Military Spending and Economic Growth in the Countries of East Asia and the Pacific Region

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Abstract

This study examines the causal relationship between military spending and economic growth by using the more comprehensive panel data approach within the framework of the economic growth model, as well as by developing an additional case study of eight countries in East Asia and the Pacific Region. The result of the relationship between military spending and economic growth, as it can either be positive or negative depending upon a country's specific circumstances. Caution is warranted in relating military spending and economic growth, as priorities, goals and national security concerns of nations can vary considerably.

Keywords: Military Spending; Economic Growth; Panel-Data Approach; the Countries of East Asia and the Pacific Region.

1.   Introduction

There is a long debate regarding the relationship between military spending and economic growth. The debate was first initiated by Benoit (1973, 1978) who found a positive relationship between the two. To test the validity of Benoit's findings a good number of empirical studies with the help of advanced econometric technique have been carried out subsequently. But to our utter surprise, the studies could not arrive at any consensus regarding the matter. The same remark is applicable to the case of economic growth also. Though there are considerable studies with regard to the determinants of economic growth, no

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conclusive results have been obtained about the number and nature of factors determining economic growth.

The number and nature of variables affecting economic growth vary across countries depending upon each country's unique socio-economic and geographic factors. As per the findings of Solow-Swan (1956) Neo-classical growth model, under steady-state equilibrium situation, the factors like the prevailing technology, the exogenous rates of saving, population growth, and technical progress affect the real level of GDP per capita. The model points out to the fact that countries with higher saving rates will have higher levels of income, and vice versa under given conditions. This conclusion was valid for the past four decades since 1956. This conclusion has, however, been challenged by the modern critics who opine that the Solow-Swan (1956) model can not explain the observed differences in per capita income among different countries under different socio-political structure. The critics are of the opinion that the endogenous growth model can explain the determinants of economic growth adequately since it assumes both constant and increasing returns to capital.

More research works have been undertaken in recent times to reconcile between the different implications of both the exogenous and endogenous growth models (Khan and Yim, 2000; Mehanna, 2001). The researchers at present attach utmost importance to the issue of convergence. That is, in order to reduce the income-gap between the rich and poor countries, the poor economy should grow at a higher rate per capita than a rich country. The recent studies put emphasis upon the fact that a macroeconomic policy framework conducive to growth is essential. The economists agree to the fact that the relationship between long-term growth and inflation is negative while the relationship between long-term growth and good fiscal performance as well as undistorted foreign exchange markets is positive (Fischer, 1993).

Actually, macroeconomic policies may affect growth in many different ways. Some policies are conducive to growth while others affect growth negatively. Of course, there may be some policies whose impact on growth may not be clearly spelt out. Military spending is one of such policies. There are many factors like economic base, population growth, unemployment rate, investment in physical and human capital, flows of foreign investment, industrial growth, inflation, development of financial institutions, the level of global economy etc., which affect economic growth. But of all the factors, military spending and foreign aid are now considered to be the most important determinants of economic growth particularly in the context of developing countries (Benoit, 1973, 1978; Ball,

1983; Joerding, 1986; Chowdhury, 1991; Looney, 1991; Madden and Haslehurst, 1995; Kolliar and Makrydakis, 1997).

However, we can not arrive at any definite conclusion regarding the relationship between defense expenditure and economic growth on the basis of available empirical findings and theoretical framework since they are not adequate to substantiate the conclusion. Of course, we may sum up some popular theoretical explanations about the relationship between defense expenditure and economic growth in the following:

1. Defense expenditure can exert positive influence upon economic growth of a country either through an increase in aggregate demand or through an increased security of a country. Four arguments are given in support of this relationship:

    a) Military spending leads to an increase in economic growth in an economy through the Keynesian multiplier effect. The multiplier effect of military spending is likely to be stronger in developing countries.

    b) Military spending encourages the adoption of technologies to produce civilian goods which is likely to create employment opportunities conducive to growth.

    c) A major portion of the defense expenditure is meant for infra-structure build-up of a country like roads and highways, airport, information technologies etc. Therefore, military spending is expected to promote economic growth.

    d) Defense expenditure may create a favorable climate for trade and investment for both the local and foreign investors by strengthening internal and external security of a country and as a result, economic growth is promoted.

2. There is on the other hand, negative or inverse relationship between economic growth and military spending. The following arguments are given in support of this relationship:

    a) An increase in military spending is likely to crowd out more growth-oriented public and private investment which may affect long-run economic growth adversely. The defense expenditure may crowd out R & D activities of the private sector which leads to technological innovations that spill over faster to civilian sector than those of the

defense sector. It should be pointed out here that most of the innovations in the defense sector are not useful for the civilian sector as is evident from the empirical observations.

b)   Defense expenditure may lead to disequilibrium in the balance of payments if hard-earned foreign exchanges are used to purchase arms and defense hardware.

c)   Resources are diverted from the export sector to the defense sector due to military spending and as a result, the export sector which is regarded as engine of growth is adversely affected.

d)   Last but not the least, military spending affects growth adversely since it gives rise to bureaucratic inefficiency due to excessive wastage of resources and extra burdens upon the public imposed by taxes required to finance defense expenditure.

From the above discussion it is evident that military expenditure may have both positive and negative influences upon economic growth. The net effect, of course, will depend upon the relative strength of the two opposing forces.

Like military spending, foreign direct investment (FDI) is also regarded as an important determinant of economic growth by a group of economists. The country barriers to foreign investment since the 1980s have actually given way to countries actively seeking FDI in stead of discouraging it. There is a keen competition among the governments of the developing countries to invite more investment from foreign companies. FDI plays a vital role in the economic development of a country. It develops a country's production capacity in all sectors of the economy, facilitates the use and exploitation of local raw-materials, introduces modern techniques of management, helps to get easy access to new technology, increases the stock of human capital via on the job training, stimulates R & D activities, links a country with global economy and ensures competitiveness. As per the new theory of economic growth, FDI is likely to affect both the level and rate of output per capita. It is usually held that defense expenditure can exert significant influence upon FDI, a factor of vital importance for economic growth.

2.   Objectives and Scope of the study

In this paper we have made an attempt to examine the relationship between military spending and economic growth in the context of multivariate economic framework in the eight countries (China, Indonesia, South Korea, Malaysia,

Papua New Guinea, Philippines, Thailand and Vietnam) of East Asia and the Pacific region over the period from 1980 through 1999. The main focus of the paper is to determine if military spending has any impact on economic growth and FDI, to make a political economy analysis of the issue, and to analyze the policy implications of the findings of the study.

The paper contains nine sections. Section-1 gives a prelude to the study, Section-2 states the objectives and the scope of the study. Section-3 presents a brief review of the research works done on the issue while Section-4 describes the rationale for the study. Section-5 narrates the hypotheses, the conceptual framework of the model or the research methodology and the nature of data used in this study while Section-6 gives an analysis of empirical results. Section-7 narrates the political economy of military spending in the countries of East Asia and the Pacific region while Section-8 gives the conclusion and analyzes the policy implications of the findings of the study.

3.   A Brief Review of the Research Works done on the topic

A good number of research works have been done on the issue of economic growth and military spending. A majority of them used cross-country or panel data approach to investigate the issue. Though most of these studies used the standard Neo-Classical growth models or its extended version, which includes human capital, more recent studies focus on endogenous growth models. The convergence hypothesis of the Neo-Classical growth model stated above has been totally discarded by Romer (1986) and Lucas (1988). They are of the opinion that the issue of convergence is a conditional one since it is influenced by factors like the rate of savings, the growth rate of population, the marginal productivity of labor, and so on. The lower the level of income, the greater the opportunity of catching up through higher rates of capital accumulation and diffusion of technology. The main conclusion of all the recent studies taken together may be summarized as follows:

A country's growth over a long period is basically determined by three factors such as (a) the efficient utilization of the existing stock of resources, (b) the accumulation of productive resources such as human capital, and c) technological progress. However, these factors can be broken down further into various determinants of economic growth (Dewan and Hussein, 2001).

Many research works have been undertaken on the relationship between military spending and economic growth, but none of them has been able to arrive at any definite conclusion regarding the exact nature and direction of relationship

between the two. Benoit (1973, 1978) was the first to carry on study on the issue of military spending and economic growth who found a positive relationship between the two. But this methodology was questioned by Ball (1983) and subsequently, many research works by researchers like Joerding (1986), Manage and Marlow (1986), Kinsella (1990), Looney (1991), Chowdhury (1991), Chen (1993), Hasan (1994), Kusi (1994), Dunne (1996), Kollias and Makrydakis (1997) have been carried out using rigorous econometric tools to test the validity of Benoit (1973, 1978)'s findings, and to overcome the analytical deficiency in his study. There have been studies using single equation analysis, simultaneous equation systems and large macroeconomic models, all developed from a variety of theoretical perspectives. Studies have been applied to different cross-sectional samples of countries, time series for individual countries, and pooled time series and cross-sectional data. None of the studies, however, could arrive at any consensus on the issue.

Recent studies used Granger (1969) causality test to examine if there is any effect of military spending on growth and vice versa. Joerding (1986) used two measures of military spending and growth for 57 less developed countries (LDCs) for the period from 1962 to 1977 and found no impact of military spending on growth. Kinsella (1990) studied the causal relationship between military spending and output. Chowdhury (1991) used a Granger-causality test to analyze the causal link between military spending and economic growth and found no consistent result across different countries. Looney (1991) found positive relation between military spending and growth for Pakistan and negative relation between the same for India. Chen (1993) found no significant relationship between military spending and economic growth for China.

However, Hasan (1994) found positive relation for China when he reworked Chen's data with VAR methods. Madden and Haslehurst (1995) found no causal link between the two. Kollias and Makrydakis (1997) also found no causal link between military spending and economic growth using Greek data. Hassan et al. (2002) studied the relationship between the two in the seven SAARC countries in the context of a multivariate economic growth framework using a panel data approach and found positive relationship. Hassan (2003) also examined the impact of military spending on growth using a panel data of 95 countries and 8 MENA (Middle East and North African) countries. The main objective of his study was to examine the important factors that contribute to FDI and economic growth in the 95 countries of the world as a group and to compare them with those of MENA countries. In this study Hassan (2003) found significant negative relationship between military spending and economic growth while he found

positive relationship between military spending and FDI. However, we cannot draw any clear-cut conclusion from this analysis. We must carefully assess various supply-side (spin-offs from technology or infra-structure) and demand side (resource diversion) factors before we make any generalizations.

A host of macroeconomic variables like globalization index, ICT (Information and Communication Technology), human capital, population growth, gross domestic investment, government expenditure, foreign direct investment (FDI), inflation rate, exchange rate, military expenditure, and per capita income, influence economic growth. Military spending (Hassan et al., 2002), population growth (Hassan, 2003), ICT, human capital (Barro, 1991; Benhabib and Spiegel, 1994; Becker et al., 1990; Sach and Warner, 1997; Barro, 1997), and globalization or the degree of openness to the global economy (Gallup et al., 1998) influence growth positively while inflation (Mankiw, Romer and Weil, 1992; Barro, 1997; Fisher and Modigliani, 1998), and government expenditure (Levine and Zervos, 1993; Barro, 1991; Hassan et al., 2002) negatively influence economic growth. The negative impact of inflation and government expenditure upon economic growth is not supported by the findings of Clark (1993) and Hassan et al. (2002) although the result obtained by Hassan et al. (2002) is not statistically significant. Economic growth is influenced positively by domestic and foreign investment, FDI, while the impact of per capita income upon economic growth is negative though not significant (Hassan et al., 2002).

The impact of FDI upon economic growth is not very clear. The impact of FDI upon economic growth is found to be positive by Schneider and Frey (1995), Tsai (1994), Lipsey (1999), and Hassan (2003) while Edward (1990) found negative relationship between FDI and economic growth. The quality of infrastructural development (Wheeler and Mody, 1992; Kumar, 1994; Loree and Guisinger, 1995) and openness to international trade (Edward, 1990; Gastanaga et al., 1998) affect FDI positively (Asiedu, 2002). Asiedu (2002) found the positive impact of infrastructure development on FDI significant in all countries save Africa. However, Hassan (2003) finds none of the economic factors significant in explaining FDI in MENA countries. In the SAARC countries Hassan et al. (2002) found positive relationship between FDI and globalization/information technology and negative relationship between FDI and each of the factors like human capital, population growth, exchange rate, per capita income and military expenditure.

4.   Rationale for the Study

From the above review of research works done on the issue of military spending and economic growth it is quite evident that researchers have tried to ascertain the

relation between military spending and economic growth through the estimation of single equation and simultaneous equation models and more recently, through the application of techniques that investigate causal links. The researchers have made both extensive cross-country analysis and detailed case studies of individual countries to ascertain the causal relation between the two; but none of former could arrive at any uniform conclusion regarding the issue. Our present study is expected to make additional contribution to the issue in the following ways:

a)   It provides a further case study of eight countries of East Asia and the Pacific Region.

b)   The present study goes beyond the standard "Granger Causality" econometric techniques used in previous econometric works, and uses a panel data approach within the framework of economic growth model.

In the light of the above stated facts we can say that our approach is more comprehensive than the earlier ones and here lies the justification for undertaking the present study.

5.   Methodology of the study

5.1.   Formulation of Hypotheses

In this paper the following hypotheses have been developed and tested based on the above review of research works done on the issue of economic growth, military spending, and FDI:

H_1 : The impact of military expenditure (ME) on growth and FDI is ambiguous.

H_2 : Globalization (GI) affects both economic growth and FDI positively.

H_3 : ICT infrastructure (ICT) affects both growth and FDI positively.

H_4 : The impact of human capital (HC) on growth and FDI is positive.

H_5 : The impact of population growth (PG) on economic growth and FDI is ambiguous.

H_6 : Gross domestic investment (GDI) affects economic growth and FDI positively.

H_7 : The impact of government expenditure (GE) on economic growth is negative, but its impact on FDI is ambiguous.

H_8 : FDI affects growth positively.

H_9 : GDP growth affects FDI positively.

H_{10}: The impact of inflation (IR) on economic growth and FDI is ambiguous.

H_{11}: Exchange rate fluctuation (ER) affects growth and FDI negatively.

H_{12}: Per capita income (PCI) affects both growth and FDI positively.

5.2. Sources and Nature of Data used in this Study

Data for this study are taken from World Development Indicators, International Financial Statistics, the World Telecommunication Development Report, and the UNESCO database. The analysis is based on data from a cross section of eight countries of East Asia and the Pacific Region over the period from 1980 through 1999. Data description and their nominal statistics are provided in Table 1.

5.3. Specification of the Model
The hypotheses presented above are represented by the following equations:

$$(GDP\ growth)_{it} = \beta_0 + \beta_1(Y_0) + \beta_2(GI)_{it} + \beta_3(ICT)_{it} + \beta_4(HC)_{it} \qquad 1)$$
$$+ \beta_5(PG)_{it} + \beta_6(GDI)_{it} + \beta_7(GE)_{it} + \beta_8(FDI)_{it}$$
$$+ \beta_9(ER)_{it} + \beta_{10}(IR)_{it} + \beta_{11}(ME)_{it} + E_{it}$$

$$(FDI)_{it} = \beta_0 + \beta_1(Y_0) + \beta_2(GI)_{it} + \beta_3(ICT)_{it} + \beta_4(HC)_{it} \qquad 2)$$
$$+ \beta_5(PG)_{it} + \beta_6(GDI)_{it} + \beta_7(GE)_{it} + \beta_8(GDP\ growth)_{it}$$
$$+ \beta_9(ER)_{it} + \beta_{10}(IR)_{it} + \beta_{11}(ME)_{it} + E_{it}$$

where,
Y_0 = initial GDP per capita (denoted by GC);
GI = globalization index (an indicator of market openness);
ICT = information and communication technology infrastructure;
HC = human capital;
PG = population growth;
GDI = gross domestic investment;
GE = government expenditure;
FDI = net foreign direct investment inflows;
ER = exchange rate;
IR = inflation rate;
ME = military spending;
E = error term;
i = represents each sampled country;
t = represents each year.

5.4. Analytical Techniques

In order to estimate the model we have used the generalized least squares (GLS) regression analysis. To estimate the parameters of the two equations – one for GDP growth and the other for FDI, both the pooled cross-section regression and fixed effect panel regression have been used. To avoid possible cross-sectional heteroskedasticity and contemporaneous correlations we have used the generalized least square (GLS) regression analysis since this method uses cross-sectional weights of residuals to calculate the variance of the residuals. In this pool regression model, the intercept terms are restricted to be identical, i.e., there is no country-specific variations so that . We have also used the fixed effect panel regression in this study since this is an efficient technique when there are a large number of cross-sectional units with diverse qualitative variations.

In our study we have eight countries, some of which are less developed or less underdeveloped relative to others. In such situation, an unrestricted intercept term is more plausible. The fixed effects estimation allows to vary across section units so that we get different constants for different countries. In other words, and In this case also we have used the GLS method to estimate the parameters. All estimates are adjusted for white heteroskedasticity-consistent standard errors and covariance.

6.   Analysis of Empirical Result

In the pooled cross-section regression of GDP growth we find the effects of human capital, gross domestic investment, government expenditure and inflation rate on economic growth statistically significant in the countries of East Asia and the Pacific region. Gross domestic investment, government expenditure, and inflation rate positively influence the GDP growth while human capital negatively affects the GDP growth. The effects of gross domestic investment, and inflation rate are found as expected while the impact of government expenditure is found positive and the impact of human capital on GDP growth is found negative contrary to our belief. The impact of ICT infrastructure, population growth and exchange rate on GDP growth is positive, and the impact of globalization index, FDI, military expenditure, and per capita income is negative, but none of them is statistically significant.

However, when country-specific variations are allowed in fixed-effect model, the human capital, gross domestic investment, government expenditure still remain significant with the same signs as in the pooled cross-section regression of GDP growth, but inflation rate becomes insignificant though with the same positive

sign. Globalization index, exchange rate, ICT infrastructure, still remains insignificant with same signs while population growth, FDI flows, military expenditure, and per capita income remain insignificant with different signs.

In the pooled cross-regression, the insignificant negative impact of military spending upon GDP growth contradicts with the findings of Hassan et al. (2002) in the SAARC countries. The globalization index, and per capita income are found to have negative impact upon GDP growth and exchange rate has positive impact upon GDP growth contrary to our expectation, but none of them are statistically significant. The human capital affects GDP growth negatively while government expenditure affects GDP growth positively contrary to our belief. However, their effects are statistically significant. The impacts of globalization index, ICT configuration, human capital, government expenditure, FDI flows, exchange rate, and military expenditure on economic growth as found in this study (i.e., in case of the countries of East Asia and the Pacific region) do not conform to the study by Hassan et al. (2002) in the SAARC countries. It should be pointed out here that the GDP growth rate in the countries of East Asia and the Pacific region is poorly explained with the above explanatory variables. Only four out of eleven explanatory variables are found significant in pooled regression.

Overall, when the country-specific variations are allowed, the fixed effect model cannot explain the variations better than the pooled cross-section model as reflected in the adjusted R^2 value, which is 70 percent in the former, a jump from 92 percent in the pooled cross-section model. However, the F-value is very high in the fixed-effect model.

When we regress foreign direct investment (FDI) against a set of explanatory variables, in pooled cross-section model we find the impacts of globalization index, GDP growth and per capita income negative on FDI flows contrary to our expectation and the impacts of ICT configuration, human capital, population growth, gross domestic investment, government expenditure, inflation rate, and military expenditure on FDI flows positive, and the impact of exchange rate on FDI negative as per our expectation; but the impacts of all the variables are statistically insignificant.

In the fixed-effect model, the negative effects of globalization index, GDP growth on FDI becomes positive, the positive effects of ICT configuration, human capital, population growth, inflation rate on FDI still remain positive, the positive effects of gross domestic investment, government expenditure, and military expenditure become negative, and the negative effects of exchange rate, and per capita income still remain negative; but the effects of all the explanatory variables

are not at all statistically significant. In the pooled cross-section model, the effects of all the explanatory variables except ICT configuration, exchange rate, and per capita income on FDI as found in this study do not conform to the same as found by Hassan et al., (2002) in case of SAARC countries.

Overall, the fixed-effect model explains the variations better than the pooled cross-section model as reflected in the adjusted R^2 value, which is 61 percent in the former, a jump from 37 percent in the pooled cross-section model. F-value is also higher in the fixed-effect model compared to the same in pooled cross-section model. However, it should be pointed out here that the findings of our present study relating to the impacts of all explanatory variables on economic growth and FDI as stated above are not fully consistent with the findings of other studies across countries of different regions such as Eastern Europe and Central Asia, (Hassan et al., 2003), SAARC countries (Hassan et al., 2002), and Sub-Saharan African region (Hassan et al., 2003).

7.   Political Economy of the Military Expenditure in the countries of East Asia and the Pacific Region

Though we have not been able to show statistically the consistent relationship, positive or negative, between military spending and economic growth, we cannot deny the fact that some sort of connection exists between economic growth and military expenditure. If we look at the history we find both military power and economic power go hand in hand. In some cases, military power dominated over the economic power and in some other cases, economic power dominated over the military power. Therefore, it is difficult to generalize which precedes what: military power precedes economic power or economic power precedes military power. For instance, the United States, Japan and China have relied on economic prosperity to finance formidable military forces. On the other hand, the erstwhile Soviet Union (presently Russia), Iraq and North Korea have relied on their military to build economic power with little or limited resources.

The economic power of a country in broad terms refers to the capacity to influence other states through economic means. It is composed of a country's industrial base, natural resources, capital, technology, geographic position, health system and education. On the other hand, military power is the capacity to use force, or the threat of force to influence other states. The components of military power are number of divisions, armaments, organization, training, equipments, readiness, deployment and morale. In recent times, situation has changed. Now, economic power has come to dominate over military power. In fact, it is the economic power that enables a country to acquire or obtain military power.

Though it is possible to convert military power back into economic power peacefully, it is too expensive to do so. It is extremely risky to build economic power by the forceful use of military power. Because it can have counter-productive side effects in the form of economic sanctions, without corresponding levels of economic power military power also cannot sustain for long. The cases of the erstwhile Soviet Union and Iraq may be cited as examples. Therefore, economic power is a pre-condition that allows military power to be built up.

In fact, there are both supply side and demand side factors that influence defense requirements and military spending. The demand side factors are : 1) confrontation with neighbors, such as a) territorial and sovereignty disputes, b) competition over natural resources, c) managing bordering ethnic people, d) dealing with refugees, e) instability of a neighbor, and f) nationalist and political posturing; 2) regional power relations, whether in co-operation or opposition; 3) a desire for prestige; 4) co-operative efforts with the UN, and other coalitions and countries, including peace-keeping operations, humanitarian assistance, and disaster relief; 5) obligations of treaty commitments; 6) negative, transnational issues (e.g., pollution, deforestation, oil spills); 7) protection of micro-economic factors such as watersheds, local sea-lane, exclusive economic zones, marine resources, fisheries; 8) maintaining domestic law and order; 9) the need to modernize forces due to competition and changing technologies.

The supply side factors are the conditions that improve resource availability. The supply side factors are : 1) economic growth and income, 2) a smoothly functioning military-industrial complex and industrial base, 3) the domestic availability of defense resources, such as manpower, natural resources, and industries, 4) objects purveyed by friends and allies, 5) assistance specified in treaties, and 6) intangible things like the perceived reliability of external assistance.

The sustainability of an economy is a function of the health of the economy and the degree of defense spending, With the Asian economic downturn of 1997, the defense spending dropped in the countries of East Asia and the Pacific region since their budgets were put on an austerity basis. For these countries the defense share is under 4 percent of GNP. According to the estimate of the International Institute for Security Studies, the country average of defense share for East Asia, Australia, New Zealand and the Pacific Islands was 3.7 percent of GDP and for the more contentious South Asia was 5.3 percent of GDP in 1999. Many Asian governments embarked on military modernization programs in the decade up to 1997 Asian financial crisis. During that period the defense expenditures of the

countries of the East Asia and the Pacific region in particular, and Asian countries in general modestly increased at a rate of about 2 percent annually. Asian countries with high long-term real growth in defense expenditure over the period from 1991 to 2000 were Singapore (8 percent per year), India (5 percent per year), and China (6 percent per year) (Stockholm International Peace Research Institute or SIPRI).

China's defense spending is by no means transparent. For many years, much of China's official budget was absorbed by high inflation rate. To estimate defense spending in China is difficult due to the inadequate accounting methods used by the People's Liberation Army (PLA). According to some estimates (International Institute for Strategic Studies or IISS estimate; U.S. Arms Control and Disarmament Agency or ACDA estimate), China is the biggest spender on defense in the region. China has to maintain its military strength so as to face external threats from neighboring countries like India, Taiwan etc. and to suppress rebellion in Tibet and the possibility of capitalist uprising at home, among others. China is criticized for promoting insurgencies and civil disorder by selling small arms to neighboring friendly countries like Pakistan and Burma.

In Vietnam, defense spending declined during the 1980s, but since 1990 it shows an annual 14.9 percent increase. Even during the regional prosperity of the mid-1990s, Vietnam had the tenth largest armed force in the world. Vietnam's defense share of GNP declined from 19.4 percent in 1985 to 3.1 percent in 1999 and is comparable to the average for Southeast Asian countries. Vietnam spends for defense mainly for security reasons and infra-structure build up.

Thailand's defense expenditure figure is underestimated since discrepancies exist between the budgeted and on-board numbers of soldiers. The budget does not include paramilitary functions or covert programs. It lays stress upon defense budget to suppress insurgencies and to face external threats from neighboring countries like Burma, Laos and Cambodia.

The Philippines has undertaken ambitious modernization program for armed forces which is off-budget. Figures intermingle humanitarian assistance, disaster relief, civic action and nation-building programs.

Indonesia embarked on an ambitious program to obtain submarines and frigates. However, typical of a procurement binge, it did not calculate the sustainability of the gear in terms of maintenance, facilities, and operations. Defense expenditure in Indonesia mainly aims at suppressing rebellion at home and resisting external threats, if any. Similar is the case with South Korea, Malaysia and Papua New Guinea.

From the above discussion, it is evident that in the countries of East Asia and the Pacific region, military expenditure is mainly done for security reasons, not for economic growth and the extent of military expenditure depends, in most part, upon the economic strength of a country concerned. Since military expenditure is an input measure, it cannot by itself promote economic growth because economic growth not only depends on the input of resources, but also on cost effectiveness – what we buy with our money. Cost effectiveness in turn depends on factors such as the various components of defense budget and the percentages they take, the pattern of recruitment, the technological level, and the methods of procurement (import or domestic production as well as infrastructure development). Military expenditure is most useful and meaningful when it is disaggregated into its various component parts. Unfortunately this is not the case in most of the countries of East Asia and the Pacific region. Therefore, it is difficult to generalize or ascertain the impact of military expenditure, positive or negative, upon economic growth on the basis of available data.

8.   Summary, Conclusion and Policy Implications

Our results indicate that the sets of variables that affect GDP growth and FDI are not always the same. We find significant positive impacts of gross domestic investment, government expenditure, inflation rate, and significant negative impact of human capital on GDP growth, but we do not find their any significant impact, positive or negative, on FDI. Of course, the impacts of gross domestic investment, government expenditure, and inflation rate on FDI still remain positive though not significant while the impact of human capital on FDI becomes positive but insignificant.

Military spending is found to have insignificant negative influence upon GDP growth in pooled cross section regression and insignificant positive influence upon GDP growth in fixed effect model while it has insignificant positive influence upon FDI in cross-section regression and insignificant negative influence upon FDI in the fixed effect model.

Therefore, the impact of military spending upon both GDP growth and FDI is not consistent and therefore, inconclusive. However, though we are unable to ascertain the relationship between military spending and economic growth or between military spending and FDI, we cannot deny the fact that military spending has some sort of influence on economic growth and FDI. Military spending may bring overall stability in the country by providing security against all external threats and aggression and thus creates a congenial atmosphere both for economic growth and FDI. There is a popular belief that developing countries

gain more from defense spending vis-à-vis the developed countries, as benefits are more widespread across the economy in those countries.

Of course, the growth concepts are not usually kept in mind while money is spent for military purpose. This is more true in the Third World countries. The comparisons between military spending and GDP growth may be misleading sometimes. The proportion of national resources allocated to defense reflects the perceptions of national elite and decision making circle, which is largely guided by the security consideration of the country concerned. This is not expected to represent any comprehensive plan of sound investment where large-scale social and human welfare exist (Hassan et al., 2002). In most of the countries of East Asia and the Pacific region, resources are transferred to defense at the cost of their socio-economic development and growth. The question of national security should be intrinsically linked up with human resource development in these countries which could be fruitfully utilized for human resource development and GDP growth. No security plan would be sustainable one even if the size of military build up is very big unless there is an improvement in the condition of the general masses.

Therefore, for sustainable development and everlasting security, priority should be given upon the development of human resource and not upon military build up. In order to develop human resource, the associated measures like better access to education and training, better sanitation and health care facilities should be undertaken. Only military security is not enough to attain the long cherished goal of growth and development. So, it is imperative upon us to carefully assess various supply side (spin-offs from technology or infrastructure) and demand side (resource diversion) factors to analyze the impact of military spending on growth. There is no doubt that military spending has some positive impacts as trickling down effect in terms of employment and infrastructure development. But their magnitude would not be very large compared to the loss of benefits to be derived from the alternative use of resources spent for defense. Therefore, it is very essential to reassess national priorities in the backdrop of social development and opportunity cost for human resource development in particular and social wellbeing in general.

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Table 1: Summary Statistics of Variables: Eastern Asian and Pacific Countries

	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis
GG	3.95	5.70	12.80	-16.70	6.38	-1.62	5.40
IT	-1.00	-1.36	1.66	-1.67	0.78	1.92	6.15
GE	18.58	18.60	29.40	8.00	5.68	0.08	3.29
IV	30.43	28.00	43.00	14.00	8.23	0.06	1.74
IR	9.02	7.35	26.30	3.90	5.32	1.62	5.10
HC	61.18	60.00	102.00	14.00	23.82	-0.33	3.18
PG	1.89	1.85	2.70	1.10	0.49	-0.01	1.76
FI	7433.63	2325.00	44236.00	-2745.00	12957.36	2.15	5.96
GB	0.24	0.19	0.44	0.16	0.10	1.06	2.44
ER	2235.78	30.50	13916.00	1.00	4171.37	1.72	4.29

Table 2 : Regression Estimates of Pooled Cross-Section and Panel Fixed Effect Models (GLS), East Asia and the Pacific
(Dependent Variable: GDP Growth Rate)

Explanatory Variables	Pooled Cross-Section GLS (N = 8)	Fixed Effect GLS (N = 8)
Globalization		
GI (Globalization Index)	-0.041 (-1.539)	-0.054 (-1.018)
Infrastructure		
ICT (ICT Configuration)	0.958 (1.453)	1.026 (1.600)
HC (Human Capital)	-0.073** (-2.281)	-0.331** (-2.297)
PG (Population Growth)	1.493 (0.773)	-3.497 (-0.922)
National Investment		
GDI (Gross Domestic Investment)	0.327** (2.591)	0.345** (2.391)
GE (Government Expenditure)	0.934*** (4.936)	1.082** (2.246)
FDI (FDI Inflows)	-1.04E-11 (-0.294)	9.88E-12 (0.156)
Economic Factors		
IR (Inflation Rate)	0.185*** (4.303)	0.033 (0.811)
ER (Exchange Rate)	0.0003* (1.855)	0.004 (1.099)
ME (Military Expenditure)	-0.146 (-0.223)	0.895 (0.854)
GC (Per Capita Income)	-1.93E-05 (-0.115)	0.003 (1.303)
Constant	-12.451* (-1.756)	–
R^2	0.94	0.83
Adjusted R^2	0.92	0.70
F-Value	38.74	233.65

t-statistics in parentheses
* $p < .05$
** $p < .01$
*** $p < .001$

Table 3 : Regression Estimates of Pooled Cross-Section and Panel Fixed Effect Models (GLS), East Asia and Pacific
(Dependent Variable: Foreign Direct Investment)

Explanatory Variables	Pooled Cross-Section GLS (N = 8)	Fixed Effect GLS (N = 8)
Globalization		
GI (Globalization Index)	-41840252 (-0.744)	70391231 (1.215)
Infrastructure		
ICT (ICT Configuration)	1.86E+09 (1.111)	3.42E+09 (1.115)
HC (Human Capital)	1.10E+08 (0.806)	2.40E+08 (0.851)
PG (Population Growth)	8.78E+08 (0.662)	2.17E+09 (0.566)
National Investment		
GDI (Gross Domestic Investment)	5.85E+08 (1.333)	-3.72E+08 (-1.097)
GE (Government Expenditure)	6.10E+08 (1.257)	-1.86E+09 (-1.595)
	-75223495 (-0.417)	1.34E+08 (0.594)
GG (GDP Growth)	1.99E+08 (0.412)	52008479 (0.095)
Economic Factors		
IR (Inflation Rate)	-37773 (-0.062)	-13868743 (-0.877)
ER (Exchange Rate)	3.79E+08 (0.470)	-1.73E+09 (-1.037)
ME (Military Expenditure)	-1861235 (-1.251)	-4801187 (1.457)
GC (Per Capita Income)		
Constant	-3.08E+10 (-1.436)	_
R^2	0.55	0.79
Adjusted R^2	0.37	0.61
F-Value	2.99	7.68

t-statistics in parentheses
* $p < .05$
** $p < .01$
*** $p < .001$