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Military expenditure *and development* in Latin America

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Public military expenditure (PME) has been analysed very little in the region, mainly for political reasons, which have also limited access to the relevant information. Because of various events, however, it is beginning to be the subject of economic analysis both by governments and by multilateral bodies, 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?). According to the most conservative estimate, based on the official information on defence spending of the countries where this information is available, Latin American and Caribbean PME amounted to 1.3% of GDP (nearly US\$ 25 billion) in the mid-1990s, and its average share of total central government expenditure in the region came to 9.7%. The central governments of the region spend an average of one dollar on defence for every 1.1 dollars of direct expenditure on education or 0.9 dollars on health. As in the case of any other kind of public expenditure, a debate is called for on the efficacy and efficiency of PME in relation to the development process in general and its economic impact in particular. Although there is no exact answer to the question of how to provide the exactly necessary amount of the public good represented by defence, excessive provision of this good undoubtedly represents unproductive expenditure. It is hard to justify the importation of sophisticated arms if this merely serves to restore the balance with a country's neighbours or with the rest of the region, albeit at a higher level of expenditure. Moreover, the opportunity cost of PME is clearly high, while the positive externalities that it generates could be achieved through other forms of public expenditure which provide different and more specialized services.

I

A little-explored area of public expenditure

Public military expenditure (PME) has been the subject of very little analysis in Latin America and Caribbean, mainly for reasons of a political nature, which also limit access to the relevant information, since this is considered to be of a secret or confidential nature. There is thus very little transparency in the analysis of this 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.

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

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 any more.

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 which have taken place in the role played by the State and the government in development strategies have led to keen scrutiny of the efficiency and efficacy of public expenditure, including PME.

As a result of these changes, the segment of public expenditure devoted to defence is beginning to be repeatedly mentioned as a key factor in public efforts to intervene in the economy and their results. The United Nations has played a pioneering role in this field, because as long ago as the mid-1970s it already began to establish programmes and lines of information in this respect. Other organizations, too, have repeatedly emphasized the significance of military expenditure. The International Monetary Fund (IMF), for example, has declared that "excessive" or "unnecessary" military expenditure is an unproductive outlay which, like "white elephant projects", could be cut without affecting the services provided by the public sector.¹

The question of regional security after the end of the Cold War was discussed at the Miami Summit in 1994, and after the Williamsburg Conference in 1995 hemispheric machinery for ministerial-level dialogues was set up. The General Assembly of the Organization of American States (OAS) has adopted various resolutions proposing measures conducive to regional disarmament. For its part, the Rio Group has stated its opposition to arms races in the region. Former Presidents Arias and Carter recently proposed a two-year moratorium on arms purchases in order to give time to arrange a broad arms limitation agreement. This initiative has been supported by the Prime Ministers of Canada, Jamaica and Grenada, as well as by the Presidents of Mexico, Uruguay, Paraguay and Colombia.

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¹ These concepts have been expressed in various documents and statements by IMF officials. Recent examples are the statement delivered by Michel Camdessus, Managing Director of the Fund, at the meeting of the World Confederation of Labour held in Bangkok on 2 December 1997, and the document prepared by the Expenditure Policies Division of the Fiscal Affairs Department of the IMF for a meeting of the Development Assistance Committee of the Organization for Economic Co-operation and Development (OECD) held in Paris on 4 and 5 December of the same year. Both these texts may be found in IMF, 1997.

II

Estimates of military expenditure

Broadly speaking, PME corresponds to the total expenditure associated with the provision of defence. It should include labour, operational and maintenance costs; acquisition of war materiel; military research and development; military construction work; military pension funds; secret defence spending; contributions to international military institutions; civil defence (if its purpose is mainly military); military intelligence; military health and educational institutions; military aid to other nations, and civico-military programmes in which the defence aspect prevails. The indirect costs may be very considerable, as in the case, for example, of tax and tariff concessions granted to defence-related industries.

1. Information sources and problems

There is a general problem with information on 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 defence; 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 defence industries under economic development, and so forth. Quite frequently, the total annual expenditure reported 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 also often do not include statements of net worth which register the assets involved. Military real estate has high maintenance costs which are

quite often out of all proportion to the functions corresponding to defence. Furthermore, military expenditure often helps to finance activities of a civil nature, which should be excluded from accurate accounts on PME.

As noted in a document prepared by the OECD, "the obscurity that surrounds statistics on the national defence 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). 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).

There are various international sources of information on military expenditure. The available databases use differing definitions of this expenditure, as well as differing in their coverage and their treatment of expenditure by calendar or fiscal year. The main sources include the IMF, which publishes *World Economic Outlook* (WEO) and *Government Finance Statistics* (GFS); the Stockholm International Peace Research Institute (SIPRI); the International Institute for Strategic Studies (IISS), and the United States Arms Control and Disarmament Agency (ACDA).

SIPRI uses the NATO definition of military expenditure, whereas GFS is based on the classification of government functions proposed by the United Nations. The IISS uses the definitions of the North Atlantic Treaty Organization (NATO) for the countries which are members of that alliance, but it generally uses data from the defence budget for the other countries, whose definitions may vary. The WEO data are mainly based on information provided by governments, and may therefore differ in their definitions and coverage.

There are functional differences between the NATO and the United Nations definitions, such as the following: the cost of military pensions is considered as military expenditure by NATO but not by the United Nations; operations within the government sector are excluded through consolidation in the

United Nations accounts, but not in those of NATO; the United Nations includes reservists and auxiliary forces, but not the police, Coast Guard or frontier guards, whereas NATO includes the police and paramilitary forces if they are equipped for military operations; civil defence is included by the United Nations but excluded by NATO; military financial assistance is included in the defence expenditure of the recipient country according to the United Nations, but not according to NATO; and assistance in the form of equipment is excluded in both definitions.

The WEO information is calculated by calendar years, like that of SIPRI, but the GFS data correspond to the fiscal year and the IISS information is a mixture of data for fiscal and calendar years (Herrera, 1994; Scheetz, 1994; Gupta, Schiff and Clements, 1996).

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.

2. World military expenditure

Military 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). Towards the end of the 1980s, the industrialized countries were responsible for 55% of military expenditure, while the developing countries accounted for the remaining 45%: a higher proportion than their share in the world product (Bayoumi, Hewitt and Symansky, 1993).

The developing countries imported more than three-quarters of all internationally traded arms between 1978 and 1988 (McNamara, 1991). These imports represented 7% of those countries' total imports between 1972 and 1988. At the peak of their PME (1981), the developing countries devoted 26% of their product to financing that expenditure (Hewitt, 1991a).

With the end of the Cold War and the reduction in military aid, world military expenditure began to go down in the mid-1980s, reaching 2.3% of the world product in 1996 and 1997. This represents a little over 10% of total public expenditure, compared with a level of 14% in 1990 (Gupta, Schiff and Clements, 1996).

3. In Latin America and the Caribbean

According to the most conservative estimate, based on official information on defence expenditure for those countries where this is available, the share of military expenditure in central government expenditure in the Latin American and Caribbean countries averaged 9.7% in the mid-1990s, standing at 8.0% in 1996. In absolute terms, the regional PME came to 1.3% of GDP, equivalent to nearly US\$ 25 billion (table 1).

By definition, these data do not include expenditure on internal security or police work, which according to a recent estimate represented around 0.9% of the regional GDP in 1990-1995. Thus, regional public expenditure on defence, order and internal security amounted to US\$ 45 billion (ECLAC, 1998).²

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.

² Expenditure on public order and internal security has been the most dynamic component in the growth of public expenditure, other than social expenditure. In the 1990s it reached average levels 62% higher than those of the 1985-1989 period in South America and 45% higher in Central America.

TABLE I

**Selected Latin American and Caribbean countries:
Indicators of public military expenditure, 1996
(Percentages)**

Country	Public military expenditure					
	As a percentage of gross domestic product		As a percentage of general government expenditure		As a percentage of public expenditure on education	As a percentage of public expenditure on health
	1990-1995	1996 ^a	1990-1995	1996 ^a	1990-1995	1990-1995
Argentina	1.5	1.2	9.0	7.2	53.6	40.2
Bolivia	2.5	1.9	9.5	7.6	54.7	127.8
Brazil	1.2	1.3	4.2	4.0	121.8	58.4
Chile	3.3	3.0	13.2	12.2	96.5	116.4
Colombia	2.0	2.9	7.5	8.7	76.0	158.8
Ecuador	2.1	2.0	10.9	10.0	84.5	175.6
El Salvador	1.8	0.8	13.2	5.2	202.1	251.2
Guatemala	1.1	1.1	14.7	16.9	88.8	159.7
Jamaica	0.5	0.3	3.9	4.0
Mexico	0.4	0.5	3.2	3.9	28.8	31.0
Paraguay	2.2	1.2	21.3	9.6	84.0	232.5
Dominican Republic	0.7	0.8	3.9	4.0	160.6	136.0
Uruguay	1.8	1.4	6.7	5.0	72.6	60.6
Venezuela	1.8	1.3	11.5	8.6
Total	1.6	1.7	9.7	8.0	92.7	116.0
	1.3 ^b	1.3 ^b	6.0 ^b	5.3 ^b		

Source: ECLAC calculations on the basis of IMF statistics. The shares of PME as a proportion of expenditure on education and health were taken from ECLAC, 1998.

^a Preliminary figures.

^b Corresponds to the weighted average for the countries listed in the table.

On the other hand, Latin America and the Caribbean is the region whose military expenditure increased most markedly in the whole world between 1990 and 1997. Over that period, the increase in the regional PME came to almost US\$ 12 billion (table 2). 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). 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.

The size of military expenditure in terms of the size of the central government structures may be seen from table 1. 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 com-

pared 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 defence 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.

This set of data shows the need to include public military expenditure in analyses of public expenditure in general and 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.

This issue can be analysed from a dual perspective: consideration of defence as a factor of development (section III), and estimation of the direct impacts of PME on the economy (section IV).

TABLE 2

Variation in military expenditure, by regions, 1990-1997
(Billions of dollars)

	1990-1995	1995-1997	1990-1997
All countries	-99.5	-18.3	-117.8
Advanced economies	-10.3	-30.7	-41.0
Industrialized countries	(-21.3)	(-33.8)	(-55.1)
Recently industrialized Asian economies	(9.8)	(2.3)	(12.1)
Developing countries	12.5	9.7	22.2
Africa	-2.3	-1.2	-3.5
Americas	7.9	4.0	11.9
Asia	8.5	2.9	11.4
Middle East ^a	-1.5	4.0	2.5
Countries in transition	-101.7	2.8	-99.9
Former Soviet Union	-97.7	3.6	-94.1
Central Europe	-4.0	-0.9	-4.9

Source: IMF, on the basis of data from *World Economic Outlook*, published in *IMF Survey*, 18 May 1998.

^aIncluding Cyprus, Malta and the European part of Turkey.

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III

Defence as a public good

The main justification for PME is that it helps to obtain a public good: defence. This good—together with 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, forthcoming).

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 been furthered mainly by the contributions of Paul Samuelson (Samuelson, 1954 and 1955).

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 defence automatically benefits all

persons, who receive the same amount of national security as all the other residents of the country.

Public goods are created through economic activities which bring great or small benefits for the community and cannot be rationed by price; consequently, it is not efficient to leave their provision to private enterprise. 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 is made compulsory through taxes (Stiglitz, 1995). Private enterprises do not produce a sufficient amount of public goods because the benefits of the latter are spread so widely among the population that no enterprise or consumer has any economic incentive to supply them (Samuelson and Nord Haus, 1993). Examples of this type of good are the provision of national defence and the maintenance of public internal order, or the financing of fundamental scientific research and public health.

The level of defence provided is not a direct function of military expenditure, and it is not reasonable to use PME as a substitute variable for the level of defence, even if the efficiency factor remains con-

stant. Defining the public good of defence solely in military terms gives a false picture of the actual situation (Ullman, 1993). Security problems include military aspects, but they also include social, political, economic, cultural and environmental aspects. Moreover, the relation of military force to other forms of power is more complex than before. National defence capacity is also determined by other factors, including in particular diplomacy and international law and cooperation (Lahera, 1997).

From another viewpoint, national defence 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.

2. PME and levels of defence

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

As we have seen, the inputs for defence include largely, although not exclusively, different levels of PME, in view of the external political environment: one assumption is that a reduction in PME brings with it a reduction in security and hence also a similar reduction in well-being.

Before deciding on higher military expenditure, however, it should be considered whether this is really necessary in order to achieve the desired objective or if the same effect could be achieved with less resources. It would also be desirable to estimate the marginal social utility of military expenditure and compare it with that of social or economic expenditure.

As also happens with the notion of individual utility, the notion of defence is rather fictitious and a numerical scale of levels of security probably would not mean much (Hewitt, 1991b). By its very nature, it is impossible to carry out a conventional cost/benefit analysis for defence, and in particular for PME, since the costs and benefits vary within very wide ranges and in ways which are often unpredictable (Berthelemy, McNamara and Sen, 1994). There are various aspects which should be taken into account, however.

On the one hand, there is the argument that the level of economic development is proportional to

TABLE 3
Selected Latin American and Caribbean countries:
Indicators of public military expenditure
and size of armed forces, 1996^a

Country	Per capita public military expenditure (Dollars)	Size of armed forces (number of military personnel per 1000 inhabitants)
Argentina	101.3	2.1
Bolivia	17.8	4.5
Brazil	62.4	1.8
Chile	144.0	6.2
Colombia	68.2	4.0
Cuba	...	9.1
Ecuador	50.6	4.9
El Salvador	18.0	4.8
Guatemala	17.2	4.3
Jamaica	5.6	1.2
Mexico	12.3	1.9
Paraguay	21.7	4.0
Peru	53.4	1.9
Dominican Republic	10.4	3.0
Uruguay	95.2	8.1
Venezuela	65.1	2.1
Total	49.6	4.0
	48.0 ^b	2.6 ^b

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

^a Preliminary figures.

^b Corresponds to the weighted average for the countries listed in the table.

that of defence, but during the 1970s and 1980s the developing countries systematically spent a higher proportion of their product on defence than the industrialized countries, so 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 which are sometimes due to historical or corporative factors, the dispersion of such expenditure is extremely high. While the regional per capita PME averaged US\$ 49.6 in 1996, there were big differences between countries. The same is true of the number of military personnel per thousand inhabitants (table 3). Finally, there are countries in the region which have comparable levels of defence but very low military expenditure.

From another point of view, technological development raises further queries in respect of defence. There does not seem to be any other sphere of human activity with such a high rate of creation of new technological programmes, either to maintain strategic

superiority or else not to lose ground to opponents (Pivetti, 1992). The cost of a total attack with survivors or of a total defence 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.

3. The international perspective

Military expenditure by one nation imposes negative externalities on other nations which 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 defence 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. It is impossible to optimize the public good represented by defence through simultaneous proportional increases in PME by neighbouring countries. On the contrary, it may be expected that this will lead to the restoration of the previously existing defence balance, albeit at a higher level of expenditure.

In contrast, the impact of a coordinated reduction in PME on defence levels is very different from that of a unilateral reduction. Whereas the latter al-

most 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 neighbouring countries.

Depending on the rate of advance of the globalization and economic integration processes, situations may be established which require less defence but at the same time give rise to the appearance of virtual frontiers in addition to the existing territorial borders. States have more and more international economic interests, which can either reduce or increase the demand for defence, 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 that involving neighbouring countries which plays up the alleged uncertainty, imbalance and instability.

A coordinated reduction of PME would tend to ensure conditions of stability between neighbouring countries and would help to strengthen the ideal of regional peace. Defence would thus become a regional public good.

IV

The economic impacts of military expenditure

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 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).

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 criticised for the simplistic nature of its econometrics, which are founded on a very basic description of the effects of PME on growth (Deger, 1990).

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 favourable 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, defence 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.

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

In the event of armed conflict, there is obviously massive destruction of human capital and assets. Defence can help to stop this happening, but it can also intensify its results or increase the possibility of such conflict.

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 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. 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 intersectoral 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.

At the same time, 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 which 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 which 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 defence 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 Transamazónica 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.

It has also been claimed that expenditure on military training in developing countries can help to improve the educational level and discipline of the labour 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, public financing and management capacity. In the case of social security services, a privileged public situation tends to be established for the military sector.

3. The Peace Dividend

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 which had 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).

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.

The global reduction of military expenditure has generated a "peace dividend" in the form of faster growth. The countries which 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 which 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).

The "Peace Dividend" 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. 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 defence obtained through PME, thus making possible an increase in non-military expenditure without any marginal sacrifice of that good (Lee and Vedder, 1996).

V

Design, management and evaluation of PME

There has been a weakening of the perception of the State as a rational actor which balances the security benefits provided by the forces acquired against the opportunity cost of non-military expenditure.

PME may be viewed as part of an agent-principal relationship: in general, it is a privileged form of public expenditure which is not discussed in a transparent manner—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 general discussion on its efficiency and efficacy (without prejudice to its specific nature) in line with parameters comparable to those of other types of public expenditure. The same applies to

At the same time, the reduction of military expenditure raises specific problems. 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 labour 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 generation of jobs and the effectiveness and coverage of labour re-training 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).

the evaluation of its impact on social well-being, both in a specific sense and in comparison with the rest of public expenditure.

1. Policy design and level of military expenditure

The elusive nature of the good (defence) 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. Otherwise it is hard to explain through a linear analysis (1 to 1 with GDP) the big differences observed in the levels of expenditure between individual countries.

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 neighbouring 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 which 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).

It is hard to estimate the impact of PME on personal utility. The relation between PME and defence 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 defence 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).

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 serve to explain defence expenditure decisions.

Rational expectations, 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. In some cases there are pre-determined floor or minimum levels for PME based on income from the ex-

ploitation of non-renewable natural resources: in Chile, for example, the armed forces are guaranteed, by a constitutional-level law, 10% of the sales 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).

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.

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 favour such an increase, by increasing the resources available to governments.

Among the factors which have been responsible for the reduction in PME are the democratization processes, the improvement in the global security environment, and the associated decline in military aid.

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 sector of the armed forces in question. Increases in these demands can also be due to the fact that technological advances tend to give rise to an apparent need for higher expenditure on the military sector simply in order not to "fall behind" and thus impose instantaneous minimum levels, or they may be due to tempting offers by arms suppliers. The technological pressure for an increase in PME is constant and seems to be becoming more intense.

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 only known to themselves: they may also be known to their competitors, and in fact this is usually the case. 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.

From the point of view of strategic behaviour, decision-makers' expectations may help to generate a set of regional or subregional actions and reactions

which give rise to purely reactive military expenditure. On the contrary, however, such expectations can also generate quite different effects: for example, a moratorium on the purchase or sale of arms –at the regional, subregional or bilateral level– may bring about a reduction in such expenditure.

In the industrialized countries, it is quite normal that there should be discussions in Parliament about these matters.³ 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 favours the high-level civilian management of defence.

Among the factors determining PME at the political level are international or civil wars and the type of government, since monarchies, authoritarian governments and Socialist governments tend to spend more than multi-party democratic governments.

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 came to US\$ 860 million, of which 30% corresponded to the United States and 25% to the four main European exporters (Lumpe, 1998). The restrictions on the sale of United States war material to the region were lifted in 1997, and one South American country was designated “principal non-NATO ally” by the United States.

VI

Some reflections on appropriate policies

As in the case of any other kind of public expenditure, a debate is in order on the impact, efficacy and efficiency of PME with regard to the development process in general and its economic effects in particular.

³ See, for example, United States Congress, 1997a and 1997b; these two studies openly and sometimes critically analyse the proposals of the Department of Defense, proposing alternative courses of action to make better use of fiscal resources.

2. Management and evaluation of military expenditure

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 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.

The predominant institutional design in the countries of the region is that consisting of a ministry of defence. 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. In general, the present institutions are insufficient to prevent the frequent duplication of efforts and losses of economies of scale in forces which are complementary to each other.

Public expenditure in general is not the subject of evaluation by professionals who are independent of those responsible for designing or managing public policies in Latin America. PME is no exception to this rule, and it also has a 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.

Although there is no precise answer to the question of how to provide the exactly necessary amount of the public good represented by defence, it is obvious that the excessive supply of this good represents unproductive expenditure. For example, it is hard to justify the importation of ultra-sophisticated arms if all that this does is to restore the balance between neighbouring countries or in the region as a whole, albeit at a higher level of expenditure. Moreover, there is a need to determine the opportunity cost of PME, which is clearly high, and the possibility –which also

seems high— of replacing it with specially targeted public expenditure in the case of its externalities.

At the **national level**, the following aspects should be considered:

i) *Cost/benefit ratio of PME*: Before allocating funds for higher military expenditure, the following questions should be asked: Will this expenditure achieve the desired objective? Could the same effect be achieved with fewer resources? Can the marginal social utility of military expenditure be estimated? And how does this utility compare with that of social or economic expenditure? In this sense, it would be interesting to estimate the costs and benefits which countries like Costa Rica have achieved through their low military expenditure.

ii) *Military fiscal institutions*: The same question needs to be asked as in the case of the other public institutions: 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. The financing and acquisition of military equipment should also be subject to standard regulations (Navarro Meza, 1997).

At the **international level**, the following aspects may be highlighted:

i) *Statistics on PME*: The accounting procedures regarding PME should be improved in order to standardize the way the military accounts are presented in the region.

ii) *Imports of arms*: So far, the exporting countries have often fixed the rules, either through sales on specially favourable terms or through the imposition of embargos. The importing countries should fix their own guidelines for arms purchases, which could serve as a containment exercise. 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 a very small number of them have put registration into practice.⁴

⁴ Half of the countries have signed the Agreement, but only five of them send information to the Register.

iii) *External financial assistance*: International cooperation donors and international financial institutions cannot ignore the fungible nature of such financing, which can be used to pay for PME.

iv) *Moratorium on military expenditure*: It would be desirable to study the conditions needed for a regional moratorium, among which are transparency and an increase in mutual confidence. Such a moratorium 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. Ex-Presidents Carter and Arias recently expressed the need for a two-year moratorium in order to bring into being a broad arms limitation agreement. This initiative has been supported by the Prime Ministers of Canada, Grenada and Jamaica, as well as the Presidents of Colombia, Mexico, Paraguay and Uruguay.

v) *Reduction of military expenditure*: 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 other nations, provided the risk expectations go down. 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 defence 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).

vi) *Mechanisms for preventing conflicts*: 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; greater transparency of military policies and the development of unilateral policies designed to show a willingness to resort to the peaceful settlement of

conflicts; 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).

vii) *Peace through development*: During his visit to ECLAC in April 1987, the Pope declared that development is the new name for peace. The United Nations General Assembly has reaffirmed that international peace and social progress are closely interlinked and that the road to peace and justice necessarily passes through development.

(Original: Spanish)

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