

IMF WORKING PAPER

© 1996 International Monetary Fund

This is a *Working Paper* and the author(s) would welcome any comments on the present text. Citations should refer to a *Working Paper* of the International Monetary Fund, mentioning the author(s), and the date of issuance. The views expressed are those of the author(s) and do not necessarily represent those of the Fund.

WP/96/64

INTERNATIONAL MONETARY FUND

Fiscal Affairs Department

Worldwide Military Spending, 1990-95

Prepared by Sanjeev Gupta, Jerald Schiff, and Benedict Clements 1/

June 1996

Abstract

The decline in military spending that began in the mid-1980s continued through 1995, and this decline was widespread both geographically and by level of development. Cuts in military spending appear to have potentially important implications for nonmilitary spending and fiscal adjustment. In contrast to findings for previous periods, military spending has declined more than proportionately in those countries that have reduced total spending. Countries with Fund programs have reduced military spending more sharply than other developing countries, largely reflecting outcomes in the transition economies. Further, military spending appears to have been less resilient in program countries than other developing countries.

JEL Classification Numbers:

H10, H50, H56

1/ The authors wish to thank Ke-young Chu, Daniel Hewitt, Malcolm Knight, Manfred Koch, Nancy Happe, Edgardo Ruggiero, Ludger Schuknecht, Marinus Verhoeven and Gerd Schwartz, for many helpful comments; and Tarja Papavassiliou for computational assistance. The usual disclaimer applies.

	<u>Page</u>
Summary	iv
I. Introduction	1
II. Trends in Aggregate Military Spending	2
III. Military Spending by Country Group	5
IV. Fund-Supported Programs and Military Spending	7
V. Military and Nonmilitary Spending: Crowding-Out and the Peace Dividend	9
1. Analysis by country group	10
2. Individual country experiences	10
VI. Resilience of Military and Social Spending	14
VII. Summary and Conclusions	16
Text Tables	
1. Military Expenditures, 1990-95	4
2. Changes in Military and Other Expenditure for Selected Countries, 1985-92	11
3. Resilience of Military Spending, 1985-92	15
Appendices	
I. Comparability of Data Sources	18
II. Country Groups	19
Appendix Tables	
1. WEO Military Expenditures, 1990-95	21
2. WEO Military Expenditures, 1990-1995	22
3. SIPRI Military Expenditures, 1990-94	23
4. SIPRI Military Expenditures, Consistent Sample, 1990-94	24
5. IISS Military Expenditures, 1990-94	25
6. Comparison of Data Sources, 1985-92	26
7. Increases and Decreases in WEO Defense Expenditures, 1990-95	27
8. SIPRI Military Expenditures, 1990-94	28
9. Comparison of WEO Military Spending, Program and Nonprogram Countries, 1990-95	31
10. Comparison of WEO Military Spending, Program and Nonprogram Countries, Weighted Data, 1990-95	32
11. Change in Military and Other Spending, Selected Countries, 1985-92	33

12.	Change in Military and Other Spending, Selected Countries, SIPRI Comparison, 1985-92	34
Charts		
1.	Military Expenditure, 1990-95	6a
2.	Reduction in Military Expenditure, 1990-95	6b
References		35

Summary

This paper reviews recent developments in military expenditures worldwide and for different country groups. Military spending, which began to decline in the mid-1980s, has continued to decline through 1995, falling to 2.4 percent of GDP from 3.6 percent of GDP worldwide during 1990-95, a decline observable in all regions and for developing and industrial countries alike. The largest declines occurred in countries in transition, 4.9 percentage points of GDP, and the Middle East and Europe, 1.8 percentage points of GDP. In nominal terms, military spending fell by US\$120 billion over the five years, with most of the decline in the former U.S.S.R. The peace dividend in 1995, calculated by comparing actual spending with that which would have resulted from an unchanged military spending-to-GDP ratio, was some US\$345 billion compared with 1990 and US\$720 billion compared with 1985.

It appears that countries making sharp cuts in military spending also reduced nonmilitary spending as well as the fiscal deficit, thereby encouraging private investment. Military spending cuts have also allowed countries to maintain or increase social spending in the face of total spending cuts. On the other hand, higher military spending may have crowded out private investment and, for some countries, public investment.

Countries with Fund programs appear to have reduced military spending more sharply than developing countries as a whole, although this largely reflects outcomes in the transition economies. Evidence over a longer time period suggests that military spending has been less resilient in program countries than nonprogram countries, as nonprogram countries appear to have relied more heavily on cuts in military spending to implement fiscal adjustment.

I. Introduction

The purpose of this paper is to review recent developments in military expenditures worldwide and for different country groups, present a preliminary analysis of the effect of changes in military spending on other expenditures and fiscal stance, and assess the resilience of military spending in the face of fiscal adjustment. Earlier studies, 1/ which analyzed worldwide trends in spending from 1972 to 1990, based on data from Stockholm International Peace Research Institute (SIPRI), had concluded that military expenditures absorbed some 5 percent of the world's output between 1972 and 1990. It was also found that military spending had declined steadily worldwide between 1985 and 1990, from 5.6 percent of GDP to 4.3 percent of GDP, with declines in all regions and for both industrial and developing countries. This decline contrasts with the experience of the previous decade, when there was a significant rise in military spending, 2/ and was attributed to a combination of factors, including a slowdown in economic activity in both industrial and developing countries in the period 1985-90, increased democratization, improvements in the world-wide security environment, and a fall in bilateral military assistance from industrial countries.

There are a number of sources of data on military spending, all of which have shortcomings, resulting in large part from the confidential nature of much military activity. 3/ In addition, different data bases vary mainly by the definition of military spending employed, coverage, and treatment of calendar and fiscal year data. We have attempted to address data problems in several ways. First, the paper presents results from several sources, including the IMF's World Economic Outlook (WEO), SIPRI, and the International Institute for Strategic Studies (IISS). 4/5/ The

1/ See Hewitt (1991a, 1991b, 1992, 1993).

2/ According to Sivard (1987), real military spending increased by an estimated 41 percent worldwide over 1975-85, and 58 percent in developing countries. As a share of GDP, military spending worldwide increased from 5.4 percent to 5.7 percent worldwide, and from 5.1 to 5.6 percent for developing countries, for 1975-85.

3/ For a review of alternative sources of data on military expenditures and arms trade, see Happe and Wakeman-Linn (1994).

4/ We focus the text discussion on the WEO data. This data source provides the most recent data for the largest sample of countries, including transition economies. It does have the shortcomings that, unlike SIPRI data, the definition of military spending may not be entirely consistent across countries. For this reason, we have supplemented the analysis by using data from three other sources. We discuss differences between WEO and the other sources in the text. Results are presented for the three data sources in the Appendix Tables 1-5.

5/ Another frequently cited data base, produced by the U.S. Arms Control and Disarmament Agency (ACDA) was not utilized in this paper, primarily because data from this source are available only through 1993.

countries included in each data base differ, as do results for individual countries and groups of countries. However, the broad trends in military spending are similar. We also compare results obtained from the three data bases, as well as Government Finance Statistics Yearbook (GFS), for a smaller group of countries for which complete data are available for the years 1985-92 for all four data bases. ^{1/} Again, while differences between the data sets exist, the basic picture that emerges from each is similar. Nevertheless, while one can have confidence in broad trends that emerge, particular point estimates, or results for individual country groupings, should be viewed with caution.

We find, utilizing any of the three data sets, that the decline in military spending that began in the mid-1980s has continued through 1995 and that this decline may have had an important effect on nonmilitary spending and the ability of countries to undertake fiscal adjustment. Also, in contrast to findings for previous periods, ^{2/} military spending was seen to be not resilient to fiscal adjustment; that is, rather than increasing its share of total spending when total spending falls, military spending has declined more than proportionately in those countries that have reduced total spending. Countries with Fund programs are seen to have reduced military spending more sharply than developing countries as a whole, although this largely reflects outcomes in the transition economies.

In Section II, we examine worldwide trends in military spending, and provide an estimate of the size of the "peace dividend" associated with the worldwide reductions in military spending. In Section III, we look at military spending by specific country groups. Following that, in Section IV, we examine trends in military spending for countries with Fund-supported stabilization and structural reform programs. Section V considers the impact of changes in military spending on other aspects of fiscal policy, in particular nonmilitary spending and the fiscal deficit, in order to address the issue of how the peace dividend has been used. Section VI examines the issue of whether military spending has been resilient in periods of fiscal adjustment. Finally, Section IV briefly summarizes, discusses potential policy implications, and identifies issues for future research.

II. Trends in Aggregate Military Spending

Our analysis of data for the years between 1991 and 1995 indicates that the downward trend in military spending that began in the mid-1980s has

^{1/} Appendix 1 discusses the comparability of the data sets, and Appendix Table 6 provides results for each. The years 1985-92 were chosen to provide an adequate sample size and time span.

^{2/} See DeMasi and Lorie (1989) and Hewitt (1991a).

continued. Utilizing WEO data for 130 member countries, 1/ weighted by country GDP, we find that worldwide military spending has declined from 3.7 percent of GDP in 1990 to an average of 2.8 percent of GDP over the period 1991-95 and to a low of 2.4 percent of GDP in 1995 (Table 1 and Appendix Table 1). 2/ Results for unweighted WEO data (Appendix Table 2) show a similar decline, from 4.1 percent of GDP to 2.7 percent of GDP over the period 1990-95. It is possible that we are observing, over the last decade or so, a "virtuous cycle" in which military spending reductions in some countries lead to cuts in such spending by other countries, as perceived external risks decline.

The results obtained from SIPRI data are qualitatively similar to those from the WEO data. We examine the SIPRI data in two ways--first by including in our sample any country for which data are available for any year during the period 1990-94 and, second, by limiting the sample to those 68 countries for which data are available for all years 1990-94. The first, larger sample, which varies between 73 and 107 countries shows a decline in military spending from 4.2 to 2.7 percent of GDP between 1990 and 1994 (Appendix Table 3), while the second, smaller sample--which excludes the former U.S.S.R.--shows a somewhat smaller decline, from 3.3 percent of GDP to 2.7 percent of GDP (Appendix Table 4). Data from IISS, covering 90 countries show a decline in military spending worldwide from 3.3 percent of GDP to 2.9 percent of GDP for the years 1990-94 (Appendix Table 5). 3/ Thus, there is unambiguous evidence that worldwide military spending has been declining. 4/ Furthermore, combining these results with those of previous studies, it appears that, in the decade since 1985, military spending may have declined by as much as 3 percentage points of GDP.

In order to further assess the comparability of data from different sources, an evaluation was made of military expenditures for a common set of 43 countries shared by these different data sources for 1985 and 1992. As indicated in Appendix Table 6, it appears that measured global and regional spending are fairly similar in all three data sources, although there are important deviations for some regions with relatively few countries. For example, all four data sources indicate a decline in worldwide military spending of between 1.0 percent of GDP and 1.3 percent of GDP between 1985 and 1992. For industrial countries, the reduction over the period varies from 1.1 percent of GDP for the GFS data to 1.6 percent of GDP for IISS

1/ WEO data are supplied by IMF desk economists for each country, and are based primarily on data supplied by the Government. Data for 1995 are, in many cases, preliminary. However, results for 1995 are consistent with the trend through 1994.

2/ Our results for 1990 are somewhat different than those in Hewitt (1991b) largely reflecting a different sample.

3/ The sample includes those countries for which data are available for each year, 1990-94.

4/ This result is consistent with Arora and Bayoumi (1993) who also use WEO data.

Table 1. Military Expenditures, 1990-95 ^{1/}

	<u>As percent of GDP</u>		<u>Change 1990-95</u>
	1990	1995	<u>(In billions of US\$)</u>
All countries	3.6	2.4	-120.7
Industrial countries	3.2	2.4	-14.2
Developing countries	4.9	2.6	-106.5
Africa	3.0	2.1	-2.8
Asia	2.8	2.3	15.3
Middle East and Europe	8.8	7.0	-0.2
Western Hemisphere	1.3	1.2	6.4
Countries in transition	7.9	3.0	-125.2
Memorandum:			
IMF program countries	5.1	2.0	-119.4

Source: WEO database.

^{1/} Data weighted by country GDP.

^{2/} For a list of countries contained in each country group, see Appendix Table 2.

data. For developing countries, three of the four data sources show a decline over the period, but IISS data indicate an increase from 3.6 percent of GDP to 4.1 percent of GDP. This difference largely reflects differences in results for the developing countries of the Middle East and Europe. ^{1/}

The reduction in worldwide military spending evident during 1990-95 implies a large and growing world-wide resource savings--the so-called peace dividend. According to WEO data, if military expenditure as a share of GDP had been maintained at 1990 levels, spending in 1995 would have been some US\$345 billion higher than observed, and if the expenditure-to-GDP ratio had continued at its 1985 level, military spending would have been some US\$720

^{1/} IISS shows an increase of 5.1 percentage points of GDP for these countries over the period 1985-92, while WEO indicates a decline of 1.8 percentage points of GDP, and the other two data sources show relatively small increases. One possible source of discrepancy across data sources may be the treatment of military spending financed by grants (see Appendix 1).

billion higher in 1995. The nominal level of military spending in the WEO sample declined by US\$121 billion between 1990 and 1995, which reflects almost entirely the decline in spending by transition economies (see Chart 1).

A number of papers, 1/ indicate that cuts in military spending encourage economic growth by increasing capital formation and by improving resource allocation more generally. This raises the issue of how the peace dividend of 1985-95 has, in fact, been used. It may be the case, for instance, that countries have shifted some of these saved resources into more productive areas of government spending, such as basic social services, or returned the peace dividend to the private sector, through lower deficits or tax cuts. We address this issue in greater detail in Section V.

III. Military Spending by Country Group

Analysis of the WEO data between 1990 and 1995 suggests that the decline in military spending as a share of GDP has been widespread both geographically and by level of development (Chart 2). 2/ Note, in particular:

- Military spending by industrial countries declined consistently over the period, from 3.2 percent of GDP in 1990 to 2.4 percent of GDP by 1995, continuing the decline seen since 1985. In nominal terms, industrial countries reduced their military spending by some US\$14 billion in 1995 compared with 1990, implying a large real decline.

- Developing countries as a group (including transition economies) cut their military spending nearly in half as a share of GDP, from 4.9 to 2.6 percent between 1990 and 1995. Small low-income countries reduced military spending sharply over the last three years, from 4.2 percent of GDP in 1993 to 3.2 percent of GDP last year. This is particularly important as these poorest countries can least afford to spend scarce resources on the military. 3/

1/ See, e.g., Knight, Loayza and Villanueva (1996). Also Arora and Bayoumi (1993) and Bayoumi, Hewitt and Schiff (1993).

2/ Results from SIPRI and IISS data are broadly consistent, except where specifically mentioned.

3/ SIPRI data (the large sample) also indicate that developing countries have cut spending sharply through 1994, but from a higher baseline of 7.4 percent of GDP in 1990. IISS data indicate a decline from 4.4 percent of GDP to 3.9 percent of GDP during 1990-94. Results from SIPRI data for small low-income countries (again large sample) suggest an increase in military spending in 1993-94, in contrast to the WEO findings, but the downward trend in military spending is nevertheless maintained over the entire period. In the IISS data, a decline from 5.2 percent of GDP to 4.3 percent of GDP is seen for small low-income countries during 1992-94 (see Appendix Tables 3-5).

• The most dramatic decline was seen among the transition economies, including the former U.S.S.R., 1/ for which military spending declined by nearly 5 percentage points of GDP over 1990-95, from 7.9 percent of GDP to 3 percent of GDP. 2/ Military expenditures in 1995 were US\$125 billion lower than 1990, with more than US\$120 billion of this decline coming from the countries of the former U.S.S.R.

• African countries steadily reduced their spending from 3 percent of GDP in 1990 to 2.1 percent of GDP by 1995, implying a savings of about US\$3 billion last year. Sub-Saharan Africa--which had increased military spending during 1985-90--reduced such spending sharply during the last five years, from 3.2 to 2 percent of GDP. 3/

• Asian countries continued their reduction in military spending from the previous period, lowering these expenditures by 0.5 percentage points of GDP between 1990 and 1995, reaching 2.3 percent of GDP by last year. 4/ However, military spending in the region increased in nominal terms, by US\$15 billion, with US\$9 billion of that reflecting higher spending by the newly industrializing Asian economies.

• Latin American countries, which spend on average the lowest share of GDP on the military of any region, maintained their level of military spending at 1.2 percent of GDP, implying a rise in nominal expenditures of US\$6 billion over 1990-95. 5/

• Developing countries of the Middle East and Europe, which historically have had the highest levels of military spending, reduced such expenditures by nearly 2 percentage points of GDP over the years 1990-95,

1/ Data for transition economies during 1990-95 are consistently available only from the WEO data base. Extreme caution should be used in interpreting these data, given the data problems in many transition economies. Corrections to the WEO data for Russia were made in consultation with the Fund desk economist.

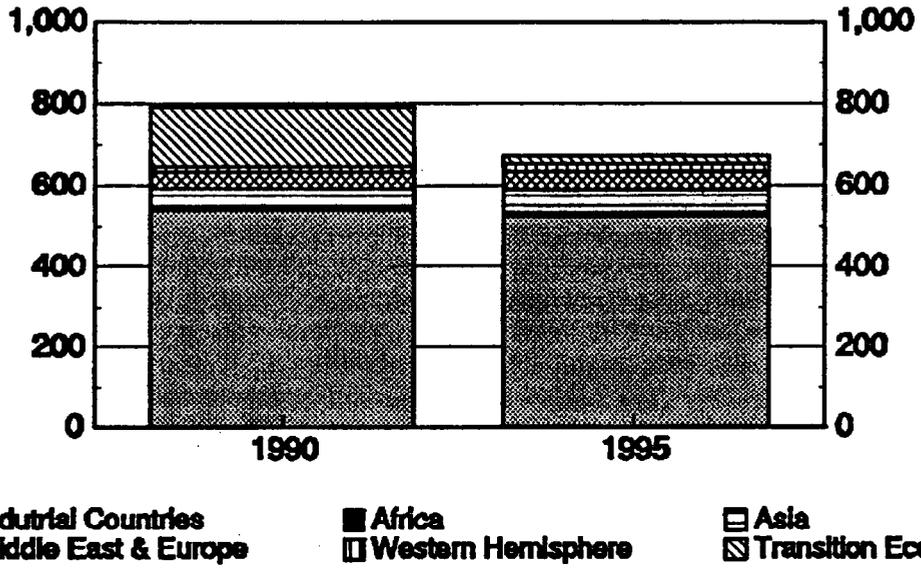
2/ In the data derived from SIPRI, military spending declines from nearly 20 percent of GDP in 1990 to around 2 percent in 1991-92 before rising to 4.9 percent by 1994. However, the sample size in SIPRI for transition economies is only between 5 and 9 countries for various years. In the IISS data for 6 transition economies, spending declines from 3.0 to 2.3 percent of GDP between 1990 and 1994.

3/ In the IISS data, military spending by African countries remained constant, at 3 percent of GDP, between 1990 and 1994, although military spending for Sub-Saharan African did decline by 0.8 percentage points of GDP over the period.

4/ In the IISS data, military spending in Asia rose from 4.0 percent of GDP to 4.2 percent of GDP over the period 1990-94.

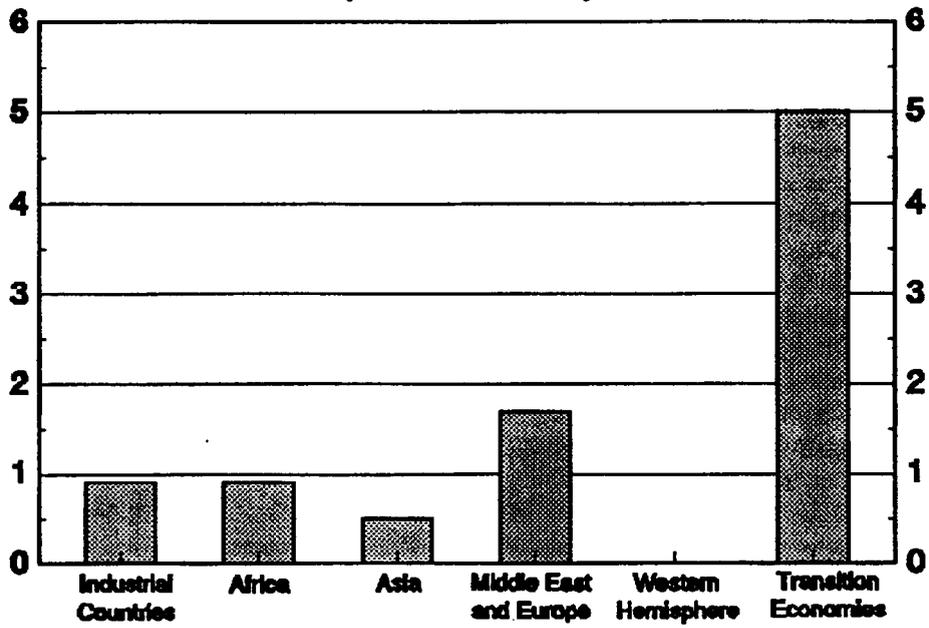
5/ IISS data indicate a rise in spending, from 1.4 percent of GDP to 1.8 percent of GDP over 1990-94. The SIPRI data, by contrast, show a sizable decline, from 1.1 to 0.5 percent of GDP over 1990-94.

Chart 1. Military Expenditure, 1990-95
(In billions of U.S. dollars)



Source: IMF, World Economic Outlook.

**Chart 2. Reduction In Military Expenditure, 1990-95
(Percent of GDP)**



Source: IMF, World Economic Outlook.

reaching 7 percent of GDP by the end of the period. Military spending in the region was virtually unchanged in nominal terms.

The extent to which military spending reductions are indeed a world-wide phenomenon can be seen by examining the expenditure trends for individual countries. Comparing 1990 with average spending for the years 1991-95, we find that 90 countries (69 percent of the sample) reduced military spending as a share of GDP, by an average of 1.6 percentage points of GDP, while only 25 countries (19 percent) increased military spending, by an average of 0.8 percentage points of GDP (Appendix Table 7). ^{1/} Among industrial countries, 17 countries reduced spending, by an average of 0.3 percentage points of GDP, while only one increased spending. Among the transition economies, only one country, which was engaged in armed conflict for much of the period, increased its spending. In Africa, however, the picture is mixed; 13 countries increased military spending while 23 reduced such spending. Interestingly, increases in military spending were relatively more prevalent among heavily indebted countries, for which 6 out of 13 countries in the sample raised spending. ^{2/}

IV. Fund-Supported Programs and Military Spending

One issue of interest is the experience of countries with Fund-supported programs. While there is no conditionality with respect to military spending in Fund-supported programs, the implementation of a stabilization and structural adjustment program might be expected to lead to changes in a country's expenditure level and priorities. We first address this issue by examining the experience of those countries with a Fund-supported program in at least one year between 1991 and 1995. It is found that program countries reduced their military spending from 5.1 percent of GDP in 1990 to a low of 2.0 percent of GDP by the end of the period (Appendix Tables 1 and 9). This represents a larger decline than for nonprogram developing countries, which cut their military spending from 4.5 percent of GDP to 3.2 percent of GDP over the same period. ^{3/} In

^{1/} The remainder of the countries showed a change of less than .05 percent of GDP, which was considered as no change.

^{2/} We are unable to provide WEO data for individual countries due to considerations of confidentiality. However, SIPRI data for 1990-1994 are provided in Appendix Table 8.

^{3/} In the SIPRI data, the decline was from 8.9 percent of GDP to 2.2 percent of GDP for program countries during 1990-94, compared with a fall from 7.4 percent of GDP to 3.5 percent of GDP for all developing countries. In the small sample, which excludes the former U.S.S.R., the decline for program countries is from 2.5 percent of GDP to 2.1 percent of GDP over the period, compared with a similar fall from 3.6 percent of GDP to 3.2 percent of GDP for all developing countries. For IISS data, program countries reduced military spending from 2.8 percent of GDP to 2.5 percent of GDP during 1990-94, compared to a decline from 4.4 percent of GDP to 3.9 percent of GDP for all developing countries.

addition, 48 program countries (66 percent of sample) experienced a decline in military spending as a share of GDP between 1990 and the average of 1991-95, while only 17 (23 percent) increased their military spending, a similar proportion as that for all developing countries (Appendix Table 7).

Military spending also declined as a share of total government spending for program countries, from 19.7 percent in 1990 to 9.9 percent in 1995, indicating that military spending has assumed a lower priority for governments with Fund-supported programs. This compares with a smaller decline, from 18.9 percent of total spending to 15 percent of total spending for nonprogram developing countries over the same period (Appendix Table 9).

One should, however, exercise caution in interpreting this result; program and nonprogram countries may differ in other systematic ways that might independently influence military spending. Countries in different regions may have responded differently to the need for fiscal consolidation and structural reform. In addition, different types of Fund facilities may have a different impact on fiscal policy, and specifically military spending. Further, the possibility exists that any impact that Fund-supported programs have on a country's military spending is influenced by the duration of the program. In what follows, we attempt to analyze the country data with these issues in mind.

A closer examination of the data suggest that differences between program and nonprogram countries reflect, in large part, the behavior of countries in transition, 19 of which entered into Fund-supported programs during the period 1991-95, and which generally reduced military spending sharply from relatively high levels (Appendix Tables 9 and 10).

It is also interesting to note that the size of the reduction in military spending is correlated with the initial level of military spending; countries with higher military spending as a share of GDP in 1990 tended to make larger reductions, and this may partly explain the results for program and nonprogram countries. Program countries, other than the transition economies, tended to have substantially lower military spending at the start of the period--2 percent of GDP compared with 4.6 percent of GDP for nonprogram countries--and thus may have had less scope for further reductions. Among countries in transition, the reverse was true; program countries began the period with higher military spending as a share of GDP, and were able to make much sharper cuts over the five years.

Country behavior with respect to military spending appears to differ by type of program. Countries with stand-by arrangements (SBA) or programs supported by the Systemic Transformation Facility (STF) showed a substantially larger decline in military spending as a share of GDP, 3.7 percentage points, than countries either with programs supported by the Structural Adjustment Facility (SAF) or Enhanced Structural Adjustment Facility (ESAF), 1.3 percentage points of GDP, or with extended arrangements (EFF), 0.5 percentage points of GDP. This again reflects the experience of many countries in transition with programs supported by the STF.

The persistence of the impact of Fund programs is addressed by comparing countries with programs in three or more of the years 1991-95 with those countries with programs during two or fewer of those years. It appears that those countries with longer program experience have tended to reduce military spending more sharply, by 3.5 percentage points of GDP compared with 2.2 percentage points of GDP for those countries with shorter experience.

In Section VI, we examine a different aspect of the comparative behavior of program and nonprogram countries, finding that, over a somewhat longer time period than considered above, program countries appear to have relied more heavily than nonprogram countries on cuts in military spending to affect fiscal adjustment.

V. Military and Nonmilitary Spending: Crowding-Out and the Peace Dividend

Sections II and III of this paper provided evidence on the worldwide decline in military spending. In this context, the question arises of how the resources saved through these cutbacks have been used. One might expect that at least some portion of the peace dividend would be used to increase nonmilitary spending, but a part of the savings could be returned to the private sector, either through a reduced fiscal deficit or lower taxes. ^{1/} For countries in which military spending has increased, the relevant issue is the extent to which higher military spending crowds out other, perhaps more productive, spending, increases the fiscal deficit, or leads the country to raise taxes.

In this analytical framework, causality is assumed to run from military spending to other spending or taxes. At the same time, however, changes in nonmilitary expenditure levels would likely influence military spending. Thus, one might ask to what extent countries that have reduced overall spending, for example as part of overall fiscal adjustment, have reduced military spending. In addition, exogenous changes, such as in the demand for certain public goods, level of revenue available to a government may simultaneously influence both military and other spending.

These factors suggest that it would be quite difficult to observe directly the links between military and other spending. We examine these links in a preliminary way by looking at the experience, on average, of groups of countries that have increased and decreased military spending as well as individual countries with particularly large increases and decreases. These results should, however, be viewed simply as suggestive of the potential interactions between military spending and other aspects of

^{1/} Barro (1974) suggests that a lower fiscal deficit (higher public savings) tends to reduce private savings. This would also need to be factored into a more complete analysis of the crowding-out effect of military spending.

fiscal policy, which could perhaps be examined more rigorously in the context of an econometric model.

1. Analysis by country group

In Table 2, we compare the experience of those countries increasing and decreasing their military spending over the period 1985-92. ^{1/} It appears that many countries undertaking fiscal adjustment during this period looked to cuts in military spending as a primary component of this adjustment. Countries that reduced military spending as a share of GDP also, on average, cut nonmilitary and total spending as a share of GDP. In addition, these countries were able to reduce the central government deficit despite falling revenue-to-GDP ratio, with cuts in military spending averaging 56 percent of the decline in total expenditures.

Thus, it appears that reductions in military spending have not been associated with increases in other spending. This is not to deny that there exists a peace dividend, but simply that its use is difficult to observe directly. In fact, if military spending had not declined in these countries, other spending would presumably have had to decline even more than it did, and/or there would have been additional crowding-out of private sector activity, either through higher taxes or increased fiscal deficits.

Countries increasing military spending have behaved in a symmetric way to those cutting military expenditures. Increases in military spending have tended to come in the context of higher nonmilitary and total spending, as well as sharp increases in the deficit. This last point suggests that military spending may have crowded out private sector investment, although a direct empirical investigation of this relationship is beyond the scope of this paper. Also, despite higher total spending, capital spending declined, suggesting that higher military spending may have crowded out public investment as well.

2. Individual country experiences

Additional insight into the impact of changes in military spending can be gained by looking at the experiences of individual countries. Appendix Table 11 shows, for those countries with the largest increases and decreases in military spending over 1985-92, total spending, current spending and its

^{1/} Table 2 omits countries of the former U.S.S.R., as they did not exist as independent countries for much of the period in question. The year 1992 was chosen as the terminal year because availability of data on spending by functional categories from GFS, examined below, drops off sharply after 1992.

Table 2. Changes in Military and Other Expenditure for Selected Countries, 1985-92 ^{1/}

(Changes in spending as percent of GDP)

	Expenditure:			Current	Capital	Total Revenue	Deficit ^{2/}	No. of Countries
	Military	Nonmilitary	Total					
Countries increasing military spending	1.1	1.8	2.9	3.2	-0.4	-3.3	-6.2	29
Countries with no change in military spending ^{3/}	--	-0.1	-0.1	0.9	-1.0	0.2	0.3	6
Countries decreasing military spending	-2.0	-1.6	-3.6	-2.1	-1.5	-1.8	1.8	51

Source: WEO database.

^{1/} Unweighted average, for those countries in WEO sample without missing data.

^{2/} Change in total revenue less change in total expenditure. Negative sign implies increase in deficit.

^{3/} Change in military spending of less than .05 percent of GDP.

components, and capital spending and net lending, as well as total revenue. 1/

Data for individual countries broadly support the conclusions reached on the basis of averages. Of the developing countries with the ten largest reductions in military spending as a share of GDP, nine also show reductions in nonmilitary spending. For these nine countries, the reduction in military spending over the period 1985-92 averaged 6.7 percentage points of GDP, accounting for 45 percent of the cutback in total spending. Thus, reductions in military spending appear to have played a significant role in the reduction of total spending for these countries.

We can make inferences about the use of the peace dividend by examining spending composition. Many of the developing countries were able to maintain their level of social spending even in the face of the sharp declines noted in total expenditure. 2/ In fact, an average increase of 2.1 percentage points of GDP is observed for the seven countries for which data are available, 0.7 percent of GDP for social security and 1.4 percentage points of GDP for other social spending. One plausible interpretation of these data is that reductions in military spending allowed these countries to maintain or increase social spending despite the need for sharp overall spending cuts. 3/ Of course, it is impossible to say, at this level of aggregation, and without a detailed sectoral analysis, whether a shift from military to social spending would have improved the efficiency and equity of public spending in these countries. However, it is generally believed that some social spending, e.g., in the areas of primary education and basic health care, do potentially have high social rates of return. 4/

In addition, seven of the ten developing countries with the largest cuts in military spending experienced reductions in the deficit, despite the

1/ WEO data were used for military, total, current and capital spending. However, since the WEO does not provide expenditure data by functional classification, these data were combined with GFS data on central government spending by function, where available. For many countries, total spending levels from one source differs from that in the other. In general, the disparities across the two data sources increase our caution in reaching conclusions based on these data. However, as the focus in this paper is on the direction of change rather than precise magnitudes, the importance of this problem is somewhat limited. The analysis was also replicated using SIPRI data on military spending. Results, which are qualitatively similar to those for WEO, are summarized in Appendix Table 12.

2/ Social spending is disaggregated into social security and other, which comprises health, education and housing.

3/ This result is similar to Hewitt (1991b) who finds that during fiscal retrenchments over the period 1975-87, social spending was generally protected while military spending was cut back.

4/ See, for example, Chu, et. al. (1995).

fact that the revenue-to-GDP ratio declined by an average of 7 percentage points of GDP for the group as a whole. In this way, the cutback in military spending may have encouraged private investment.

For industrial countries that experienced large declines in military spending, the results are mixed. Of the five countries with the largest declines in military spending in the industrial world over the period 1985-92, three increased nonmilitary and total spending, while two sharply reduced total expenditures. All three countries which increased their nonmilitary spending also increased their spending on health, education and housing, suggesting some diversion of military spending to the social sector as part of the peace dividend.

The developing countries with the ten largest increases in military spending over the period 1985-92 averaged a rise of 2.7 percentage points of GDP in such spending. In six of the ten cases, both total and nonmilitary spending rose as a share of GDP, as was the case on average. For those countries, military spending accounted for an average of 18 percent of the total increase in spending. In all three cases for which data are available, social spending rose, by an average of 9.4 percentage points of GDP, suggesting that social spending was not substantially crowded-out by higher military spending, ^{1/} while economic services declined in each case. In addition, the deficit of the central government increased in five of the six countries, suggesting that higher military and social spending may have primarily crowded out private investment.

For the four remaining countries, however, the large increases in military spending were associated with declines in nonmilitary and total spending. In each of these cases, total revenue declined sharply as a share of GDP, presumably contributing to the need to reduce spending. The brunt of the adjustment was borne by capital spending, which declined dramatically, by an average of more than 11 percentage points of GDP. Current spending, in contrast, increased on average. Thus, military spending appears to have crowded out public investment in these four cases, perhaps with negative consequences for future growth. In three of the cases, the deficit rose as well, with potential implications for private investment.

There were only two industrial countries with increases in military spending as a share of GDP over the period. In both cases the increases were small, and were part of a much larger increase in total spending and the deficit, driven largely by higher social spending.

^{1/} Thus, for both those countries increasing and decreasing military spending, social spending appears to have increased. However, the reasons for the increase may have varied. For instance, for those countries cutting back sharply the size of their armed forces, it may be necessary to increase spending on social safety net programs, pensions or severance payments for those soldiers and civilian workers affected.

VI. Resilience of Military and Social Spending

The previous section attempted to examine the impact of military spending on other fiscal variables, including total and social spending, by looking at the experiences of countries with large increases and decreases in military spending. We now turn the relationship around, to examine the impact of changes in total expenditure on military and other spending, by focusing on the experiences of those countries with relatively large increases and decreases in total spending. Again, this represents a preliminary analysis of a complex simultaneous relationship between military spending, nonmilitary spending, and a number of other variables. We look at the extent to which military and social spending have been resilient in the face of overall budget cuts, and how military and social spending are affected by increases in overall spending.

This analysis follows DeMasi and Lorie (1989) and Hewitt (1991a). The former find that, during the period 1978-84, military spending in developing countries tended to exhibit resilience during those IMF-supported programs that emphasized fiscal tightening, but that in programs accompanied by fiscal accommodation, the nonmilitary sector tended to be given priority. Hewitt (1991a) finds, similarly, that for the period 1972-88 military spending exhibited an elasticity of less than unity with respect to total government spending, implying that military spending was not resilient during fiscal expansion, but was during periods of fiscal contraction. ^{1/} Our results indicate that military spending during the more recent period of 1985-92, has not been resilient either to fiscal tightening or expansion. In particular, countries that implemented fiscal adjustment appear to have largely protected the social sector, while military spending bore a substantial part of the burden of adjustment.

In Table 3, we see that of the 51 countries for which complete data on total, ^{2/} military and social spending are available, total spending declined in 29 countries (57 percent) over the period 1985-92. For these countries, military spending declined, on average, by 1.7 percentage points of GDP, contributing some 28 percent of the total budget cut. Military spending declined more than proportionally to total spending, falling by an average of 1.5 percentage points of total spending over the period. This result contrasts with that for social spending, which increased its share of total spending by over 6 percentage points of total spending.

^{1/} On the other hand, Hewitt (1991b) finds that, for a smaller sample of countries over the same period 1972-1988, countries facing the need for fiscal retrenchment tended to reduce military spending while maintaining social spending.

^{2/} Social spending data are from GFS, and data for the other two variables from WEO. The data set is limited due to the need for complete country data from each of the two sets. Countries of the former U.S.S.R. are excluded.

Table 3. Resilience of Military Spending, 1985-92

	Change in Expenditure as Share of GDP 1/		Change in Expenditure as Share of Total Spending 1/		No. of Countries
	Total	Military	Military	Social	
Countries increasing					
total spending	6.3	0.1	-1.9	0.4	22
IMF Program Countries	3.7	-0.2	-3.0	2.3	8
Countries decreasing					
total spending	-6.1	-1.7	-1.5	6.4	29
IMF Program Countries	-5.8	-1.7	-2.8	5.4	12
Total	-0.8	-0.9	-1.7	3.8	51
IMF Program Countries	-1.9	-1.1	-3.0	4.1	20

1/ Unweighted data.

Sources: WEO database; and GFS.

If we limit the analysis to countries with Fund-supported programs, this result is, if anything, strengthened. Of the 19 program countries in the sample, 11 (58 percent) reduced total spending. Of these 11, military spending declined by an average of 2.8 percentage points of total spending, while social spending increased by 5.4 percentage points of total spending.

Our results for countries increasing total spending are qualitatively similar to those in DeMasi and Lorie (1989) and Hewitt (1991a), with increases in spending going disproportionately to nonmilitary and, in particular, social spending. For the 22 countries increasing total expenditures, military spending was virtually unchanged as a share of GDP, so that the share of military spending in total spending declined by almost 2 percentage points. Social spending rose as a share of total spending by 0.4 percentage points. Again, results in Fund program countries were stronger, with military spending declining by 3 percentage points of total spending and social spending rising by 2.3 percentage points of total spending.

In short, during the years 1985-92, military spending became a somewhat lower priority for countries, on average, declining by 1.7 percent of total spending, while social spending increased its average importance in the budget, by 3.8 percentage points of total spending. Countries increasing total spending as a share of GDP only maintained military spending as a

share of GDP, while those cutting total spending as a share of GDP tended to reduce military spending relatively sharply.

This was particularly the case for countries with Fund-supported programs. Thus, while our comparison of program and nonprogram countries in Section IV was inconclusive, this analysis of resilience suggests that, over a longer period of time, the existence of a Fund program may have led countries to rely somewhat more heavily on cuts in military spending to implement fiscal adjustment, and to focus more on nonmilitary, and in particular social, spending when increasing total spending. That is, military spending seems to have been less resilient in countries with Fund-supported programs than in those without such programs.

VII. Summary and Conclusions

Our analysis of both WEO and other data sources indicates that the decline in military spending which began in the mid-1980s has continued through 1994/95. This decline, in terms of share of GDP, is broad-based by region and for developing and industrial countries alike. In terms of cuts in nominal spending, however, most of the decline has taken place in the former U.S.S.R. The peace dividend in 1995 was some \$345 billion dollars compared with 1990 spending levels and \$720 billion compared with 1985.

Results suggest that countries that made sharp cuts in military spending typically also reduced nonmilitary spending as well as the fiscal deficit, thereby potentially encouraging private investment. There is indirect evidence that military spending cuts also allowed countries to maintain or increase social spending in the face of total spending cuts. On the other hand, increases in military spending were associated with increases in other spending and sharp increases in the deficit. Further, higher military spending may have crowded out private investment and, for some countries, public investment. Military spending, in contrast to previous periods, does not appear to have been resilient in the face of spending cuts during 1990-95, bearing a more than proportionate share of the burden of these cuts. Countries with Fund-supported programs made larger reductions in military spending than other developing countries during the period, although this appears to reflect, in large part, the behavior of economies in transition. There is some evidence that, over a longer period of time, military spending has been less resilient in program countries than nonprogram countries.

This paper points to a number of potential areas for future research. A more complete analysis of the use of the peace dividend would require a rather complex structural model, based on explicit behavioral assumptions regarding government decision-making, and linking military spending to other spending as well as revenues. In addition, a more complete understanding of the role of Fund-supported programs in the determination of military spending levels would also benefit from a fully-developed model of government spending behavior, which would allow one to separate the impact of a program per se from other differences among countries.

Finally, the question arises of likely future trends in military spending. This of course will depend on a great many factors, including the future state of world security, that are difficult to predict. Nevertheless, some minimum level of spending for adequate defense is likely to remain necessary for the foreseeable future; as our results suggest, cuts in military spending have tended to be smaller for those countries with lower levels of such spending. Thus, reductions in military spending relative to GDP are unlikely to continue, at least at the same pace witnessed since 1985. Further, the decline in military spending over the last five years reflects, in part, a sharp cut in nominal spending by countries of the former Soviet Union, which are not expected to be repeated. This makes it all the more imperative that the savings from cuts already made be used in an efficient and equitable manner.

Comparability of Data Sources

A number of sources are available for data on military expenditures. 1/ Among the most important of these is the Stockholm International Peace Research Institute (SIPRI), the International Institute for Strategic Studies, and two databases maintained by the International Monetary Fund: the World Economic Outlook (WEO) database, and the Government Finance Statistics (GFS) database. As noted in Happe and Wakeman-Linn (1994), one difficulty in comparing aggregate military expenditure across data sources is their differing country coverage. The timeliness with which data are reported also varies markedly for each data source; WEO data are the most current, while SIPRI data are available until 1994, but with more complete coverage until 1993, and IISS data generally are available through 1994. GFS data for functional spending categories are the most incomplete for recent time periods, with observations for only 30 countries for 1994.

The data sources differ as well by their definition of military spending. SIPRI uses the NATO definition of military spending as its guideline, while GFS relies on the United Nations' Classifications of the Functions of Government (COFOG). IISS uses the NATO definition for NATO countries, but generally uses defense budget data for other countries, which may vary in their definitions of defense spending. WEO data are based largely on information provided by governments, and so may differ in precise definition and coverage. The NATO and COFOG definitions vary in a number of ways, including: (1) the cost of military pensions is included as military spending by NATO, but not by COFOG; (2) operations within the government sector are excluded through consolidation in COFOG, but not in NATO; (3) COFOG includes reserves and auxiliary forces, but not police, border and coast guards, while NATO includes police and paramilitary forces if they are equipped for military operations; (4) civil defense is included in COFOG, but excluded from NATO; and (5) military cash grants are included in defense spending of the recipient country under COFOG, but not NATO. Note that in-kind grants are excluded from both definitions.

In addition, the data sources differ regarding their treatment of calendar versus fiscal year. WEO data, submitted by Fund country desk officers, are required to be calculated on a calendar year basis. SIPRI data are calculated on a calendar year basis as well. However, GFS data are fiscal year, with a GDP to match the fiscal year. IISS data is a mix of fiscal and calendar year data.

1/ For a comprehensive overview of sources, see Happe and Wakeman-Linn (1994). This Appendix is drawn from that source.

Country Groups

Industrial Countries	Africa	Asia	Europe and Middle East	Latin America and Caribbean	Countries in Transition
Australia	Algeria	Bangladesh	Bahrain	Argentina	Armenia
Austria	Botswana	China	Cyprus	Bahamas, The	Azerbaijan
Belgium	Burkina Faso	Fiji	Egypt	Barbados	Belarus
Canada	Cameroon	India	Iran, Islamic Republic	Bolivia	Bulgaria
Denmark	Cape Verde	Indonesia	Israel	Brazil	Croatia
Finland	Central African Republic	Korea	Jordan	Chile	Czech Republic
France	Chad	Malaysia	Kuwait	Colombia	Estonia
Germany	Comoros	Myanmar	Malta	Dominican Republic	Georgia
Greece	Congo	Philippines	Oman	Ecuador	Hungary
Ireland	Côte d'Ivoire	Singapore	Saudi Arabia	El Salvador	Kazakhstan
Italy	Djibouti	Taiwan Province of China	Syrian Arab Rep.	Guatemala	Kyrgyz Republic
Japan	Equatorial Guinea	Thailand	Turkey	Honduras	Latvia
Netherlands	Ethiopia	Vanuatu	Yemen, Rep. of	Jamaica	Lithuania
New Zealand	Gabon			Mexico	Macedonia, Former Yugoslav Rep. of
Norway	Gambia, The			Nicaragua	Moldova
Portugal	Ghana			Paraguay	Romania
Spain	Guinea			Trinidad and Tobago	Russia
Sweden	Kenya			Uruguay	Slovenia
Switzerland	Madagascar			Venezuela	Tajikistan
United Kingdom	Malawi				Turkmenistan
United States	Mali				Ukraine
	Mauritania				Uzbekistan
	Mauritius				
	Morocco				
	Mozambique				
	Niger				
	Nigeria				
	Rwanda				
	São Tome & Principe				
	Senegal				
	Seychelles				
	Sierra Leone				
	South Africa				
	Sudan				
	Swaziland				
	Tanzania				
	Togo				
	Tunisia				
	Zaire				
	Zambia				
	Zimbabwe				

Country Groups (concluded)

Net Creditor Nations	Heavily Indebted	Small Low-Income Economies	IMF Program Countries	
Iran, Islamic Republic of	Argentina	Bangladesh	Algeria	Kazakstan
Kuwait	Bolivia	Burkina Faso	Argentina	Kenya
Oman	Brazil	Central African Republic	Armenia	Kyrgyz Republic
Saudi Arabia	Chile	Chad	Azerbaijan	Latvia
Taiwan Province of China	Colombia	Comoros	Bangladesh	Lithuania
	Côte d'Ivoire	Equatorial Guinea	Barbados	Macedonia, Former Yugoslav Rep. of
	Ecuador	Ethiopia	Belarus	Madagascar
	Mexico	Gambia, The	Bolivia	Malawi
	Morocco	Ghana	Brazil	Mali
	Nigeria	Guinea	Bulgaria	Mauritania
	Philippines	Kenya	Burkina Faso	Mexico
	Uruguay	Madagascar	Cameroon	Moldova
	Venezuela	Malawi	Central African Republic	Morocco
		Mali	Chad	Mozambique
		Mauritania	Comoros	Nicaragua
		Mozambique	Congo	Niger
		Myanmar	Côte d'Ivoire	Nigeria
		Niger	Croatia	Pakistan
		Pakistan	Czech Republic	Philippines
		Rwanda	Dominican Republic	Romania
		Sao Tome & Principe	Ecuador	Russia
		Senegal	Egypt	Rwanda
		Sierra Leone	El Salvador	Sao Tome & Principe
		Sudan	Equatorial Guinea	Senegal
		Tanzania	Estonia	Sierra Leone
		Togo	Ethiopia	Tanzania
		Vanuatu	Gabon	Togo
		Zaire	Gambia, The	Trinidad and Tobago
		Zambia	Georgia	Tunisia
			Ghana	Turkey
			Guatemala	Ukraine
			Guinea	Uruguay
			Honduras	Uzbekistan
			Hungary	Venezuela
			India	Zambia
			Jamaica	Zimbabwe
			Jordan	

Source: WEO database.

Appendix Table 1. WEO Military Expenditures, 1990-95 ^{1/}

(As percent of GDP)

	1990	1991	1992	1993	1994	1995	Average 1991-95	Change 1990-95		No. of countries
								Percent of GDP	in billions of US\$	
All countries	3.6	3.3	2.9	2.8	2.6	2.4	2.8	-1.2	-120.7	130
Excluding former U.S.S.R.	3.2	3.2	2.9	2.7	2.6	2.4	2.8	-0.8	-0.1	115
Industrial countries	3.2	3.1	2.9	2.7	2.5	2.4	2.7	-0.9	-14.2	21
Developing countries	4.9	3.8	2.9	2.8	2.8	2.6	3.0	-2.3	-106.5	109
Africa	3.0	2.8	2.5	2.6	2.3	2.1	2.5	-0.9	-2.8	41
Sub-Saharan Africa	3.2	3.1	2.6	2.8	2.2	2.0	2.5	-1.3	-1.8	36
Asia	2.8	2.8	2.7	2.6	2.5	2.3	2.6	-0.5	15.3	14
Newly industrializing Asian economies	4.1	4.0	4.0	3.8	3.6	3.5	3.8	-0.6	9.0	3
Middle East and Europe	8.8	8.7	6.9	7.0	7.6	7.0	7.4	-1.7	-0.2	13
Western Hemisphere	1.3	1.2	1.2	1.2	1.2	1.2	1.2	-0.0	6.4	19
Countries in transition	7.9	5.1	3.7	3.8	4.5	3.0	4.1	-5.0	-125.2	22
Central Europe	4.3	4.6	2.8	2.4	2.5	2.6	3.0	-1.7	-4.6	7
Former U.S.S.R.	8.4	5.2	4.6	4.7	5.4	3.1	4.6	-5.3	-120.6	15
Miscellaneous categories of developing countries:										
Heavily indebted	1.3	1.3	1.3	1.3	1.2	1.3	1.3	-0.0	7.1	13
Small low-income economies	4.4	4.3	4.1	4.2	3.8	3.2	3.9	-1.3	0.7	29
Net creditor nations	9.3	9.1	6.8	7.0	6.9	6.4	7.2	-2.9	-3.1	5
IMF program countries	5.1	3.5	2.1	2.1	2.2	2.0	2.4	-3.0	-119.4	73
Excluding former U.S.S.R.	2.3	2.2	1.9	1.9	1.8	1.8	1.9	-0.5	0.2	60

Source: WEO database.

^{1/} Weighted by country GDP.

Appendix Table 2. WEO Military Expenditures, 1990-1995 ^{1/}

(As percent of GDP)

	1990	1991	1992	1993	1994	1995	Average 1991-95	Change 1990-95
All countries	4.1	4.0	3.2	3.0	2.8	2.7	3.1	-1.4
Excluding former U.S.S.R.	3.7	3.9	3.2	3.1	2.8	2.7	3.1	-1.0
Industrial countries	2.3	2.3	2.2	2.1	2.0	1.9	2.1	-0.4
Developing countries	4.4	4.3	3.4	3.2	2.9	2.8	3.6	-1.6
Africa	3.0	3.1	3.0	3.0	2.5	2.3	2.8	-0.8
Sub-Saharan Africa	3.1	3.2	3.1	3.0	2.4	2.2	2.8	-0.9
Asia	3.0	2.9	2.8	2.8	2.6	2.5	2.7	-0.5
Newly industrializing								
Asian economies	4.3	4.1	4.1	3.9	3.6	3.5	3.9	-0.7
Middle East and Europe	11.3	13.9	7.9	7.4	7.5	7.2	8.8	-4.1
Western Hemisphere	1.5	1.6	1.5	1.4	1.3	1.4	1.5	-0.2
Countries in transition	6.5	4.2	3.3	2.8	2.7	2.9	4.4	-3.6
Central Europe	4.4	4.1	3.8	3.0	3.1	3.4	3.5	-1.0
Former U.S.S.R.	7.5	4.3	3.1	2.7	2.5	2.6	3.0	-4.8
Miscellaneous categories								
of developing countries:								
Heavily indebted	1.8	1.8	1.8	1.8	1.8	1.8	1.8	0.1
Small low-income economies	3.4	3.3	3.1	3.1	2.5	2.3	2.9	-1.1
Net creditor nations	17.6	24.6	9.5	8.9	9.3	8.9	12.2	-8.7
IMF program countries	3.8	3.3	2.7	2.6	2.4	2.2	2.6	-1.6
Excluding former U.S.S.R.	3.0	2.9	2.7	2.5	2.3	2.2	2.5	-0.7

Source: WEO database.

^{1/} Unweighted averages.

Appendix Table 3. SIPRI Military Expenditures, 1990-94 ^{1/}

(As percent of GDP)

	1990	1991	1992	1993	1994	Average 1991-94	Change 1990-94	Number of countries ^{3/}
All countries	4.2	3.1	3.0	2.9	2.7	2.9	-1.5	73-107
Excluding former U.S.S.R.	3.3	3.1	3.0	2.9	2.7	2.9	-0.6	70-106
Industrial countries	3.3	3.0	3.0	2.8	2.6	2.9	-0.7	22
Developing countries	7.4	3.6	3.0	3.3	3.5	3.3	-3.9	51-85
Africa	2.8	2.5	2.4	2.4	2.7	2.5	-0.1	14-30
Sub-Saharan Africa	3.3	2.9	2.2	2.3	2.3	2.4	-1.0	11-25
Asia	3.4	3.3	3.2	3.1	3.1	3.2	-0.3	14-17
Newly industrializing Asian economies	4.3	4.2	4.1	3.8	3.8	4.0	-0.5	3
Middle East and Europe	8.1	10.9	7.2	7.2	7.1	8.1	-1.0	9-14
Western Hemisphere	1.1	0.8	0.8	0.7	0.5	0.7	-0.6	5-18
Countries in transition	19.8	2.1	2.5	4.2	4.9	3.4	-14.9	5-9
Central Europe and Mongolia	3.1	2.1	2.5	2.5	2.7	2.5	-0.4	5-6
Former U.S.S.R. ^{2/}	22.5	...	...	6.1	6.3	6.2	-16.2	1-3
Miscellaneous categories of developing countries:								
Heavily indebted	1.6	1.7	0.9	0.1	0.1	0.7	-1.5	5-14
Small low-income economies	4.0	3.8	3.5	3.6	3.8	3.7	-0.2	10-24
Net creditor nations	8.5	11.7	6.9	6.8	6.5	8.0	-2.1	3-6
IMF program countries	8.9	1.8	1.7	2.3	2.9	2.2	-6.0	29-56
Excluding former U.S.S.R.	2.1	1.8	1.7	1.9	2.1	1.9	--	26-55

Source: SIPRI.

^{1/} Weighted by country GDP.

^{2/} For 1990 includes all of former U.S.S.R., for 1993 and 1994 includes Estonia, Latvia and Russian Federation.

^{3/} Sample size varies by year.

Appendix Table 4. SIPRI Military Expenditures, 1990-94 ^{1/2/}

(As percent of GDP)

	1990	1991	1992	1993	1994	Change 1990-94	Average 1991-94	Number of countries
All countries	3.3	3.1	3.0	2.9	2.7	-0.6	2.9	68
Excluding former U.S.S.R.	3.3	3.1	3.0	2.9	2.7	-0.6	2.9	68
Industrial countries	3.3	3.0	3.0	2.8	2.6	-0.7	2.9	22
Developing countries	3.6	4.0	3.3	3.3	3.2	-0.4	3.5	46
Africa	3.0	2.8	2.7	2.7	2.7	-0.3	2.7	13
Sub-Saharan Africa	2.9	3.0	2.5	2.4	2.3	-0.6	2.5	10
Asia	3.4	3.3	3.2	3.1	3.1	-0.3	3.2	14
Newly industrializing Asian economies	4.3	4.2	4.1	3.8	3.8	-0.5	4.0	3
Middle East and Europe	6.7	9.3	6.3	7.0	7.1	0.5	7.4	9
Western Hemisphere	0.6	0.5	0.5	0.5	0.5	-0.1	0.5	5
Countries in transition	3.1	2.1	2.2	2.2	2.2	-0.9	2.2	5
Central Europe and Mongolia Former U.S.S.R.	3.1	2.1	2.2	2.2	2.2	-0.9	2.2	5
Miscellaneous categories of developing countries:								
Heavily indebted	1.0	0.9	0.9	0.8	0.8	-0.2	0.9	5
Small low-income economies	4.2	4.0	3.8	3.8	3.9	-0.3	3.9	9
Net creditor nations	6.6	9.4	5.8	6.6	6.5	-0.1	7.0	3
IMF program countries	2.5	2.2	2.1	2.2	2.1	-0.4	2.1	24

Sources: SIPRI; and WEO database.

^{1/} Weighted by country GDP.

^{2/} All countries have data for 1990-94.

Appendix Table 5. IISS Military Expenditures, 1990-94 ^{1/}

(As percent of GDP)

	1990	1991	1992	1993	1994	Average 1991-94	Change 1990-94	Number of countries
All countries	3.3	3.4	3.2	3.1	2.9	3.1	-0.4	90
Industrial countries	3.1	3.0	3.0	2.9	2.7	2.9	-0.4	22
Developing countries	4.4	5.3	4.5	4.1	3.9	4.4	-0.5	68
Africa	3.0	3.1	2.8	3.1	3.0	3.0	--	16
Sub-saharan Africa	2.9	2.8	2.7	2.8	2.1	2.6	-0.7	11
Asia	4.0	4.2	4.2	4.2	4.2	4.2	0.2	17
Newly industrializing Asian economies	4.8	4.1	4.2	4.4	4.1	4.2	-0.7	2
Middle East and Europe	11.3	19.3	11.6	8.2	7.4	11.6	-3.9	12
Western Hemisphere	1.4	1.6	1.5	1.8	1.8	1.7	0.3	17
Countries in transition	3.0	1.3	3.1	2.4	2.3	2.3	-0.6	6
Miscellaneous categories of developing countries:								
Heavily indebted	1.6	1.7	1.7	1.9	1.9	1.8	0.3	9
Small low-income economies	5.6	5.3	5.2	4.3	4.3	4.8	-1.3	15
Net creditor nations	11.9	20.2	11.0	8.8	7.7	11.9	-4.1	4
IMF program countries	2.8	2.6	2.8	2.6	2.5	2.6	-0.3	42

Source: The International Institute of Strategic Studies, The Military Balance, various years.

^{1/} Weighted by Country GDP.

Appendix Table 6. Comparison of Data From Different Sources, 1985-92 ^{1/}

(As percent of GDP)

	SIPRI Military			WEO Military			GFS Defence			IISS Defence			No. of countries
	1985	1992	Change	1985	1992	Change	1985	1992	Change	1985	1992	Change	
All countries	5.0	3.8	-1.1	5.1	3.8	-1.3	4.8	3.8	-1.0	5.4	4.1	-1.3	43
Industrial countries	5.2	3.9	-1.3	5.3	4.0	-1.4	5.0	3.9	-1.1	5.7	4.1	-1.6	15
Developing countries	3.4	3.2	-0.3	3.6	3.0	-0.6	3.4	3.2	-0.1	3.6	4.1	0.5	28
Africa	3.2	2.8	-0.4	3.2	3.0	-0.2	3.2	2.8	-0.4	3.9	3.3	-0.5	4
Sub-Saharan Africa	1.7	1.4	-0.3	1.6	1.7	0.1	1.7	1.4	-0.3	2.7	2.0	-0.7	2
Asia	3.5	3.0	-0.5	3.5	3.0	-0.5	3.5	3.0	-0.5	3.9	3.3	-0.6	10
Newly industrializing Asian economies	5.0	3.8	-1.2	4.9	3.7	-1.2	5.0	3.8	-1.3	5.5	4.0	-1.5	2
Middle East and Europe	6.9	7.5	0.6	7.6	5.8	-1.8	6.9	8.1	1.2	6.3	11.4	5.1	9
Western Hemisphere	1.0	1.0	--	1.2	1.4	0.2	1.1	0.9	-0.1	1.3	1.2	-0.1	5
Miscellaneous categories of developing countries:													
Heavily indebted	1.1	1.2	0.1	1.3	1.5	0.2	1.2	1.2	--	1.4	1.5	0.1	5
Small low-income economies	5.0	4.3	-0.7	4.8	4.7	-0.1	5.0	4.6	-0.4	5.4	5.8	0.4	4
Net creditor nations	11.2	25.8	14.5	11.6	12.4	0.8	11.6	43.8	32.2	12.8	47.2	34.3	2
IMF program countries	2.9	2.6	-0.3	2.9	2.6	-0.3	2.8	2.4	-0.4	3.0	2.9	-0.1	15

Source: WEO database, GFS, and SIPRI.

^{1/} Weighted data.

Appendix Table 7. Increases and Decreases in WEO Defense Expenditures, 1990-95

(As percent of GDP)

	Number of increases 1990-91/95	Average increase	Number of decreases 1990-91/95	Average decrease	No change ^{1/}
All countries	25	0.8	90	-1.6	15
Industrial countries	1	0.4	17	-0.3	3
Developing countries	24	0.8	73	-1.9	12
Africa	13	1.1	23	-1.1	5
Asia	2	0.2	11	-0.4	1
Middle East and Europe	1	0.8	10	-3.3	2
Western Hemisphere	7	0.3	9	-0.4	3
Countries in transition	1	0.3	20	-3.6	1
Memorandum item:					
Heavily indebted	6	0.3	6	-0.2	1
Small low-income economies	8	0.8	18	-1.2	4
Net creditor nations	--	--	5	-5.4	--
IMF program countries	17	0.6	48	-2.0	8

Source: WEO database.

^{1/} Change less than plus or minus .05 percent of GDP.

Appendix Table 8. SIPRI Military Expenditures, 1990-94

(As percent of GDP)

	1990	1991	1992	1993	1994
Algeria	1.5	1.2	1.8	2.6	3.2
Argentina	0.8	0.8	0.8	0.7	...
Australia	2.2	2.3	2.2	2.2	2.1
Austria	1.0	0.9	0.9	0.9	0.9
Bahrain	5.4	5.6	5.8	5.6	5.4
Bangladesh	1.4	1.3	1.4	1.5	1.5
Belgium	2.4	2.3	1.9	1.8	1.7
Belize	1.2	1.1	1.1	1.1	1.0
Benin	1.8	1.5	1.2	1.3	0.9
Bolivia	2.5	2.4	2.1	2.2	2.1
Botswana	4.4	4.7	4.3	3.8	3.6
Brazil	1.3	0.8	0.8	...	...
Bulgaria	3.7	2.9	2.9	2.9	2.4
Burkina Faso	2.5	...	...	...	1.7
Cameroon	1.5	1.4	1.6	1.7	1.6
Canada	2.0	1.9	1.9	1.9	1.7
Chile	1.8	1.7	1.6	1.6	1.5
Colombia	1.4	1.3	1.5	2.4	...
Costa Rica	0.4	0.3	0.3	0.4	...
Cote d'Ivoire	1.4	1.4	1.4	...	...
Croatia	...	...	7.0	7.3	9.7
Cyprus	0.9	1.1	0.9	3.6	5.7
Czechoslovakia	5.2	4.4	...	...	...
Denmark	2.1	2.1	2.0	2.0	1.9
Dominican Republic	0.5	0.4	...	...	...
Ecuador	1.9	2.1	2.2	...	...
Egypt	4.4	4.3	...	...	...
El Salvador	2.3	2.1	1.8	1.7	1.7
Estonia	...	...	0.5	0.8	0.9
Ethiopia	15.5	9.0	3.4	2.6	...
Fiji	2.2	2.2	1.9	1.9	1.5
Finland	1.6	2.0	2.1	2.0	1.8
France	3.6	3.6	3.4	3.4	3.3
Germany	2.6	2.3	2.1	1.9	1.8
Ghana	0.4	0.6	0.8	1.0	...
Greece	4.7	4.4	4.6	4.5	4.5
Guatemala	1.5	1.2	...	...	...
Honduras	...	...	...	1.3	...
Hungary	2.3	2.2	2.1	1.8	1.5
India	2.9	2.7	2.5	2.6	2.5
Indonesia	1.2	1.1	1.2	1.2	1.2
Iran	2.0	1.7	1.4	1.7	1.6
Ireland	1.3	1.4	1.3	1.2	1.2
Israel	12.3	10.9	10.3	9.4	8.3

Appendix Table 8. (continued) SIPRI Military Expenditures, 1990-94

(As percent of GDP)

	1990	1991	1992	1993	1994
Italy	2.1	2.1	2.0	2.1	2.1
Japan	1.0	0.9	1.0	1.0	1.0
Jordan	7.8	10.2	6.8	...	...
Kenya	2.9	2.4	2.0	2.5	2.6
Korea	3.7	3.7	3.6	3.4	3.4
Kuwait	48.7	117.4	31.8	...	...
Latvia	...	...	1.6	0.9	0.5
Lebanon	5.0	4.8	4.2	4.0	3.5
Lesotho	3.9	3.3	4.5	3.9	2.8
Liberia	4.0	1.3	1.2	1.9	2.0
Luxembourg	0.9	0.9	0.9	0.8	0.8
Madagascar	1.2	1.1	1.1	1.0	...
Malawi	1.3	1.1	1.0	0.8	...
Malaysia	2.6	3.3	3.1	3.1	2.9
Mali	2.1	2.5	...	...	...
Malta	0.9	0.9	0.9	0.9	0.9
Mauritania	3.9	3.5	3.3	3.2	...
Mauritius	0.4	0.4	0.4	0.3	...
Mexico	0.4	0.3	0.3	0.3	0.3
Mongolia	5.7	4.7	2.5	1.5	2.5
Morocco	3.7	3.6	4.1	4.0	3.7
Mozambique	10.1	8.7	8.3	7.6	...
Myanmar	3.4	3.2	3.4	3.3	3.6
Nepal	1.1	1.1	...	...	...
Netherlands	2.6	2.5	2.5	2.3	2.1
New Zealand	1.8	1.7	1.5	1.4	1.3
Nicaragua	2.1	2.8	2.3	2.0	...
Nigeria	0.9	0.7	0.7	0.6	...
Norway	2.9	2.8	3.0	2.8	2.8
Oman	16.2	14.2	15.4	14.9	...
Pakistan	6.2	6.0	6.0	6.3	6.2
Panama	1.5	1.5	1.5	...	...
Papua New Guinea	2.1	1.4	1.4	1.1	1.1
Paraguay	1.2	1.7	1.6	...	...
Peru	2.0	1.5	1.9	...	...
Philippines	2.2	2.1	1.9	1.9	1.8
Poland	2.7	2.3	2.1	2.6	2.3
Portugal	2.8	2.7	2.6	2.6	2.6
Romania	3.9	1.5	2.6	1.3	2.5
Russian Federation	22.5	...	...	6.2	6.4
Rwanda	4.2	6.3	...	7.8	...
Saudi Arabia	12.8	22.6	11.8	13.9	13.8
Senegal	2.0	1.9	...	...	...
Sierra Leone	1.4	2.9	3.9	3.8	3.9

Appendix Table 8. (concluded) SIPRI Military Expenditures, 1990-94

(As percent of GDP)

	1990	1991	1992	1993	1994
Singapore	4.8	4.6	4.7	4.4	4.2
South Africa	3.7	3.1	2.9	2.5	2.4
Spain	1.8	1.7	1.6	1.7	1.6
Sri Lanka	2.1	2.8	2.4	...	...
Swaziland	1.5	1.6	1.6	1.8	2.1
Sweden	2.6	2.5	2.5	2.5	2.4
Switzerland	1.9	1.9	1.8	1.7	1.7
Syrian AR	6.9	10.3	9.1	8.8	7.8
Taiwan Province of China	5.1	4.8	4.6	4.4	4.3
Tanzania	2.1	1.9	...	...	...
Thailand	2.5	2.6	2.6	2.6	2.4
Togo	3.1	2.9	2.7	...	...
Tunisia	1.7	2.0	1.7	...	...
Turkey	3.5	3.7	3.9	3.9	3.8
Uganda	2.8	2.3	1.7	1.6	...
United Arab Emirates	4.7	4.7	4.5	...	...
United Kingdom	4.0	4.2	3.8	3.6	3.4
United States	5.3	4.7	4.9	4.5	4.1
Uruguay	2.4	1.8	...	...	...
Venezuela	1.1	1.5	1.1	...	...
Viet Nam	7.9	5.6	3.4	2.3	2.8
Zambia	1.7	5.9	2.4	1.0	0.8
Zimbabwe	5.7	5.0	4.6	4.0	3.4
Number of countries	107	105	98	88	73

Source: SIPRI.

Appendix Table 9. Comparison of WEO Military Spending, Program and Nonprogram Countries, 1990-95 ^{1/}
(As percent of GDP)

	1990	1991	1992	1993	1994	1995	Average 1991-95	Difference 1990-95	No. of countries
Nonprogram developing countries	4.5	4.4	3.8	3.6	3.5	3.2	3.7	-1.3	36
Africa	3.8	3.3	3.1	3.1	2.6	2.4	2.9	-1.4	9
Asia	2.8	2.7	2.7	2.5	2.4	2.3	2.5	-0.5	10
Middle East and Europe	11.8	11.6	8.8	9.3	9.5	8.9	9.6	-2.9	10
Western Hemisphere	2.2	2.1	2.0	2.2	2.2	2.1	2.1	--	4
Countries in transition	3.3	1.3	1.5	1.4	1.1	1.1	1.3	-2.2	3
IMF program countries	5.1	3.5	2.1	2.1	2.2	2.0	2.4	-3.0	73
Africa	2.5	2.5	2.2	2.3	2.2	1.9	2.2	-0.7	32
Asia	3.1	2.9	2.8	2.9	2.7	2.6	2.8	-0.4	4
Middle East and Europe	3.4	3.3	3.1	3.3	3.6	3.4	3.4	--	3
Western Hemisphere	1.2	1.2	1.2	1.1	1.1	1.1	1.1	--	15
Countries in transition	8.0	5.2	4.0	4.0	4.7	3.1	4.2	-5.0	19
Memorandum items:									
By type of program ^{2/}									
SAF/ESAF	4.3	3.9	3.5	3.4	3.2	3.0	3.4	-1.3	30
EFF	1.8	1.5	1.4	1.4	1.2	1.3	1.3	-0.5	12
SBA/STF	5.9	4.1	2.4	2.5	2.7	2.3	2.8	-3.7	31
Years of program									
Two years or less	3.9	3.3	1.8	1.8	1.8	1.7	2.1	-2.2	22
More than two years	5.7	3.6	2.2	2.3	2.5	2.2	2.6	-3.5	51

Source: WEO database.

^{1/} Weighted by country GDP.

^{2/} If countries had multiple programs during the period, they are categorized in terms of the extent of structural content (i.e. SAF/ESAF), is given priority over SBA or STF.

Appendix Table 10. Comparison of WEO Military Spending, Program and Nonprogram Countries, 1990-95 ^{1/}
(As percent of total expenditure)

	1990	1991	1992	1993	1994	1995	Average 1991-95	Difference 1990-95	No. of countries
Nonprogram developing countries	18.9	18.4	16.6	16.1	16.6	15.0	16.6	-3.9	36
Africa	13.9	11.5	9.8	10.0	8.4	7.9	9.5	-6.1	9
Asia	14.5	14.8	14.7	14.4	14.4	13.6	14.4	-0.9	10
Middle East and Europe	27.7	26.4	22.5	22.2	24.6	24.4	24.0	-3.3	10
Western Hemisphere	12.6	11.5	10.4	11.0	11.0	10.4	10.9	-2.1	4
Countries in transition	18.1	11.8	4.7	5.7	5.1	1.1	5.7	-17.0	3
IMF program countries	19.7	10.2	9.7	9.9	10.5	9.9	10.0	-9.8	73
Africa	9.5	8.7	7.7	7.0	7.5	6.9	7.6	-2.6	32
Asia	15.4	15.2	15.0	15.4	14.6	14.7	15.0	-0.6	4
Middle East and Europe	15.8	13.0	13.0	12.3	13.3	13.3	13.0	-2.6	3
Western Hemisphere	6.7	6.8	6.9	6.6	6.1	6.1	6.5	-0.6	15
Countries in transition	25.8	10.4	10.4	13.0	16.4	13.8	12.8	-11.9	19
Memorandum items:									
By type of program ^{2/}									
SAF/ESAF	16.5	15.4	14.0	13.6	13.1	12.5	13.7	-3.9	30
EFF	6.4	6.1	6.4	6.3	5.6	5.8	6.0	-0.6	12
SBA/STF	22.6	10.7	11.3	11.9	13.4	11.6	11.8	-11.0	31
Years of program									
Two years or less	15.1	8.7	8.5	8.1	8.4	7.8	8.3	-7.3	22
More than two years	22.2	11.2	10.3	10.9	11.6	11.3	11.1	-10.9	51

Source: WEO database.

^{1/} Weighted by country GDP.

^{2/} If countries had multiple programs during the period, they are categorized in terms of the extent of structural content (i.e., SAF/ESAF), is given priority over SBA or STF.

Appendix Table 11. Change in Military and Other Spending, Selected Countries, 1985-92 1/

(Change in spending as a percent of GDP)

	WEO					GFS					
	Military	Nonmilitary	Total	Current	Capital	Total revenue	Deficit 2/	Social Security	Other Social 3/	Economic services	Interest
DEVELOPING COUNTRIES											
Increases											
Country 1	6.4	-7.3	-0.9	5.7	-6.6	-3.7	-2.8	...	...	...	...
Country 2	6.2	6.1	12.4	11.2	1.2	5.9	-6.5	...	...	...	...
Country 3	2.8	8.5	11.3	6.0	5.3	5.3	-6.0	0.2	7.3	-2.4	-0.3
Country 4	2.5	51.1	53.6	58.5	-4.9	-37.6	-91.2	8.7	10.8	-3.9	...
Country 5	1.9	1.4	3.3	1.3	1.9	5.2	1.9	...	...	...	6.0
Country 6	1.7	1.1	2.8	3.5	-0.7	2.0	-0.8	0.9	0.2	-1.9	0.7
Country 7	1.5	7.4	8.9	11.6	-2.7	-11.3	-20.2	...	...	...	0.1
Country 8	1.5	-2.9	-1.4	-0.2	-11.0	-6.9	-5.5	...	...	...	...
Country 9	1.2	-9.3	-8.2	9.5	-17.6	-9.2	-1.0	...	...	...	...
Country 10	1.0	-13.8	-12.8	-2.8	-10.0	-5.8	7.0	...	...	...	...
Average	2.7	4.2	6.9	10.4	-4.5	-5.6	-12.5	3.3	6.1	-2.7	1.6
Decreases											
Country 1	-18.0	-8.7	-26.6	-22.9	-3.7	-12.4	14.2	...	...	...	0.6
Country 2	-11.4	-16.3	-27.7	-26.8	-0.9	-28.6	-0.9	1.5	6.4	-3.1	-7.3
Country 3	-9.8	-9.5	-19.3	-13.5	-5.7	-4.1	15.2	0.2	2.4	7.2	...
Country 4	-5.6	-3.6	-9.3	1.1	-10.4	14.1	23.4	2.0	0.8	-3.9	1.9
Country 5	-5.6	-15.9	-21.5	-14.0	-7.4	-16.7	4.8	...	...	-0.7	-0.3
Country 6	-4.2	-10.5	-14.7	-4.6	-10.1	0.1	14.8	-1.1	--	-0.8	2.9
Country 7	-4.1	-2.7	-6.8	-0.9	-5.8	-10.1	-3.3	2.1	4.2	-6.8	0.9
Country 8	-2.9	-0.7	-3.6	-3.1	-0.4	-6.6	-3.0	-0.1	-1.3	--	0.9
Country 9	-2.7	-11.9	-14.6	-9.3	-5.3	-13.6	1.0	...	...	...	...
Country 10	-2.4	2.0	-0.4	-4.8	4.4	8.3	8.7	0.2	-2.7	-2.9	...
Average	-6.7	-7.8	-14.5	-9.9	-4.5	-7.0	7.5	0.7	1.4	-1.4	-0.1
INDUSTRIALIZED COUNTRIES											
Increases											
Country 1	0.4	9.8	10.2	...	...	2.2	-8.0	10.7	0.8	1.1	0.4
Country 2	0.4	10.2	10.6	...	...	-1.2	-11.8	4.2	1.8	--	-0.4
Average	0.4	10.0	10.4	...	...	0.5	-9.9	7.5	1.3	0.6	--
Decreases											
Country 1	-1.4	1.3	0.1	...	...	-0.2	-0.3	-0.1	1.1	-0.4	-0.2
Country 2	-1.1	4.2	3.1	...	...	-1.6	-4.7	0.4	1.7	-0.7	-1.4
Country 3	-1.0	-2.4	-3.5	...	...	-2.2	1.3	...	...	...	...
Country 4	-1.0	-5.6	-6.6	...	...	-3.7	2.9	...	...	...	0.8
Country 5	-0.9	5.0	4.1	...	...	7.3	3.2	-12.0	0.8	1.3	4.7
Average	-1.1	0.5	-0.6	...	...	-0.1	0.5	-3.9	1.2	0.1	1.0

Sources: WEO database; and GFS.

1/ Countries with 10 largest increases and decreases in military spending, 1985-92 as percent of GDP.

2/ Change in total revenue less total spending.

3/ Includes education, health, and housing.

Appendix Table 12. Change in Military and Other Spending,
Selected Countries, 1985-92 ^{1/}

(Change in spending as a percentage of GDP)

	WEO				Total revenue	Deficit 2/	GFS		
	SIPRI Military	Total	Current	Capital			Social 3/	Economic services	Inter- est
DEVELOPING COUNTRIES									
Increases									
Country 1	25.4	53.6	58.5	-4.9	-37.6	-91.2	19.6	-3.9	...
Country 2	3.4	3.3	1.3	1.9	5.2	1.9	...	...	6.0
Country 3	2.4	11.3	6.0	5.3	5.3	-6.0	7.5	-2.4	-0.3
Country 4	1.7	-1.4	-0.2	-11.0	-6.9	5.4	...	...	...
Country 5	0.7	-1.1	-1.0	-0.1	-0.6	0.5	-1.6	-0.7	-0.2
Country 6	0.6	-0.4	-4.8	4.4	8.3	8.7	-2.5	-2.9	...
Country 7	0.6	5.1	6.5	-1.3	5.9	0.8	1.3	0.2	3.3
Country 8	0.5	2.7	4.2	-1.5	4.2	1.5	1.2	0.3	0.4
Country 9	0.4	...	0.3	-0.3	-2.1	-2.1	...	-1.3	...
Country 10	0.4	-3.2	-2.8	-0.4	-8.4	-5.2	-1.1	-3.6	...
Average	3.6	-7.8	6.8	-0.8	-2.7	-9.7	3.5	-1.8	1.8
Decreases									
Country 1	-11.2	-12.8	-2.8	-10.0	-5.8	7.0	...	...	...
Country 2	-7.1	-27.7	-26.8	-0.9	-28.6	-0.9	7.9	-3.1	-7.3
Country 3	-6.5	-19.3	-13.5	-5.7	-4.1	15.2	2.8	7.2	...
Country 4	-6.2	-6.8	-0.9	-5.8	-10.1	-3.3	6.3	-6.8	0.9
Country 5	-6.0	-21.5	-14.0	-7.4	-16.7	4.8	-0.6	-0.7	-0.3
Country 6	-5.6	...	...	...	...	...	...	...	...
Country 7	-4.3	...	...	...	...	...	...	...	...
Country 8	-3.2	-9.3	1.1	-10.4	14.1	23.4	2.8	-3.9	1.9
Country 9	-2.8	...	...	...	...	...	0.1	0.2	--
Country 10	-2.4	-1.4	1.4	-2.7	2.9	4.3	...	...	...
Average	-5.5	-14.1	-7.9	-6.1	-6.9	7.2	4.0	-1.2	-1.2
INDUSTRIALIZED COUNTRIES									
Increases									
Country 1	0.5	10.2	...	...	2.2	-8.0	11.5	1.1	0.4
Country 2	0.2	10.6	...	...	-1.2	-11.8	6.0	--	-0.4
Country 3	0.1	...	...	...	...	...	4.4	1.2	-0.5
Average	0.3	10.4	...	...	0.5	-9.9	7.3	0.8	-0.2
Decreases									
Country 1	-1.3	3.1	...	...	-1.6	-4.7	2.1	-0.7	-1.4
Country 2	-1.3	0.1	...	...	-0.2	-0.3	0.9	-0.4	-0.2
Country 3	-1.2	-6.6	...	...	-3.7	2.9	...	...	0.8
Country 4	-1.1	4.1	...	...	7.3	3.2	-11.2	1.3	4.7
Country 5	-1.1	-3.5	...	...	-2.2	1.3	...	...	...
Average	-1.2	-0.6	...	...	-0.1	0.5	-2.7	0.1	1.0

Sources: SIPRI, WEO database, and GFS.

^{1/} Countries with 10 largest increases and decreases in military spending, 1985-92 as percent of GDP.

^{2/} Change in total revenue less total spending.

^{3/} Includes education, health, social security and housing.

References

- Arora, Vivek and Tamim Bayoumi, "Economic Benefits of Reducing Military Expenditure," in World Economic Outlook, October 1993, (Washington, D.C.: International Monetary Fund, 1993).
- Barro, Robert, "Are Government Bonds Net Wealth?", Journal of Political Economy 82 (1974), pp. 1095-1117.
- Bayoumi, Tamim, Daniel Hewitt and Jerald Schiff, "Economic Consequences of Lower Military Spending: Some Simulation Results," IMF Working Paper WP/93/17 (Washington: International Monetary Fund, 1993).
- Chu, Ke-young, et. al., Unproductive Public Expenditures: A Pragmatic Approach to Policy Analysis, IMF Pamphlet Series, No. 48 (Washington: International Monetary Fund, 1995).
- DeMasi, Paula, and Henri Lorie, "How Resilient Are Military Expenditures?" Staff Papers, International Monetary Fund (Washington), Vol 36, March 1989, pp. 130-165.
- Happe, Nancy and John Wakeman-Linn, "Military Expenditure and Arms Trade: Alternative Data Sources," IMF Working Paper WP/94/69 (Washington: International Monetary Fund, 1994).
- Hewitt, Daniel (1991a), "Military Expenditure: Econometric Testing of Economic and Political Influences," IMF Working Paper WP/91/53 (Washington: International Monetary Fund, 1991).
- ____ (1991b), "Military Expenditure: International Comparison of Trends," IMF Working Paper WP/91/54 (Washington: International Monetary Fund, 1991).
- ____, "Military Expenditures Worldwide: Determinants and Trends, 1972-88," Journal of Public Policy, 1992.
- ____, "Military Expenditures 1972-90: The Reasons Behind the Post-1985 Fall in World Military Spending," IMF Working Paper WP/93/18 (Washington: International Monetary Fund, 1993).
- International Institute for Strategic Studies, The Military Balance, various issues (London: Brassey's).
- International Monetary Fund, Government Finance Statistics Yearbook (Washington).
- Knight, Malcolm, Norman Loayza and Delano Villanueva, "The Peace Dividend: Military Spending Cuts and Economic Growth" Staff Papers, International Monetary Fund (Washington), Vol 43, March 1996.
- Sivard, Ruth Leger, "World Military and Social Expenditures, 1987-88" (Washington: World Priorities, 1987).

Stockholm International Peace Research Institute, SIPRI Yearbook, World Armaments and Disarmament, (Oxford: Oxford University Press, various issues).