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Economic Commission for Latin America and the Caribbean

**THE ECONOMICS OF MILITARY EXPENDITURES IN LATIN AMERICA
AND THE CARIBBEAN**

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ABSTRACT

As in the case of any public expenditure, a debate is due on the efficacy and efficiency of military spending in relation to the development process in general and to its economic impact in particular. This is especially relevant for Latin America and the Caribbean, the region where military expenditures experienced the largest increase in the world during the current decade.

The study has five sections. Section I considers the scarcity of analytical efforts that military expenditures have received in the region, mainly for political reasons, which have also limited access to the relevant information. Because of various developments, however, it is beginning to be the subject of economic analysis both by governments and by multilateral bodies.

In Section II the contribution of military expenditures to the public good of defense is considered, while Section III deals with the direct economic impacts of military spending.

Section IV ponders the amount of these expenditures. According to the most conservative estimate, based on the official information of the countries where this information is available, Latin American and Caribbean yearly military spending amounted to 1.3% of GDP (US\$ 26.5 billion) by the end of the 1990s, and its average share of total central government expenditure in the region came to 9.5% by the middle of the decade.

Section V studies the political economy of policy design, management and evaluation of defense spending, especially with regard to its appropriate level, its opportunity cost, and its cost-effectiveness.

I. A LITTLE-EXPLORED AREA OF PUBLIC EXPENDITURE

According to the *SIPRI Yearbook 1999*, “Latin America is the continent with the least transparency in military expenditure. It is difficult to obtain reliable military expenditure for these countries and thus to make proper assessments of their development”. This situation is not new; for decades military expenditure has been the subject of very little analysis in Latin America and Caribbean.

This was not because of its lack of relevance; in Brazil and Argentina they ranged from 20% to 25% of central government expenditures during the fifties and the sixties. Mexico, on the other hand, had lower military expenditures, but nevertheless they ranged from 6% to 10% (IMF, several years). Today is a still impressive 9.5% for the region as a whole. No other important topic of the region’s economy has remained unexplored for so long, by conventional and radical economists as well. From 1972 to 1988 defense spending amounted to more than 20% these expenditures for Argentina, Bolivia, Chile, Nicaragua and Peru; and from 12% to 19% for Colombia, Ecuador, El Salvador, Guatemala, Honduras and Paraguay. (SIPRI, several years.)

Why? We may put forth that it has been mainly for reasons of a political nature, the same that still limit the access to the relevant information, since this is considered to be of a secret or confidential nature.

Conditions are changing, however, and PME is beginning to be the subject of economic analysis by governments, multilateral organizations and research institutes:

- i) On the one hand, as a result of the end of the Cold War, the role of military expenditure has been reassessed and such spending has been sharply reduced; although the conflicts that still remain are quite serious, they are not so much of a regional or global nature;
- ii) In the case of Latin America, there has also been a process of pacification and demilitarization, in addition to the current prevalence of democratic regimes, which have taken the place of authoritarian governments supported or run by the military;
- iii) The rapid process of economic integration has also helped to change the more traditional hypotheses regarding conflicts, even among countries which confronted each other in the past;
- iv) From another point of view, the changes that have taken place in the role of the efficiency and efficacy of public expenditure, including PME. played by the State and the government in development strategies, have led to keen scrutiny

Still, there is very little transparency in the analysis of this substantial item of expenditure, both with regard to its accounting and budgetary treatment and with regard to its effects on efficient resource allocation and the development process in general. (ECLAC, 1998.)

On the other hand, defense economics, which rose to importance in the 1960s in the United States, is undeveloped within the region. Beyond program management, defense economics denotes an application of the discipline imposed by resource limits at the highest level of national security issues. Essentially, it is an application of micro-economics to a billion command economy.

II. IS DEFENSE A PUBLIC GOOD IN LDCs?

The main justification for PME is that it provides several positive externalities. In particular, one public good; deterrence –or, if needed, defense– that is, the capability to preserve national autonomy and territorial integrity. The armed forces' activities to ameliorate the impacts of natural disasters are often considered as other positive externality.

The public good of defense –plus others, such as the quality of the legal system and the legitimacy of the political system– affects the way the economy operates, by providing an environment of security and stability (Lahera, 1997a).

The globalization and economic integration processes may give rise to the appearance of non-territorial conflicts. The internationalization of economic interests can either reduce or increase the demand for defense, according to the particular cases.

Traditional outlooks are a liability in processes of economic complementarity and integration, since they merely reiterate the traditional hypotheses of conflict; according to these traditional views, globalization gives rise to new hypothetical conflicts without having eliminated the old ones. There is a corporative bias in the assessment of the international situation and those involving neighboring countries, which plays up the alleged uncertainty, imbalance and instability.

While sovereignty has been fading since the end of World War II, until recently governments have in general ceded powers voluntarily. European nations have voted their way into defense, political and monetary unions. Globalization has been bringing down economic borders, but whether to open up has been a nation's choice. In 1998, 120 nations signed a treaty establishing an international criminal court, in which international law trumps national sovereignty. That is a shift toward respecting a nation's sovereignty only when it respects the rights of its people as international law defines them. The Nuremberg tribunal had introduced the concept that leaders' treatment of their own people was subject to international prosecution.

On the other hand, the eventual constraints on democracy imposed by the military, are negative externalities. Civil-military relations usually are just a euphemism for the relations between the political and the military power. Coups are not the only sort of military intervention that endangers democracy; the manipulation of civilian institutions and politics can also undermine it. These manipulations include the structural parameters of civilian power set by the militaries in order to protect core political interests without need for much direct coercion. (McSherry, 1999.) The violation of basic human rights are, of course, negative externalities.

A commission of 17 Nobel Peace laureates is promoting an international code of conduct on arms transfers. Its aim would be to insure that weapons are not sold to countries that violate human rights or suppress democracy.

1. Characteristics of public goods

In the late 1730s, David Hume noted that there were tasks which, although they do not generate gains for any individual in particular, are beneficial for society as a whole and can therefore only be carried out through collective action (Hume, 1739). In the twentieth century, our knowledge of these matters has increased mainly by the contributions of Paul Samuelson (Samuelson, 1954 and 1995).

According to this latter author, a public good is a good whose benefits are shared indivisibly among the entire community, regardless of whether particular persons wish to consume it or not. This contrasts with private goods, which, if consumed by one person, cannot be consumed by another. When it is provided, national defense automatically benefits all persons, who receive the same amount of national security as all the other residents of the country. Pure public goods are nonrival and non-excludable.

The benefits of the public goods are spread so widely among the population that no enterprise or consumer has any economic incentive to supply them optimally (Samuelson and Nord Haus, 1993). Public goods cannot be rationed by price; consequently, it is not efficient to leave their provision to private enterprise. Examples of this type of good are the provision of national defense and the maintenance of public internal order, or the financing of fundamental scientific research and public health.

On the other hand, the reluctance of citizens to finance services which benefit them regardless of whether they help to finance them or not gives rise to the problem of free-riders, so their financing must be made compulsory through taxes (Stiglitz, 1995).

2. Military spending and the provision of defense

The level of defense provided is not a direct function of military expenditure. It is not reasonable to use PME as a substitute variable for the level of defense, even if the efficiency factor remains constant.

Defining the public good of defense solely in military terms gives a false picture of the actual situation. Security problems include military aspects, but they also include social, political, economic, cultural and environmental aspects. (Ullman, 1993). National defense capacity is also determined by other factors including, in particular, diplomacy and international law and cooperation (Lahera, 1997b).

Thus, it cannot be assumed that a reduction in PME brings with it a strictly proportional reduction in security and hence also a similar reduction in well being.

From another viewpoint, national defense requires the participation of the population, so that the bases of military professionalism lie in the relation between the civilian and military sectors of society.

3. Military spending and defense levels: more questions than answers

How can the supply of the public good represented by defense be estimated? Ideally, it would be measured by the levels of security obtained against possible aggression or threats from outside, although in a number of countries of the region the main challenge for the defense forces comes from guerrilla groups, "vigilantes", and in others there is also the need to combat drug trafficking. The risk scenarios are country specific.

Before deciding on higher military expenditure it should be considered whether this will achieve the desired objective. And also, if the same effect could be achieved by other means, with less resources. These are old economic problems, dealing with the efficacy and the efficiency of public expenditure.

At the optimum level of expenditure, the value of the last dollar spent on defense equals the utility of the marginal dollar spent in the other sectors of the economy. To establish such equilibrium requires full knowledge of the links between the military and the other sectors. The answer is far from obvious. (Picciotto, 1992.)

The International Monetary Fund (IMF), for example, has declared that "excessive military expenditure diverts resources from human development (...). The sales of military equipment beyond what can reasonably be justified, severely undermines peace and development". Poor nations everywhere should "reduce military expenditure to 1.5% of GDP and maintain zero growth of defense budgets for the next decade".¹

On the one hand, there is the argument that the level of economic development is proportional to that of defense. But during the 1970s and 1980s, the developing countries systematically spent a higher proportion of their product on defense than the

¹ Michel Camdessus, After-crisis on poverty alleviation and peace for development, Address during the 1999 ECOSOC Session, Geneva, July 5, 1999.

industrialized countries, yet it does not seem true that there is any direct relation between an increase in the product and the increase in PME, needed in order to maintain the level of security.

Furthermore, although the levels of PME differ from one country to another for reasons that are sometimes due to historical or corporate factors, the dispersion of such expenditure is extremely high. While the regional per capita PME averaged US\$ 52 (the weighted average was US\$ 57) in 1996, there were big differences between countries. In fact, the per capita military expenditures were higher in some countries than in some NATO members.² The same differences are true of the number of military personnel per thousand inhabitants or per square kilometers (table 5).

On the other hand, there are countries in the region that have comparable levels of defense but very low military expenditure. Costa Rica abolished the armed forces in 1948; Panama has dissolved them and Haiti has started a constitutional reform process which will abolish the armed forces.

4. The international perspective

The trade-off between military and non-military spending does not involve domestic resources alone, but has implications for resource allocation in all other countries in the region.

Military expenditure by one country imposes negative externalities on other nations that feel threatened; higher PME by one alliance has a negative impact on the security of a rival alliance. One State's efforts to achieve better defense increase the defensive insecurity of other States. Thus, reactions are caused in which the pursuit of balance leads to greater insecurity for all, or else at best the mere recovery of the previous balance.

Given a situation of equilibrium, it is difficult to optimize the public good represented by defense through marginal military spending by one country (Stiglitz 1988.) In fact, the new rounds of arms increases would lead to simultaneous proportional increases in PME by neighboring countries. In that case, it may be expected that this will lead to the restoration of the previously existing defense balance, albeit at a higher level of expenditure.

The alternative of all countries buying the best equipment available and increasing their defense level amounts to a fallacy of composition. The matching of expenditures by each side decrease the marginal benefit of each additional expenditure; no one will improve its relative position, but all will increase their expenditures.

² For the same year, the NATO figure was US\$552; ranging from US\$361 for the US and US\$777 for Norway, to US\$96 for Turkey. Source: NATO Press Release December 17, 1996.

In contrast, the impact of a coordinated reduction in PME on defense levels is very different from that of a unilateral reduction. Whereas the latter almost certainly reduces security, the coordinated reduction of PME may lead to an apparent reduction in security at the national level, but this will be offset by the greater security caused by the lower PME of neighboring countries.

A coordinated reduction in PME, which does not change the strategic balance, would increase well being. A virtuous circle could thus be established in which reductions of PME in some countries lead to reductions in such expenditure in others, provided the risk expectations go down. A coordinated reduction of PME would tend to ensure conditions of stability between neighboring countries and would help to strengthen the ideal of regional peace. Defense would thus become a regional public good.

Defense can generate a public good at the regional level. During the Cold War era it had a political overtone, as the regional security was understood mainly against the "Communist threat", the extra continental enemy. Nowadays defense is also mentioned as a regional public goods with regard to shared interests, like the fishing activities within territorial waters by European or Asiatic factory ships.

On the other hand, military expenditure can also contribute to a global public good, namely, peace enforcement. The absence of international conflicts allows for a better resource allocation and the increase of world trade and investments.

The challenge is to reduce regional and global security risks so that military expenditures can be maintained at a lower equilibrium.

Simultaneous reduction of PME at the international level operates in the same way as a cooperative agreement, with all the difficulties that this involves, including the incentives to act deceitfully. There is also the possibility that it might be more advantageous for a particular country to remain outside the agreement. In the absence of a solution based on cooperation, a hypothetical means of correcting the negative externalities has been suggested. An international agency with the necessary authority could improve global well being by imposing equal fines on each country. The agency would then return the money to the countries according to a given formula. Under reasonable assumptions, reductions in the national defense budget would be sufficient to pay the national fines, even if the latter were not returned. Consequently, each country would be better off (Hewitt, 1991b).

It would be desirable to study the conditions needed for regional moratoriums, among which are transparency and an increase in mutual confidence. Such moratoriums could be established for a specific period of time as regards the introduction of given systems of arms. It would also be possible to design mechanisms establishing quantitative and qualitative limitations on armaments systems.

Mechanisms for preventing conflicts are also significant. In addition to those already mentioned, others could be added such as early warning, including the establishment of academic observatories and virtual diplomacy mechanisms to promote dialogue. Also greater transparency of military policies and the development of unilateral policies designed to show a willingness to resort to the peaceful settlement of conflicts.³ Dialogues involving non-traditional actors such as parliamentary commissions and meetings of political leaders and figures, academics and intellectuals; promotion of mutual confidence and security, including the important role played by verification; intervention of guarantors, and the use of compensatory measures, including the possible establishment of compensation funds (Rojas, 1997).

Reduction of PME generates positive economic externalities at the international level as a result of lower interest rates and an increase in the volume of international trade.

It may be expected that at least part of the saving will be used to increase non-military expenditure, but part of it could also be returned to the private sector through reductions in the fiscal deficit or in taxes. An additional requisite would be a reduction in the value of the public good constituted by defense obtained through PME, thus making possible an increase in non-military expenditure without any marginal sacrifice of that good (Lee and Vedder, 1996).

The “peace dividend” seems to foster faster growth. The countries that sharply reduced their PME also reduced their total expenditure, thus potentially strengthening private investment. There is also indirect evidence that the cuts in PME enabled these countries to maintain or increase their social expenditure. In contrast, the countries that increased their PME also increased their other expenditure and their deficits. The higher PME may also have crowded out private and even public investment (Gupta, Schiff and Clements, 1996).

III. ECONOMIC IMPACTS OF MILITARY EXPENDITURE IN THE LDCs

1. Aggregate effects on growth

In conventional short-term analysis, an increase in military expenditure on final goods and services can increase domestic demand, like any other public expenditure. The difference would be represented by the composition of PME, which has a higher content of purchases of goods and services than the rest of public expenditure, in which transfers, interest payments and payments to local levels of government are more important. Consequently, PME would have a stimulating effect on the growth rate by inducing an increase in the capacity utilized: i.e., increasing the current product in relation to installed

³ Argentina, Brazil and Chile have published “Defense Books”.

capacity. Even when aggregate production suffers from demand constraints, in situations of Keynesian unemployment, however, this function of PME can be carried out through more productive forms of public expenditure (Sen, 1987). As with any big reduction in public expenditure, defense cuts tend to educe economic activity in the short term. In the long run, however, most economists think that lower defense spending should stimulate growth.

Various approaches have been used to examine the economic impact of PME. Generally speaking, the corresponding observations were carried out during the time of the Cold War.

One approach makes an aggregate analysis of the correlation between PME and economic development in the past experience of a group of countries. The most frequently cited study on this question is that by Emile Benoit, according to which there is a positive correlation between military expenditure and economic growth in a sample of developing countries during the period 1950-1965 (Benoit, 1973). Benoit suggested that this result might be due to the demand stimulus caused by PME, the generation of positive externalities, the provision by the military sector of basic consumer goods, and the greater attractiveness to foreign investment of countries with higher levels of PME; while among the negative effects he pointed to the transfer of investment resources to military expenditure. Since then, however, that study has been criticized for the simplistic nature of its econometrics, which are founded on a very basic description of the effects of PME on growth (Deger, 1990). In particular, it does not consider the displacement effect on other productive factors.

Subsequent studies have disaggregated the data more fully. The results have varied, but there has been a general tendency to draw negative conclusions about the impact of PME on development, since its adverse effects outweigh the favorable ones. Deger's study, for example, concludes that PME is negative for growth, basing his conclusions on a cross-sectional analysis of 50 countries for the period 1965-1973. In a system of simultaneous equations, it is concluded that the impact of such expenditure is negative with respect to saving, growth and the trade balance. High levels of PME are associated with low rates of saving, which causes low rates of growth, and this effect is greater than the direct impact of military expenditure (Deger, 1986).

According to other studies, the impact of PME will depend on the alternative use that could be given to the resources. There does not seem to be any systematic relationship between PME and unemployment, inflation or the balance of payments. In each observed case, this relationship was the result of various effects operating on supply and demand in different ways. The benefits attributed to PME can be obtained by more efficient means; thus, defense spending can promote growth if it takes the place of private or public consumption, but its impact on growth will be negative if the alternative use of the funds is private investment or reasonably efficient public expenditure on infrastructure. The impact of PME on growth will therefore vary according to time and place (Hewitt, 1991b).

The rate of saving can be influenced by military expenditure through different means: reduction of public saving, pressure on the current account by reducing foreign exchange saving, and a drop in private propensity to save because of the increase in consumption to make up for the reduction in the public supply of economic and social services.⁴

Another approach –of a more microeconomic nature– for investigating the repercussions of PME is based on examination of the composition of PME, focusing on long-term resource allocation. In order to do this; it is necessary to measure how and how far PME increases civil productivity. In particular, efforts have been made to evaluate the effects of PME on capital formation and resource allocation. The stimulating effects of PME in the short term do not necessarily lead to high levels of capital formation or of the product, since such expenditure has a negative effect on both of these (Knight, Loayza and Villanueva, 1996). An increase in PME can reduce the stock of resources available for alternative uses, such as investment in productive capital, education and market-oriented technical innovation. Moreover, such expenditure normally increases external indebtedness and changes the composition of investment, making it less productive.

Other studies use an approach based on the structural functioning of the economy. In one of them, growth of the product is related with the increases in exports, population and total capital (thus reflecting possible deficits in foreign exchange, labor or capital), changes in flows of external saving, the level of the per capita product, and military expenditure. This latter variable gives the effect of PME on growth: it is interesting to note that the model uses the variation in military expenditure rather than its level. In this approach, the coefficient quantifying the impact of PME on growth is consistently negative (Faini, Annez and Taylor, 1984).

The cost of each job created by military expenditure is high, and the fulfillment of military service obligations represents a very poorly paid temporary occupation.

In the event of armed conflict, the effects include widespread destruction, devastation and dislocation of population, simmering and escalating tensions, disabling injuries and loss of human lives and assets. (Mendes, 1999) Defense can help to stop this happening, but it can also intensify its results or increase the possibility of such conflict.

A special case is that of land mines. According to United Nations estimates, there are around 110 million antipersonnel mines scattered across 64 countries. The Ottawa Convention forbade the production and deployment of mines; its has been approved by 40 countries.

Notwithstanding the potential adverse effects of PME, its economic allocation is not entirely counter-productive or unproductive. The question is rather whether it represents the most efficient form of public expenditure for achieving the desired

⁴ On the negative relationship between military expending and savings, see Seiglie, 1998.

objectives. The opportunity cost of military expenditure corresponds to three categories: the government can increase its total expenditure, which will generally lead to lower levels of private consumption; it can reduce social expenditure, which will lead to a deterioration in the quality and/or coverage of social services, or it can cut down on investments designed to increase national production capacity, such as those in infrastructure and economic services, thus reducing economic growth (Hewitt, 1991a).

2. The small Peace Dividend within the LDCs

Up to the 1980s, the high volume of military expenditure corresponding to the industrialized countries, together with high interest rates, imposed an ongoing burden on debtor countries in the East and South, and absorbed the savings of the European and Far Eastern countries with surpluses that could otherwise have been used for investment or economic assistance in Eastern Europe and the Third World, or as a means of domestic expansion (Kaldor, 1991). During the last 25 years, there have been 125 wars and other conflicts in developing countries, causing 40 million dead (McNamara, 1991).

The global reduction of military expenditures has been labeled the "Peace Dividend". It may be envisaged as an increase in the saving of resources: if the 1990 level of PME had been maintained, military expenditure in 1997 would have been US\$ 357 billion higher than it actually was. In fact, there was a decrease of US\$117.8 billion between the two years. However, it should be noticed that the developing countries did not contribute to that result, but they took the opposite direction: LDCs military expenditures rose \$22.2 billion during the same period. (See table 4 again).

It looks like the world decrease in military expending is ending. The 1999 US Budget included the largest increase in military spending since the Cold War buildup under President Reagan. With regard to arms trade, according to the Congressional Research Service it reached US\$23 billion, down from the level of the first years of the decade.⁵

3. Direct effects on production

The direct economic linkages of PME in the industrialized countries are different from those in the developing countries. The latter countries import most of their military equipment, and the possibility of beneficial economic effects is very limited: the inter-sectoral linkages are small, and the multipliers are low. Military expenditure on locally produced goods is relatively small and highly concentrated in expenditure on personnel. The possibilities for technological spillover effects are very small.⁶

⁵ Reported in "El Mercurio", August 9, 1999

⁶ According to a survey of the world's largest defense companies, defense contractors in the US spent 31% more on R&D in 1997 than they did in 1996. *Defense News*, July 20, 1998.

Arms production is highly concentrated in a few developing countries, India and Israel manufacturing more than half of weapons produced by these countries. Different case studies indicate that there has been little spin-off from the arms industry to the civilian sector. Rather, arms industrialization has caused human capital to move away from more directly productive activities. (Deger and Sen, 1983; Franko-Jones, 1992; Moon and Hyun, 1992.)

Israel elected to develop an R&D-based industry, by small and medium companies. It is a focused model with potentially high payoff. In South Korea there is an ongoing debate on the future of defense industrial base. The debate involves not only the cost and benefits associated with direct purchases vs. co-production, but the extent to which South Korea's industrial sector should get involved in development of critical components such as avionics, sensors and munitions.⁷

In 1996, Latin America's arms imports reached their highest level since 1991, and were almost twice those of 1994 (International Institute for Strategic Studies, 1997). During 1997 these imports almost reached US\$ 2 billion. (Institute of Strategic Studies, 1998). On the other hand, the imports of artillery ammunition reached US\$ 117 million the same year (*Jane's Defense Weekly*, 1999). The leading recipients of major conventional weapons for the 1991-1995 period were Chile (US\$ 1 037 million), Brazil (US\$ 762 million), Argentina (US\$ 600 million), and Venezuela (US\$492). (SIPRI, 1997).

On the other hand, PME has various negative externalities for production capacity; various rent-seeking activities are concentrated in military expenditure because of its non-competitive resource allocation. The confidential and strategic nature of its management may aggravate distortions that reduce resource allocation efficiency, thus lowering total factor productivity. Since military expenditure is not directed by market processes, it tends to create distortions in relative prices that become a dead weight on overall production capacity.

With regard to the need to strengthen infrastructure in the developing countries in order to foster growth, capital expenditure in the defense sector may have productive uses. These uses may derive from the benefits obtained from the transport and telecommunications system required by military activities, as shown by the examples of the Transamazônica highway running through Amazonia in Brazil and the Carretera Austral which has opened up the most southerly parts of Chile. This effect is less frequent than it might appear, however, since infrastructure for exclusive military use does not have any spillover effect on civil activities, while if the infrastructure is normally to be used by the civilian sector there is no reason to consider it military expenditure or to execute it as such.

⁷ *Defense News*, March 5, 1999

It has also been claimed that expenditure on military training in developing countries can help to improve the educational level and discipline of the labor force. There are opposite opinions, however, which maintain that the military sector is not a significant source of skilled technical resources in the developing countries; many of the skills taught on military training courses are specifically related to the handling of weapons, and the skills which might be used are not automatically transferred between sectors (Ball, 1990).

With regard to military production of goods and services, governments tend to subsidize armaments industries, in which case, like other subsidies, this would represent inefficient use of resources, and the contribution of such activities to the economy is very probably negative (Hewitt, 1991b). In this case, the general arguments on public enterprises operating in monopoly sectors apply with regard to the principle of subsidiarity, the resulting social utility, and public financing and management capacity.

In the case of social security services, a privileged public situation tends to be established for the military sector.

IV. ESTIMATES OF MILITARY EXPENDITURE

Broadly speaking, PME corresponds to the total expenditure associated with the provision of defense.

It should include labor, operational and maintenance costs; acquisition of war material; military research and development; military construction work; military pension funds; secret defense spending; contributions to international military institutions; civil defense (if its purpose is mainly military); military intelligence; military health and educational institutions; military aid to other nations, and civilian-military programs in which the defense aspect prevails. The indirect costs may be very considerable, as in the case, for example, of tax and tariff concessions granted to defense-related industries.

On the other hand, military expenditure often helps to finance activities of a civil nature, which should be excluded from accurate accounts on PME. Such is the case of banks, public media, export firms, among others. Military real estate has high maintenance costs which. Military real estate has high maintenance costs, which often are unrelated to defense functions.⁸

⁸

The People's Liberation Army from China owns a commercial empire worth US\$ 6.5 billion, with annual profits one tenth that. The Economist, August 5, 1999. Central America's armed forces have taken over banks, hotels, funeral homes, radio stations, advertising agencies, supermarkets and stores through their pension funds. The Economist, June 20, 1999.

1. Information sources and problems

There is an information problem regarding military expenditure, which is due largely to the confidential nature of much of the activity related to such expenditure. Definitions vary, and there are “gray areas”: between public security and defense and between operational and social security expenditure, etc. Moreover, by its very nature military expenditure is less open to public scrutiny and is usually “submerged” in a number of different items.

Information on PME usually leaves out arms purchases, while some items sometimes appear under other headings: military hospitals under health, military schools under education, subsidies for defense industries under economic development, and so forth.

Quite frequently, the reported annual expenditure is only the same as or less than actual imports of arms (when verifiable figures exist for the latter); or else various forms of “creative accounting” are practiced, as for example to cover up expenditure or tone down the figures for outlays. Thus, there are items of expenditure, which are not specifically reported, indirect costs, and industrial subsidies and debts related with armaments, which are not reflected in the available information. Military expenditure accounts often do not include statements of net worth, which register the assets involved.

As noted in a document prepared by the OECD, “the obscurity that surrounds statistics on the national defense spending of the developing countries is an obstacle to the establishment of a constructive dialogue on international security policies and makes it very difficult to assess the appropriateness of the allocation of resources between civil and military expenditure” (Herrera, 1994).

Greater transparency of data on military expenditure is certainly a precondition for any improvement in the security environment through regional policy dialogue. In particular, disaggregated time-series data on defense spending are essential for an understanding of the mechanisms of defense and development. A first initiative, limited but useful, could be to produce a detailed manual on methodology and actual methods of calculation (Berthelemy, McNamara, and Sen, 1994).

The United Nations Office of Disarmament Affairs has made several appeals for the improvement of international data on national expenditure in this field (United Nations, 1983). The accounting procedures regarding PME should be improved in order to standardize the way the military accounts are presented both at the national and international levels, including the World Trade Organization.

This objective could be furthered by effective fulfillment of the need to register military expenditure and conventional weapons. A considerable number of Latin American countries have signed the United Nations Armaments Register, but only five of them have put registration into practice. This Register includes fighter aircraft, missiles, warships, military vehicles and large caliber artillery. In a recent bid to curb the flow of

small arms into war zones, a group of arms experts, commissioned by the UN, has recommended the creation of a regional arms register on ammunition and explosives and the expansion of the UN Register to include small arms and light weapons.⁹

The Organization of American States (OAS) approved the Interamerican Convention on Transparency in the Acquisition of Conventional Weapons in May 1999. Member states must inform on weapons exports and notify the incorporation of weapons within 90 days.

2. Data in this paper

In view of the need to use a set of data which is as homogeneous as possible in conceptual terms and which, at the same time, covers a reasonable period of time for making inter-temporal comparisons, in the present study we preferred to use the information from the government statistics that countries provide to the IMF, which served as the basis for constructing the respective indicators.

The primary data were organized in such a way as to make it possible to prepare public military expenditure indicators compatible with other variables such as the gross domestic product, total government current expenditure, government spending on education and health, and per capita expenditure expressed in a common currency. Except for the indicator of PME in relation to expenditure on education and health, the other indicators for the set of countries for which information was available were weighted by the GDP expressed in 1996 dollars. Because of the lack of suitable price indexes representative of PME, the global GDP deflator was used to construct the respective indexes. The information on Cuba and Peru was obtained from the publications of the International Institute for Strategic Studies. Whenever possible, this information was used in line with the same standardization criteria applied to the information from the other countries.

3. Decrease of world military expenditure

World military expenditure in 1998 amounted to roughly US\$745 billion. (SIPRI, 1999). This expenditure forms a relatively high proportion of the world product, although it has undergone substantial changes in recent years. Up to the mid-1980s, PME represented between 5% and 6% of the world product (Hewitt, 1993). With the end of the Cold War and the reduction in military aid, world military expenditure began to go down, reaching 2.3% of the world product in 1997 and 1998.

Defense spending represents 10.5% of total public expenditure, compared with a level of 14% in 1990 (Gupta, Schiff and Clements, 1996). (Table 1). It should be

⁹ *Jane's Defense Weekly*, August 8, 1999.

remained that the LDC's share of world military expenditure was 7% in 1960, 11.3% in 1970 and 17.4% in 1980. (Sivar, 1987).

Towards the end of the 1980s, the industrialized countries were responsible for 57% of military expenditure, while the developing countries accounted for 14%: a higher proportion than their share in the world product (Bayoumi, Hewitt and Symansky, 1993).

The developing countries imported more than 70% of all internationally traded arms between 1972 and 1988; these imports represented 7% of those countries' total imports. Latin American and the Caribbean arms imports represented 7% of these world imports and 3.3% of the region's total imports. (Hewitt, 1991a).

4. Resilience of defense spending in Latin America and the Caribbean

According to the most conservative estimate, based on official information on defense expenditure for those countries where this is available, the share of military expenditure in government expenditure in the Latin American and Caribbean countries averaged 9.5% in the mid-1990s, standing at 7.6% in 1996. It has decreased the least in the world (table 2).

In absolute terms, the regional PME came to US\$26.6 billion in 1997-1998, ten billion higher than in 1990. This amount to 1.3% of the regional GDP (table 3). It was 2.2% in 1985-1987 and 1.8% in 1989-1990.

Military expenditure is lower in Latin America than in the other developing regions, both as a percentage of GDP and also in relation to central government expenditure; it should be noted, however, that the level of armed conflicts is lower in this region than in others.

On the other hand, Latin America and the Caribbean is the only region whose military expenditure maintained the same level, as percentage of the GDP, in the whole world between 1990 and 1998 (table 1) and it had the highest increase between 1990 and 1998 (table 4).

In 1995 the armed forces of Latin America and the Caribbean consisted of almost 1.5 million persons, including permanent staff and conscripts, which represents an increase of 6.5% compared with 1985 (International Institute for Strategic Studies, 1997).¹⁰

The increase in military permanent staff –which grew as fast as or faster than public employment– contrasts with the decline in the share of the latter in non-

¹⁰ The same year the armed forces of NATO reached 4.7 million. NATO, Press Release, December 17, 1996.

agricultural employment in the region from 15.3% in 1990 to 13% in 1996 (ECLAC, 1998).

These preliminary results indicate that disarmament has not given dividends in Latin America, in spite of the peace agreements achieved in the Central American area and the almost complete absence of military conflicts in the region. There was no Peace Dividend within the region.

Overall defense spending is projected at more than US\$262 billion –of which US\$80 billion will be spent on procurement- over the next 10 years, according to a 1998 study.¹¹

This set of data also shows the need to include public military expenditure in analyses of public expenditure. It is necessary to initiate a debate on its impact, efficacy and efficiency both in achieving the specific objective of military expenditure and in relation to public expenditure as a whole.

V THE POLITICAL ECONOMY OF DEFENSE SPENDING

The elusive nature of the good (defense) which PME is supposed to obtain and the discretionality prevailing in the application of public military expenditure bring in various factors –endogenous and exogenous, objective and subjective– which may bias the choice of the level of expenditure.

a) Defense and individual utility

According to Hewitt, seeking to define the optimum level of PME on the basis of the traditional analysis of public goods is a complex matter because the demand for PME is endogenous to the political system and is interdependent with the level of PME of neighboring countries.

The optimum expenditure on a public good is that which equalizes the marginal willingness to pay through taxes with the marginal cost of producing the good. This means that the composition and level of the budget should be based on the aggregate demand for PME and other government goods, in conjunction with data on technical costs. Whether the government chooses policies that reflect the will of the people or not will depend, however, on the effectiveness of the political decision-making mechanisms. Moreover, the social demand for government goods is only significant when the preferences of consumers are reasonably exogenous to the political process and citizens as consumers are sufficiently well informed to give rise to significant demand functions for the various items of public expenditure (Hewitt, 1991b).

¹¹ Forecast International, reported in Latin Trade, September 1, 1998.

It is hard to estimate the impact of PME on individual utility. The relation between PME and defense benefits is a matter open to discussion: the biggest points of disagreement concern the danger of invasion, the effect of PME in preventing invasion, the defense value of optional systems of arms, and the degree to which PME promotes other national objectives. Moreover, the public has very little information about the level and composition of PME. In view of this severe problem of information, it is by no means clear that the popular perception indicated by public demand is relevant in determining the optimum level of PME (Hewitt, 1991b).

One way to relate military to individual preferences would be to approve a special withholding tax, like the Social Security tax, designed to finance defense spending. (Gold, 1981.)

b) A public choice framework

The complex political economy of the government choosing of the level of resources to allocate to the military might be grasped along the lines of Hewitt's model. (Hewitt, 1993.)

The author puts forward a public choice framework: the political leadership maximizes its own utility.

The leadership's utility takes into account the preferences of its citizens to varying degrees, depending upon the political institutions in each country. The leadership faces and economy-wide budget constraint, foreign finance constraint, and a revenue constraint.

The leadership of the country has to make two budgetary choices: a) the size of the budget and therefore the ratio of private versus public use of resources in the economy; and b) the mix of government expenditures between the military and other uses. The two decisions are simultaneous and interrelated.

The solution to this model is a simultaneous equation system. In the first equation military expenditures as a ratio of GDP is the dependent variable with the explanatory variables of central government expenditure as a ratio of GDP, GDP, population, the level of foreign financing, geographical variables and political variables, including the existence of war and the type of government.

Central government expenditures and the financial variables are expected to have a positive effect on military expenditures, since they increase the overall availability of resources. The impact of GDP and population is uncertain since offsetting tendencies exist. Because of the public good feature, one could expect that the ratio of military expenditures to GDP could fall as GDP and population rise. However, because of the sharing of the costs of the military and the fact that larger countries have the possibility of being major regional or global military powers, a positive association could exist. The geographic variables are included as indicators of cost factors of defending a nation. The political variables are included as rough approximations of the political institutions in

different countries. Obviously the presence of war will increase the demand for military expenditures. Furthermore, it is hypothesized that a country run by a military government will place higher emphasis on military security.

In the second equation central government expenditure as a ratio of GDP is the dependent variable with the determining factors of military expenditures over GDP, a development index, and the availability of external financing.

In this equation, military expenditures are expected to have a positive influence. The development index is meant to be a proxy for the ability of the government to raise revenues and therefore is expected to be positive. Availability of foreign finance is expected to have a positive influence for essentially the same reasons.

According to Hewitt's findings, financial variables do influence the level of military expenditure across time and across countries. In the first equation the elasticity of military expenditures with respect to central government is positive and significant, though considerably less than unity throughout. This implies that increases or decreases in the share of resources allocated to government leads to a somewhat less than proportional change in military spending.

In the second equation, military spending is found to lead to higher central government expenditures in most cases. The coefficient on population is found to be positive. The elasticity of military spending with respect to per capita income is less than unity. As per capita income rises, military spending also is found to rise, but by a lower percentage. The net flow of public and publicly guaranteed foreign financing has positive and significant coefficients for the central government expenditure equation, thus this variable is still found to have an indirect positive effect on the military expenditure GDP ratio.

With regard to the effect of the political variables, the benchmark is a democratic government not engaged in conflict. The most significant coefficients are associated with international and civil war. Next in order of importance are monarchies, other forms of government and military governments.

The leadership of non-democratic countries tends to have a higher preference for military expenditures than the population at large. The policies of countries ruled by democracies reflect the more closely the preferences of the population at large, while with other regimes the policies are more likely to reflect the preferences of the leadership.

Within the geographic variables the strongest result is that a larger coastline induces greater military spending. The same holds for land borders, but the results are slightly weaker. The evidence on the effect of land area is uncertain.

According to Hewitt, the econometric estimate of this model explains 55% of the variation of military expenditure as a percent of GDP. In absolute terms, military expenditures are found to rise nearly proportionally to GDP. Since a significant

proportion of it is still left unexplained, country specific historical and political circumstances are also undoubtedly quite important influences.

Otherwise it is hard to explain the big differences observed in the levels of expenditure between individual countries, once GDP, population or territory normalizes them. (Table 5.)

The economic situation does not provide a simple explanation of the dynamics of military expenditures (see graph # 1).

In real terms, defense spending within Latin America and the Caribbean grew at an annual average of 3.7% per annum from 1972 to 1998, which was slightly superior to the increase of the region's GDP. The correlation coefficient between military expenditures and GDP for this period was 0.854. As the graph shows, the GDP growth increased steadily, while defense spending did not show a constant pattern. Three sub periods can be identified throughout these years.

From 1972 to 1980 both indexes show an increase, although military expenditures grew 8.6% and GDP only 5.5%.

From 1981 to 1990 the GDP index shows zero growth from 1980 to 1984, while the defense index increased by 2%. From 1985 to 1990, when *de facto* regimes were replaced by democratic ones in most countries of the region, defense spending decreased by -1.5%, while GDP grew 1.7% annually.

Finally, from 1991 to 1998, the GDP maintained the previous growth pattern, while defense expenditures started to grow again. From 1990 to 1998 the annual average growth rate of defense spending was 4.7%, while GDP growth was 3.6%. During the last two years of this period, military expenditures have grown much faster than the regional GDP.

c) **Actors**

Those who influence the allocation of PME and define its size and content generally use other types of criteria in addition to economic ones. Consequently, the direct economic impact of such expenditure, as well as the positive and negative externalities that it generates, do not explain defense expenditure decisions by themselves.

In fact, self-interest influences legislators, military bureaucrats, think tanks on military matters, and lobbyists and corporate leaders. The corporative interest of the military sector and the personal motivations of those responsible for taking decisions in this respect can be of decisive importance in such allocation.

Military budgetary demands can rise for domestic reasons: prestige, or the exertion of pressure by armed public employees, or the personal eagerness of decision-

makers who want to go down in history as “modernizers” of the armed forces, or they may be due to tempting offers by arms suppliers

From the point of view of strategic behavior, decision-makers' expectations may help to generate a set of regional or subregional actions and reactions, which give rise to purely reactive military expenditure. In contrast, such expectations can generate quite different effects: for example, a moratorium on the purchase or sale of arms –at the regional, subregional or bilateral level– would bring about a reduction in such expenditure.

The interactive decision theory concerns the behavior of decision-makers whose decision affects each other. One of the areas where game theories find most applications is that of tactical and strategic military problems. It cannot be assumed that the resources and preferences of individuals (or of military institutions) are also known to their competitors. It is therefore necessary to include considerations about personal beliefs with regard to the status of competitors, as well as about the learning process that takes place in the course of time.

Beginning in 1965 with research sponsored by the US Arms Control and Disarmament Agency, substantial effort has been focused on the study of infinitely repeated games with incomplete information. They include the strategic equilibrium; dynamic games played with some kind of stationary time structure, and stochastic games, repeated games with or without complete information; the Prisoner's Dilemma; the axiomatic approach, according to which rather than defining a solution concept directly, ones writes down a set of conditions for it to satisfy, then sees where they lead; games with asymmetric information; games with many players; bounded rationality situations, where not all alternatives can be considered by the players .

Concern now turns increasingly on the needs for and methods of collaboration among allies, for example on how to promote the viability of the alliance networks so arduously built up over the Cold War era, how to share resource allocation burdens and strategic decisions in an era of increased interdependence, and how to harmonize security interests with the rising interdependencies with derive from trade growth, resource scarcities, and shifts in the technological basis of national power. (McGuire, 1998.)

d) Technological developments

Increases in these demands can also be due to the fact that technological advances stimulate higher military expenditure simply in order not to “lag behind” and thus impose instant minimum levels. The technological pressure for an increase in PME is constant and seems to become ever more acute.

From another point of view, technological development raises further queries in respect of defense. There does not seem to be any other sphere of human activity with such a high rate of creation of new technological programs, either to maintain strategic superiority or else not to lose ground to opponents (Pivetti, 1992). Equipment

obsolescence is less predictable than in other sectors. As in the health sector, it is possible an increasing-cost- trap, within a context dominated by supply considerations.

The cost of a total attack with survivors or of a total defense with survivors has increased to an extraordinary extent for technological reasons, so that it would be very difficult for the developing countries to bring their military technology up to the level of the industrialized countries. However, according to the CIA's National Intelligence Estimate from 1999, any country, regardless of its missile development experience, could field an intercontinental ballistic missile (ICBM) by 2015. The missiles could be available through indigenous development or outright purchase.¹²

Although it seems odd, cooperative solutions are increasingly important within the military lines of production. Transnational procurement on national defense items is increasing. This has been furthered by the current situation of the military industry.

For the defense industry, domestic markets have shrunk with the end of the Cold War, creating major over-capacity in this industry. The solution in the past to such over-capacity was to sell abroad, but demand for weapons has also fallen in the developing world, so total sales have stagnated.

But the defense industry is not governed by normal, competitive forces: plants that would be otherwise forced to close, either by bankruptcy or a post-merger consolidation, can be kept open by aggressive lobbying, circumventing the market mechanism.

The problems for traditional defense companies are compounded by the fact that technology is fundamentally altering the nature of their business. They increasingly find themselves having to incorporate off-the-shelf products developed for purely commercial use, especially in information technology and computing. This raises the prospect that rather than a dwindling number of defense suppliers, there could be a new set of commercially orientated, high-technology providers of next-generation military equipment

In Europe, defense contractors must seek economies of scale by shared development; otherwise they will be obliged to rely increasingly on the US for high technology weapons. Six European governments (France, Germany, Italy, Sweden, Spain and the United Kingdom) have put pressure aerospace and defense companies to unite into a pan-European group, the European Aerospace and Defense Company (EADC). It could include missiles and helicopters, and perhaps other weapons system, in addition to aircraft.¹³

¹² *Jane's Defense Weekly*, May 5, 1999.

¹³ *Financial Times*, November 7, 1998.

Significant results are yet to come, however. One of Europe's most ambitious collaborative projects, the Horizon, a three-nation naval frigate project collapsed after the United Kingdom withdrew from it.¹⁴

On the other hand, in December 1994 four Nordic countries agreed to form up to 20 working groups to examine different procurement projects ranging from submarines to ammunition. This common procurement package could include up to 80 helicopters over the next 10 years.¹⁵

Interoperability is a significant issue for NATO; common standards and architectures of the national forces must be put in place so country networks and weapons systems can inter-operate.

e) Arms suppliers

The policies of arms suppliers are also important in determining the level and composition of PME. In the period from 1992 to 1995, total arms exports to Latin America reached US\$ 860 million, of which 30% originated in the United States and 25% in the four main European export countries (Lumpe, 1998).

The restrictions on the sale of United States war material to the region were lifted in 1997. One South American country was designated "principal non-NATO ally" by the United States; later on the same country asked to be incorporated to NATO, what was rejected.

So far, the exporting countries have often fixed the rules, either through sales on especially favorable terms or through the imposition of selective or blanket embargoes. The importing countries should fix their own guidelines for arms purchases, which could serve as a containment exercise.

Military assistance normally leads to an increase in PME, even when it is provided in the form of donations. Public external credit, or external credit with public guarantees, also potentially tends to favor such an increase, by increasing the resources available to governments. International cooperation donors and international financial institutions cannot ignore the fungible nature of such financing, which can be used to pay for PME. More strict conditionality on defense matters would be advisable. (Deger and Sen, 1992).

¹⁴ *Jane's Defense Weekly*, May 5, 1999.

¹⁵ *Financial Times*, July 8, 1998.

VI. DESIGN, MANAGEMENT, AND EVALUATION OF DEFENSE POLICIES

Defense policies may be viewed as part of an agent-principal relationship: in general, it is a privileged form of public expenditure which is not openly discussed –it is not dealt with in terms of traditional public finances– and its effects are not affected by short-term considerations and are often only observed in the long term.

Nor is it managed in a transparent manner, since it is exempted from any public discussion regarding its efficiency and efficacy (without prejudice of its specific nature) subject to parameters comparable to those of other types of public expenditure. The same applies to the evaluation of its impact on social well being, both in a specific sense and in comparison with the rest of public expenditure.

1. Design of defense policies

It is worth noting that the allocation of military expenditure in the industrialized countries has often been considered unsuitable, for reasons of both supply and demand, and the same is very probably true in the developing countries, where moreover such expenditure is even less transparent.

Civilian experts on military expenditures are lacking within the region, enabling military to dismiss criticism as unwarranted. The design of public policy on defense becomes harder. Language barriers often prevent accountability of military expenditure.

In the industrialized countries, it is quite normal that there should be legislative debate about these matters.¹⁶ In the United States, the budgetary functions of Congress are divided up between two commissions: the first one gives technical authorization to carry out projects, while the second one allocates the funds needed for the projects thus technically approved. The whole process takes about six months and favors the high-level civilian management of defense.

In the Latin American countries, legislative analysis of the military budget is scarce, as its approval is contingent upon the agreement between the government and the military establishments. However, a trend towards the analysis of these expenditures on their own merits can be discerned. (Institute of Strategic Studies, 1998).

In some cases there are pre-determined floor or minimum levels for PME based on income from the exploitation of non-renewable natural resources. In Chile, for example, the armed forces are guaranteed, by a constitutional-level law, 10% of the sales

¹⁶ See, for example, United States Congress, 1997a and 1997b; these two studies openly and sometimes critically analyze the proposals of the Department of Defense, proposing alternative courses of action to make better use of fiscal resources.

of the Chilean Copper Corporation (CODELCO), while in Ecuador it was reconfirmed in 1995 that 15% of petroleum income will be allocated to the military for another 15 years (SIPRI, 1998).

2. Management of military expenditure

Salaries and retirement payments represent a substantially higher share of military expenditures within Latin America and the Caribbean than in developed countries. This fact makes these expenditures more rigid and efficiency and efficacy gains harder to attain.

a) Defense microeconomics

Microeconomic work on military expending was furthered by techniques developed by the Rand Corporation and put into practice during the McNamara period as Secretary of Defense during the sixties, especially with regard to its appropriate level (how much is enough?), its opportunity cost (what are its direct and indirect economic impacts?), and its cost-effectiveness as a system of acquiring arms (what is its effect per monetary unit?).

The application of economic notions to military spending management could be beneficial both for fiscal and military leadership. This would require the extension of economic methods into decisions as to the size, equipment, deployment and support of military forces, all of which would inject defense economics into military planning. (McGuire, 1998).

According to the same author, this would require: (1) new, comprehensive, system-wide definitions of costs and benefits; (2) quantification of benefits and costs and reduction thereof into real values; (3) a search for –and comparison between– alternative programs/systems to achieve measurable goals; (4) calculation of cost minimizing force compositions, based upon trade-offs among components with (5) multi-year decisions based on present values calculations; and (6) a growing appreciation of adversarial reaction as an active component in defense analysis. (McGuire, 1998.)

The management of military expenditures could benefit from the general application of diverse rules concerning public expenditure. They include data processing, outsourcing, licensing, and the use of concessions. Like in other sectors of public expenditures, these techniques allow for a greater specialization and global efficiency gains.

Government procurement of military supplies is particularly opaque. Concern about corruption in arms deals and imports of military and military-related equipment are often voiced. The same applies to military procurement within the country. The financing and acquisition of military equipment should also be subject to standard regulations (Navarro Meza, 1997).

The use made of assets controlled by the military is often subject to more liberal and less transparent requirements than those applying to other public assets.

With regard to state-owned military enterprises some general rules are in order. Their productive activities should be specified, as well as their investment policy. The accountability of their managers should be established in performance agreements or management contracts. On the other hand, alliances with the private sector should be considered, or even the privatization of some firms. In Spain, for example, the government-owned electronics firm INDRA will be privatized. Approximately 40% of its revenues are derived from military sales.¹⁷

b) Private management techniques

In several industrialized countries private management techniques are put into practice, although the specific modalities for the military sector are often argued about. In general terms, there is an agreement on the transferability of goods and services production, which are not inherent to the defense function. A clear limit is the combat line. (See box N° 1).

Box N° 1

NATO

NATO is considering an overhaul of the alliance's sprawling arms planning, logistics, and research work. The result would be the creation of a single, high-level policy-making department at NATO, responsible for joint technology and armaments efforts. The new body would advise NATO's decision-makers on common arms projects, cross-border equipment interoperability and other key post Cold War issues. It is far from clear whether this new committee, once formed, it will be given decision-making authority.

United States

The Pentagon Comptroller proposed that statistical information on weapons should of sufficient quality to stand up to an audit.

US federal acquisition rules are being revised to ensure competition for government service contracts involving more than one company. The Defense Department will select contractors based, in part, on how well the companies performed on past government jobs.

In the Pentagon, the Acquisitions Chief is vested with responsibility and authority for setting the acquisition priorities across all US services.

The Pentagon is proposing changes to the rules governing how commercial firms manage billions of dollars of government-furnished equipment. Contractors could take ownership of special tooling and testing equipment worth less than US\$5 000; all low value items would no longer require individual records, while items costing US\$1 million still might require detailed record keeping.

¹⁷ *Defense News*, May 10, 1999.

The Defense Department of the US will open more than 200.000 civilian jobs to competition during the next six years. The US Marine corps will allow private companies to compete for nearly half of its 12 000 civilian jobs by 2002. The privatization of the US Defense Department's vehicle shipping service for civilian and military personnel has resulted in more vehicles arriving on time.

The US Air Force acquisition section has kept changing the service's procurement processes to improve relations with industry contractors. The first round of reforms resulted in US\$30 billion of procurement savings. The new reforms will cut acquisition costs, shorten delivery schedules and lead to acquisitions and product support services that are more responsive to Air Force needs. The same branch has put out requests for private proposals for two depot maintenance workloads: one for maintenance of KC-135 Stratotanker and a second for avionics components repair.

United Kingdom

The British procurement strategy is shifting away from an adherence to competitive procurement, clearing the way for the establishment of a large, cross border prime defense contractor that would have a virtual monopoly in Europe. It can be foreseen that supplier management would be the primary tool for controlling costs and ensuring quality rather than competition.

The Minister of Defence has awarded 21 Private Finance Initiative contracts. The PFI aims to attract private cash for public projects. Only contracting out combat-related tasks remains controversial within the armed services.

During the eighties, warship refit and repair was taken by private contractors, which operated the Royal Dockyards, still under government ownership. In early 1997, the United Kingdom's two largest naval dockyards were acquired by their operators. In the military aircraft maintenance field the privatization of support services is an increasingly common feature.

New Zealand

The New Zealand Defense Force intends to focus on leasing a wide spectrum of military equipment, after having reached an agreement with the US last year. An agreement to lease 28 F-16 fighters from the U.S. for a combined total of ten years was recently reached. At the end of the period New Zealand will have the option to buy the aircraft for US\$ 287 million.

Canada

The Canadian military's research and science branch will forge closer links with Canadian defense firms to develop new products and win foreign contracts. On the other hand, plans to have industry take over more of the military's secondary support roles in areas such as maintenance have all but stalled.

Europe

European governments are looking to the commercial sector to share and, in some cases, even own and operate tomorrow's military space assets. The concept of using commercial space services to complement military-owned systems is gaining momentum also in the US.

Source: *Defense News*, various numbers.

b) Employment

Despite of its relevance, the human resources management in the military public sector is still *terra incognita* for the non-initiated.

Military are public employees, but their career process is formulated in rigid procedure rules. Civilian literature on this subject is unknown in Latin America and military opinions on it are often taken for granted.

Nevertheless, it is clear that personnel management within the armed forces needs a review. Significant aspects include social security services, the increase of the retirement age and of personnel reduction.

e) Institutional aspects

In addition to the general problems displayed by the fiscal institutions of the region –including their insufficient political weight, coverage and flexibility– there are others more specific to PME, such as lack of transparency, vague objectives, inefficient arrangements for distributing resources among the different branches, and weaknesses in their functional organization and staff aspects.

The predominant institutional framework in the region is that of a ministry of defense. Brazil is the only country in South America which, instead of such a ministry, has no less than three military ministries, established during the military governments which controlled the country between 1964 and 1985. The current administration plans to create a civilian-led Ministry of Defense.

In general, the present institutions are insufficient to prevent the frequent duplication of efforts and losses of economies of scale in forces that are complementary to each other.

The military services should be reorganized to improve joint operational capability.

f) The cutback of military expenditures

The reduction of military expenditure raises specific problems. Changes take time and there are adjustment costs for military manpower and defense facilities. The economic transition to a lower level of military spending is often difficult given the “lumpiness” of multiyear investment in weapons systems.

It is possible that there may be serious redistributive consequences for those who previously depended on military or related activities. The difficulty that a developing economy will experience in absorbing part of the labor force previously employed by the military sector will depend on such factors as the number of persons displaced and their rate of displacement, their skills, the availability of work and the relation between the two, and the rate of job generation and the effectiveness and coverage of labor retraining policies.

In some cases, the reduction in military expenditure and the discharge of military personnel have been blamed for possibly generating other undesirable effects such as groups of jobless individuals who engage in unlawful actions and thus increase the insecurity of the population. With regard to military personnel themselves, their reallocation to productive activities is not a simple matter and may even be impossible in some cases.

What happened in the former Soviet Union seems to show that there are only limited positive externalities for the production of civilian goods by relatively sophisticated military industries (Bayoumi, Hewitt and Symansky, 1993).

3. Evaluation

Public expenditure in general is not the subject of independent professional evaluation in Latin America and the Caribbean. PME is no exception to this rule, and it also has special feature of its own: there are sectors which assert that it is necessary to keep information and analysis on PME under the corporate control of the military.

a) **Military and non-military expenditures**

As with any public expenditure, the marginal social utility of military expenditure should be estimated and compared with other government expenditures, especially social and economic outlays. In this sense, it would be interesting, for example, to estimate the costs and benefits which countries like Costa Rica have achieved through their low military expenditure. However, the methodology required for this is not in sight yet.

On the other hand, the clearest negative trade-off of military spending is in budgetary programming, where the eviction or crowding-out effects can be strong; budget military spending may evict social and economic expenditures.

Current data prevents the direct study of military spending dynamics vis a vis that of social and economic spending. Social expenditures have been decentralized, which is not the case of military expenditures; therefore, they are not comparable at the central government level, that is how social data is usually published.

Keeping this in mind, we find out that the proportion of military expenditure in central government expenditure has increased compared with that on education (from 78% in 1980-1989 to 93% in 1990-1995) but has gone down compared with expenditure on health (from 162% in the 1980s to 116% in the first half of the 1990s).

In 1990-1995, the central governments of the countries of the region spent an (unweighted) average of one dollar on defense for every 1.1 dollar on education and every 0.9 dollar on health. These ratios display considerable differences from one country to another, since in some countries military expenditure exceeds health expenditure or that on education, and in others it exceeds both of them.

b) **Institutional aspects**

As in the case of other public institutions, a question needs to be asked: How would the armed forces be organized if it were necessary to create them again in the present circumstances? The forms of design, management and evaluation of public military expenditure should be reviewed in the light of their special features.

The frequent strategic differences of military institutions and their differing perceptions of the international situation should be institutionally processed to turn them into policy options.

c) **Efficacy and efficiency**

Before allocating budget funds for military expenditure, the following questions should be asked about its efficacy: had this expenditure achieved the desired objective?; and its efficiency, could the same effect be achieved with fewer resources?

The evaluation of PME should consider its structure, including personnel, equipment, infrastructure and other expenditures. Personnel-related expenditures reached only 39.3% in the US and 42.2% in the United Kingdom during the 1990-1994 period, while in Argentina and Brazil they were higher than 80 % in 1996 (International Institute for Strategic Studies, 1998).¹⁸ On the other hand, the I&D component amounted to 8% both in the US and the UK by the mid-eighties and was much lower in Latin America.

The structure of military spending within the Latin American and Caribbean region makes efficiency harder to obtain. Where personnel expenditures are the larger part of total spending, they are harder to decrease. In fact, there is an endogenous pressure to increase them, while the opposite happens with investment and operation expenditures. As a consequence, fiscal adjustment programs can decrease the operational capability of the armed forces, as discretionary spending reductions will fall more easily on investment and operational expenditures, the same as in public expenditure in general (Soto, Riveros and Giha, forthcoming). Additional rigidity may arise from the practice of earmarking expenditures.

PME can also be evaluated considering the ratio between operative or combat personnel and administrative or logistic personnel. Thus it is possible to determine the distance from each country to international parameters. A case study for Colombia determined that the ratio was 1:8, while the international standard is 1:3 (Soto, Riveros and Giha, forthcoming). This could be refined if equipment quality is taken into account.

The shifts in the role of the different armed branches could lead to changed budget allocations. For example, the analyses of the role of the air force in the Kosovo War could

¹⁸ NATO Press Release, December 17, 1996.

have an effect on how defense budgets are spent. This could lead to reductions in order to acquire other services.

All these considerations lead to a policy conclusion. Relevant indicators are needed to evaluate military spending. This objective should be present from the very beginning of the public policy cycle, that is, from its design.

A starting point could be the economic classification of expenditures related to the function of defense in the same fashion that any other public expenditure: compensation of employees, use of goods and services, consumption of fixed capital, property expense, subsidies, grants, social benefits and other expenses.¹⁹

4. Government reform and reform of defense

The modernization of defense spending designed management and evaluation is part of a comprehensive process of government reform. In fact, one can further the other.

As put by the Deputy Defense Minister for Policy of South Korea "Military reform and government reform are in the same vein. Past efforts at reform left implementation to the concerned offices and were met with much resistance. However, today we have national and public consensus. Government-level reforms have created a positive atmosphere that will facilitate the Minister of Defense's Program".²⁰

Military expenditures should become a regular part of public spending, subject to public scrutiny and to formal procedures that increase its economy, efficiency and efficacy.

¹⁹ See the new Manual on Government Finance Statistics of the IMF, which will replace the current 1986 edition.

²⁰ Interview in *Jane's Defense Weekly*, June 30, 1999.

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Tables and Figure

Table 1
Military Expenditures Weighted by Country GDP

	As percentage of GDP						As percentage of total public spending					
	1990	1993	1995	1996	1997	1998	1990	1993	1995	1996	1997	1998
<i>All countries</i>	<i>3.5</i>	<i>2.8</i>	<i>2.4</i>	<i>2.4</i>	<i>2.3</i>	<i>2.3</i>	<i>14.1</i>	<i>11.6</i>	<i>10.5</i>	<i>10.6</i>	<i>10.6</i>	<i>10.5</i>
Advanced economies	3.3	2.8	2.4	2.4	2.3	2.3	13.9	11.6	10.3	10.4	10.4	10.3
Industrial countries	3.3	2.7	2.3	2.3	2.3	2.3	13.6	11.3	10.0	10.2	10.2	10.1
Newly industrialized Asian economies	4.1	3.8	3.5	3.7	3.7	3.7	24.5	20.9	19.4	18.9	18.6	16.5
Developing countries	3.0	2.6	2.5	2.3	2.3	2.4	13.4	12.3	12.5	11.7	11.8	11.8
Africa	3.3	3.0	2.7	2.5	2.4	2.4	11.7	9.8	9.3	8.9	8.6	8.5
Asia	2.4	2.0	1.8	1.7	1.7	1.7	11.9	11.9	12.3	11.4	10.9	10.5
Middle East ^{a/}	8.1	6.5	6.4	6.3	6.5	6.6	24.9	18.4	21.1	19.5	20.4	21.2
Western Hemisphere	1.2	1.2	1.3	1.2	1.3	1.2	7.0	7.2	6.8	6.2	6.8	6.7
Countries in transition	6.0	3.1	2.5	2.4	2.4	2.4	16.1	10.5	9.8	9.7	10.7	10.4
Central Europe	2.3	2.3	2.2	2.1	1.9	1.9	11.6	6.7	6.7	6.8	6.5	6.8
Former U.S.S.R.	6.9	3.8	2.7	2.6	2.7	2.9	16.6	16.1	13.1	12.2	14.3	15.1

Source: IMF Survey, May 18, 1998 and June 14, 1999,

^{a/} Includes Cyprus, Malta, and Turkey.

Table 2

Latin America and the Caribbean: Military spending
(US\$ billions of 1998)

1990	16 508.5
1991	16 547.9
1992	17 748.1
1993	18 805.1
1994	21 320.1
1995	22 870.1
1996	23 572.3
1997 ^{a/}	26 704.8
1998 ^{a/}	26 503.2

Source: ECLAC estimates on the basis of IMF statistics.

a/ Preliminary figures.

Table 3

Selected Latin American and Caribbean countries: Indicators of
public military expenditure
(Percentages)

Countries	As a percentage of gross domestic product		As a percentage of central government expenditure	
	1990-1995	1996-1998	1990-1995	1996
Argentina	1.5	1.2	9.0	7.2
Bolivia	2.5	1.9	9.5	7.6
Brazil	1.2	1.3	4.2	4.0
Chile	3.3	3.1	13.2	12.2
Colombia	2.0	2.6	7.5	8.7
Ecuador	2.1	1.9	10.9	10.0
El Salvador	1.8	0.7	13.2	5.2
Guatemala	1.1	0.8	14.7	16.9
Jamaica	0.5	0.4	3.9	4.0
Mexico	0.4	0.4	3.2	3.9
Paraguay	2.2	1.5	21.3	9.6
Dominican Republic	0.7	0.6	3.9	4.0
Uruguay	1.8	1.8	6.7	5.0
Venezuela	1.8	1.8	11.5	8.6
Average	1.6	1.3	9.5	7.6
Weighted average	1.3	1.3	6.0	5.3

Source: ECLAC estimates on the basis of IMF statistics.

a/ Preliminary figures.

Table 4

Variation in military expenditure, by regions, 1990-1998
(Billions of dollars)

	1990-1995	1995-1997	1990-1997	1997-1998 ^{a/}
All countries	-99.5	-18.3	-117.8	-15.3
Advanced economies	-10.3	-30.7	-41.0	-10.6
Industrialized countries	(-21.3)	(-33.8)	-55.1)	(-4.3)
Recently industrialized Asian economies	(9.8)	(2.3)	(12.1)	(-6.4)
Developing countries	12.5	9.7	22.2	-1.3
Africa	-2.3	-1.2	-3.5	-0.3
America	7.9	4.0	11.9	-0.1
Asia	8.5	2.9	11.4	-1.9
Middle East ^{b/}	-1.5	4.0	2.5	1.0
Countries in transition	-101.7	2.8	-99.9	-3.3
Former Soviet Union	-97.7	3.6	-94.1	-4.0
Central Europe	-4.0	-0.9	-4.9	0.6

Source: IMF Survey, May 18, 1998 and June 14, 1999.

^{a/} Preliminary figures.

^{b/} Including Cyprus, Malta and the European part of Turkey.

Table 5

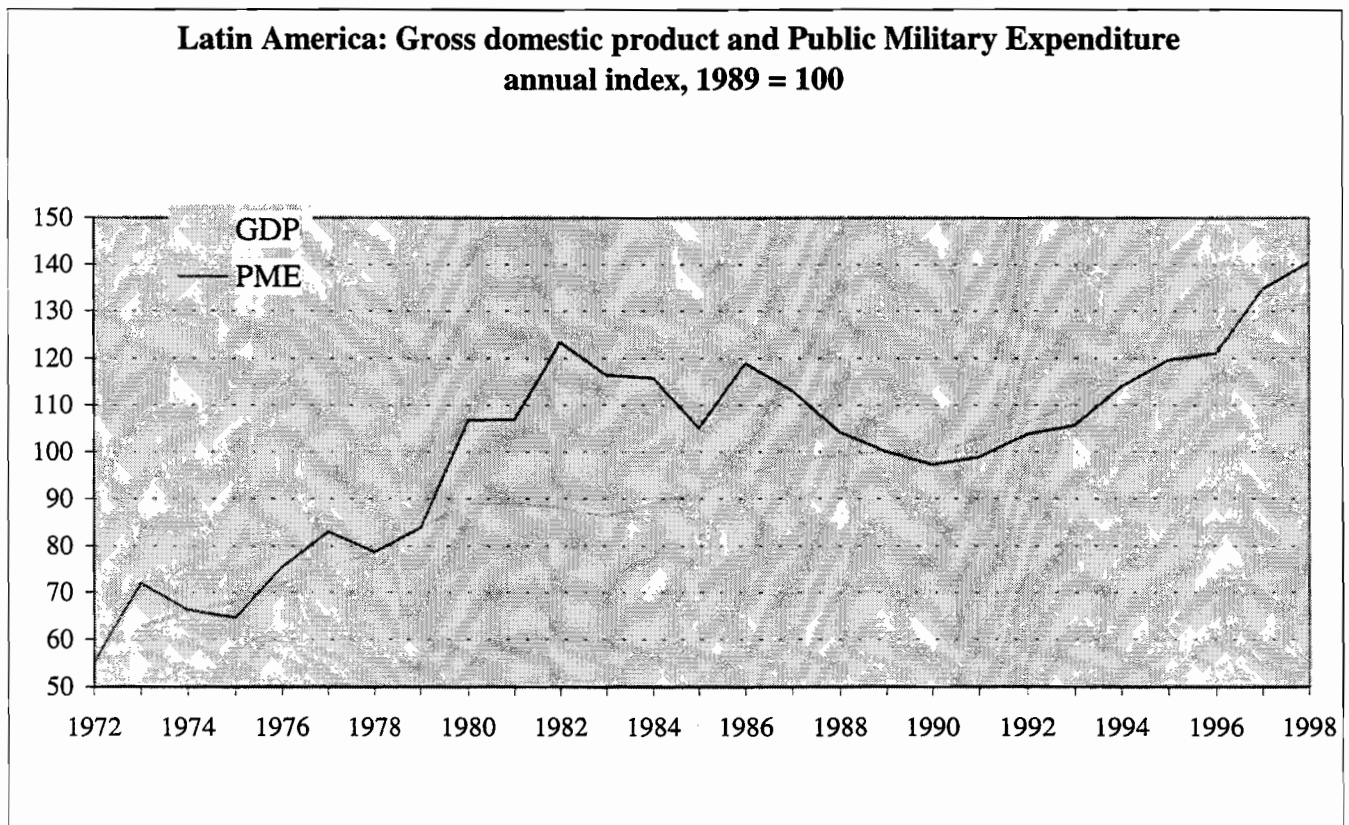
Selected Latin American and Caribbean countries: Indicators of public military expenditure and size of armed forces, 1997-1998 a

Countries	Per capita public military expenditure, 1998 (Dollars)	Size of armed forces, 1997	
		Military personnel per 1 000 inhabitants	Military personnel per 1 000 km ²
Argentina	112.2	2.0	2.6
Bolivia	19.1	4.4	3.0
Brazil	66.7	1.9	3.7
Chile	151.2	6.4	12.4
Colombia	64.1	3.6	12.8
Cuba	...	5.4	52.4
Ecuador	28.6	4.8	20.3
El Salvador	13.6	4.7	135.2
Guatemala	12.2	3.9	37.6
Jamaica	8.7	0.4	30.0
Mexico	16.3	1.9	8.9
Paraguay	27.3	3.9	5.0
Peru	55.7	5.1	9.7
Dominican Republic	9.5	3.1	50.3
Uruguay	104.4	8.0	14.5
Venezuela	88.5	2.5	6.1
Total average	51.9	3.9	22.0
Weighted average	57.0	2.7	6.2

Source: ECLAC calculations, on the basis of statistics of the International Institute for Strategic Studies, 1998.

a Preliminary figures.

Figure 1



Source: ECLAC estimates based on IMF and SIPRI statistics.

