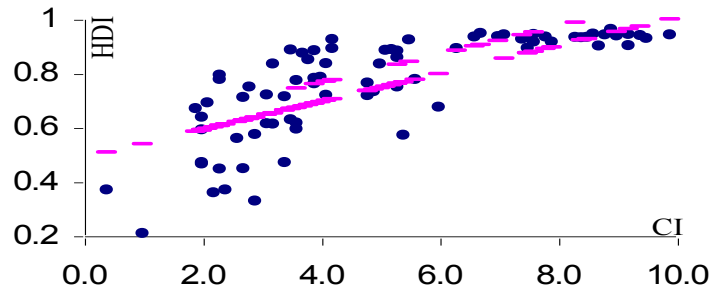
where $hdi_{i,i}$ represents the human development index for 78 countries in 2000, $ic_{i,i}$ is corruption index calculated by ICRG ² for the same year and $d_{i,i}$ is dummy variable

² This indicator measures corruption of one country for foreign investors. It ranges from 0 (the highest corruption level) to 10 (the lowest level). The indicator is calculated each year by Goettingen University and Transparency International.

$i = 1$ for NATO countries and $i = 0$ for other countries. Variable $\epsilon_i \sim N(0, \sigma^2)$.

Figure 1 reveals a positive correlation between variables hdi and ic . The countries that have lower standards of living are characterized by higher levels of corruption.

Figure 1. The relationship between corruption and the human development index – Model 1



The results of parameter estimates for the regression models are presented in Table 1. The sign of the estimator, $\hat{\beta}_2 = 0.071$, indicates a positive influence of lower corruption levels within NATO countries on the human development level.

Table 1. Parameter Estimates for models M_1 and M_2

	<i>intercept</i>	<i>ci</i>		R^2	e e
M_1^{***}	0.485 (0.031)	0.052 (0.006)	0.071** (0.0034)	0.78	1.040
M_2^{***}	0.461 (0.031)	0.058 (0.006)	0.083* (0.044)	0.77	1.051

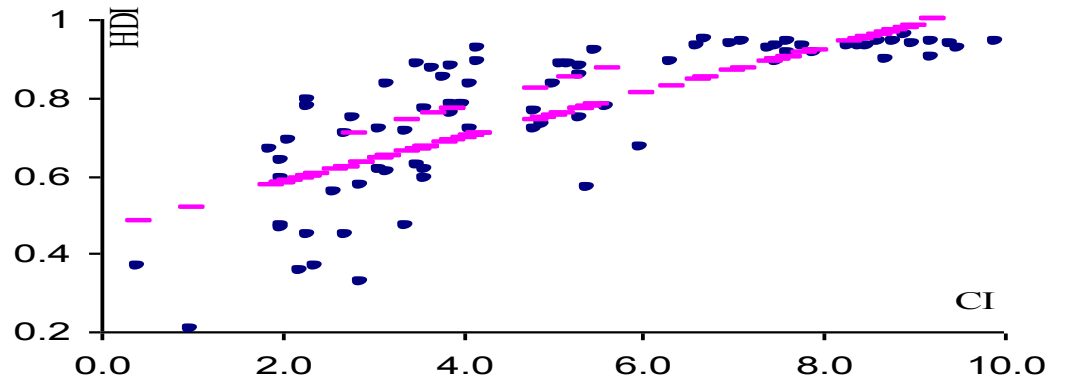
* parameter does not significantly differ from zero for 10%. ** parameter significantly differs from zero for 5%. *** model is accurately specified.

Model 2 (see Figure 2) reveals the negative consequences of corruption for candidate countries. This model includes a dummy variable that indicates membership to NATO in 2002:

$$M_2: hdi_i = \alpha_0 + \alpha_1 ci_i + \alpha_2 i + \epsilon_i,$$

where $i, i = 1, 178$ is a dummy variable, $i = 1$ for NATO candidate countries in 2002 and $i = 0$ for other countries.

Figure 2. The relationship between corruption and the human development index – Model 2



These findings suggest that the average value of the corruption index (CI) is much higher for NATO candidate countries ³ than for NATO member states. To support this conclusion, Table 2 shows average values of this indicator for the two groups of countries by average rank of classification, dividing countries according to the corruption level (1 being the lowest corruption level) for the period 1998-2001.

Table 2. Average Corruption Index values for NATO member and candidate states

		1998		1999		2000		2001	
		$\bar{ci}$	$\bar{r}$	$\bar{ci}$	$\bar{r}$	$\bar{ci}$	$\bar{r}$	$\bar{ci}$	$\bar{r}$
NATO states	member	7	22	7	22	7	22	7	23
		7.31*	19.1*	7.35*	18.3*				
Candidate countries		3.6	54.2	4	52	4	44	4	47

$\bar{ci}$ - average by groups of countries CI. $\bar{r}$ - average rank; *excludes Hungary, Poland and Czech Republic, which were included in NATO in 1999.

No country in the group of candidates reaches the average corruption level calculated for the NATO member states. Among candidate countries, the lowest corruption was registered in Estonia (an average of 5.7 during four years), followed by

³ Candidate countries include states where corruption index was regularly calculated, namely: Slovenia, Estonia, Lithuania, Bulgaria, Croatia, Slovakia and Romania. For Albania, the CI value for 1999 was 2.3.

Slovenia (5.6). Romania had the highest corruption among these countries (3.0). For other countries, average values were 4.2 for Lithuania, 3.4 for Croatia, and 3.4 for Slovakia.

IV. Corruption and Military Spending

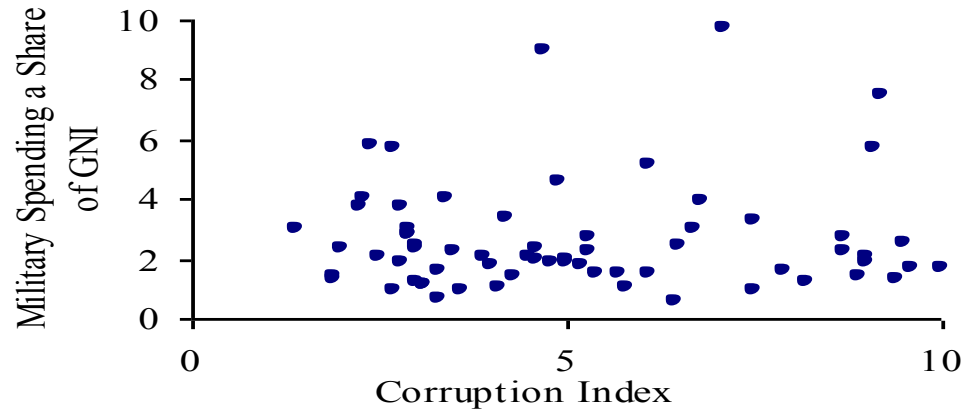
In a study of military expenditures, Gupta (2001) noted that those societies that are perceived as being more corrupt have a higher share of military spending in GDP. Gupta's analysis concluded that a one percent increase in the corruption index is associated with an increase in military spending as a share of GDP of .32 percent.

The next three graphs summarize the link between corruption and various measures of military expenditures. The results obtained through these empirical analyses should be interpreted with caution because the corruption index is calculated for civil activities only. Nevertheless, the analysis provides valuable insights into how corruption affects the financing of a nation's defence system.

In the first model we examined the correlation between the corruption index (*ci*) and the weight of military expenditures in Gross National Income (*megni*). The Gross National Income (GNI) comprises the total value of goods and services produced within a country (i.e. its Gross Domestic Product), together with its income received from other countries (notably interest and dividends), less similar payments made to other

countries For the two variables examined, the correlation coefficient was -0.12 , indicating a lower weight of military expenditures in GNI for those countries where the corruption level is lower. The linear regression model, however, does not indicate a significant linear dependence (see Figure 3).

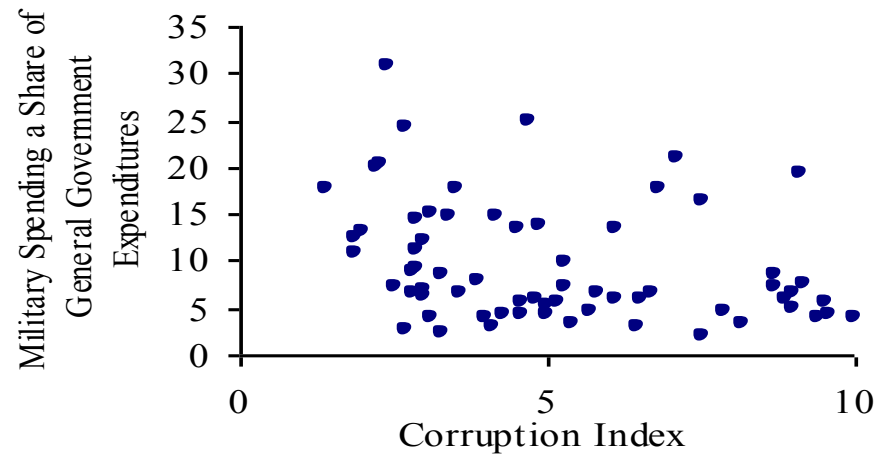
Figure 3. Distribution of countries according to corruption index and military expenditure weight in GNI



Next, we examined the relationship between the corruption index and the weight of military expenditures in total governmental expenditures (*mege*). The linear coefficient of correlation calculated for these two variables is -0.31 , indicating that military budgets as a share of governmental expenditures are higher in those countries that have higher corruption. A significant correlation coefficient (-0.29) characterizes also the

relationship between the 2000 corruption level and military budgets as share in governmental expenditures in 1997.

Figure 4. Distribution of countries according to corruption index and weight of military expenditure in governmental expenditure



As Figure 4 reveals, the higher the corruption level (the closer the values of this indicator are to 1), the more substantial the weight of military budgets in total governmental expenditures. The linear regression model is as follows:

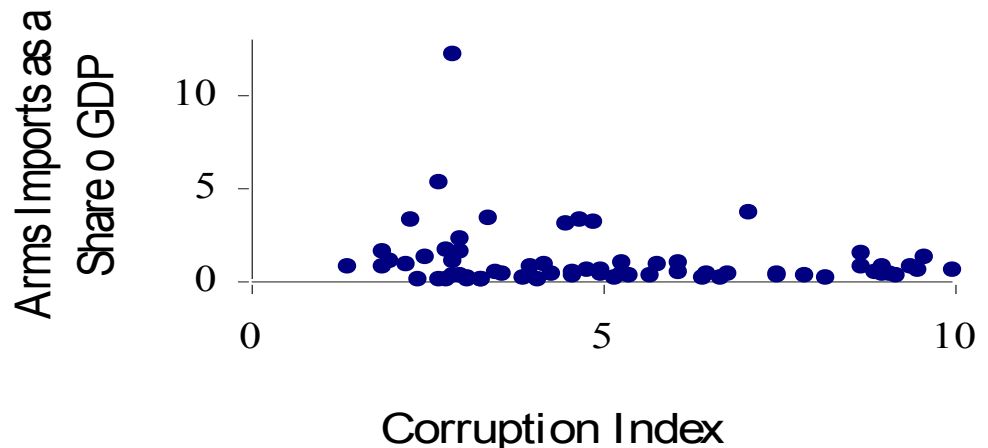
$$mege_i = 13.73 + 0.824 ci \quad F = 7.24$$

$$(1.72) \quad (0.31)$$

The statistically significant F indicates a linear dependence between the two variables. Higher corruption seems to be associated with higher military expenditures as a share of total governmental expenditures. For each one unit increase in the corruption level, the weight of military expenditures in total governmental expenditures increases by 0.82 percent. Often such increases do not result in higher standards for the defence systems or improved quality, but rather in preferential uses of public funds by various interest groups.

Lastly, we analyzed the relationship between the corruption index (*ci*) and arms imports as a share of GDP (*iagdp*). The correlation coefficient was $-.20$, indicating that arms imports hold a higher weight in GDP in those countries where the corruption level is higher. Figure 5 displays the relationship between these two variables.

Figure 5. Distribution of countries according to corruption index and arms imports as a share of GDP



For variables ci and $iagdp$, the regression linear model is defined as follows:

$$iagdp_i = 1.72_{(0.489)} + 0.14^*_{(0.087)} ci_i \quad F = 2.60^{**}$$

* 11%; ** 11%.

The model suggests that each one unit increase in the corruption level is associated with a .14 percent growth in the value of arms imports as a share of GDP.

In sum, we found that corrupt countries tend to have higher military spending as a share of total government spending and that countries with high corruption tend to spend more on arms imports as a share of GDP.

V. Discussion and Conclusions

In examining the links between corruption and human development and military spending, this study has found that that high corruption is associated with slow human development, high military expenditures as a share of total government expenditures, and high arms imports as a share of GDP.

While the findings do not specify the direction of causation, it should be noted that the regression model that relates human development to corruption might have causal arrows pointing in both directions. First, high levels of corruption have

a number of effects on slow human development. Corruption increases transaction costs and uncertainty in the economy; skews the policy-making process and results in inefficient and irrational outcomes, and leads to wider income disparities because those with political influence gain more advantages. Corruption is also regressive in that it lays a larger burden on small and medium size business who need to set aside a larger share of their time and income to deal with it (Salem, 2003).

But low levels of human development may also have a causal effect on levels of corruption. In poor and developing countries, institutions that are expected to oversight politicians and individuals in power are likely to be weak. Further, high levels of government control, economic monopolies, and complicated regulations increase the opportunities and incentives for corruption. Among middle and low level public servants, low salaries often provide motivation for corruption. In addition, weak insurance and social security environments, and inefficient labor markets, provide additional incentives for civil servants to make the most of their current jobs. Finally, as Salem (2003) noted, populations with primary food, housing, health and educational concerns have pressing immediate concerns and are more likely to develop clientelistic relations with politicians rather than hold them broadly accountable to principles of integrity and transparency.

From the above discussion, it is clear that human development and corruption are in a mutually dependent relationship to each other and that changes in one area are likely to affect the other, and that any general strategy must target both at the same time.

The link we established between corruption and military expenditures warrants further discussion as well. Again, while causation has not been determined by the regression models, it is worth discussing the various channels through which corruption may be associated with military spending. First, the arms manufacturers, both domestic and international, may resort to giving bribes to corrupt politicians to win contracts. The end of the Cold War brought has increased competition among arms producers and the arms industry in many countries has gone through significant restructuring in recent years, compelling them to scout aggressively for markets abroad, often in countries with high levels of corruption. Defence projects tend to be relatively expensive, thus increasing the willingness of companies to bribe government officials to help them win a contract. Second, the secrecy surrounding military projects often creates opportunities for corruption. As Gupta (2001) noted, defence contracts are in many countries excluded from freedom of information legislation and many not be liable to auditing and legislative approval. Transactions in the arms imports are particularly difficult to be controlled by the civil society. Third, the military sector often engages in

commercial business operations or controls natural resources, thus providing further opportunities for corruption.

Since this study has not linked all three concepts (corruption, development, and military expenditures) in its empirical models, further studies should examine whether military expenditures induced by high levels of corruption reduces development. Another avenue of research would be to investigate through empirical studies whether, in countries with low corruption indices, military expenditures stimulate growth and human development. The transfer of new military technologies to civil life and the accumulation of human capital with the military R&D sector could in fact accelerate economic and human development in societies with low levels of corruption.

Future studies that plan to examine the relationships among the three components would also need to take into account factors such as the degree of political stability, the political orientation of the government, and the political power of the military in society.

In light of these findings, the accession of a country to NATO is not only an issue of military strategy, but also one that has major implications for corruption and development. The political, economic, and military stability that NATO brings to member countries is expected to contribute in the long run directly to economic growth, thus

attracting foreign capital and stimulating native capital development. Economic growth will in turn reduce corruption.

NATO accession will have other beneficial effects. It will support Eastern European nations in their plight for EU membership, encouraging investors to come to these countries. The Eastern European countries that were accepted in the first wave in 1999 hold the highest proportion of foreign capital in the region. The per capita foreign investment accumulated between 1989 and 2000 was \$1,935 in Hungary, \$2,102 in Czech Republic and \$751 in Poland. For the other countries, the corresponding values are \$161 for Albania, \$407 for Bulgaria, \$303 for Romania, \$768 for Slovenia, \$669 for Slovakia, 1337 for Estonia, 1027 for Latvia and 642 for Lithuania;

NATO membership is also expected to bring modernization to the native industries that provide army logistics. One should also not ignore the spillover effects induced by these economic units into the larger economy.

Lastly, one should not overlook the moral support and other beneficial psychological effects this event had on the general population. NATO accession was regarded favourably by most citizens of candidate countries.

While the NATO accession process will require higher costs in order to bring up the military sector to meet the requirements of modern

defence systems, in the long run, it will be seen as a substantial gain for the candidate countries due to the neighbouring effects that spread over at economic and social levels. For Western Europe, this process is also beneficial as it creates a stable economic space outside “old “ Europe, which meets the exigencies of EU standards.

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Biographical Sketch

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