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A RAND NOTE

The Economic Implications of Reductions
in Military Budgets and Force Levels in
Eastern Europe

Keith Crane

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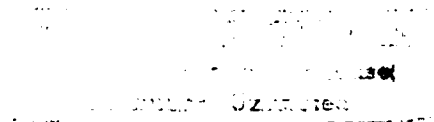
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A RAND NOTE

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The Economic Implications of Reductions in Military Budgets and Force Levels in Eastern Europe

Keith Crane

Prepared for the
Under Secretary of Defense for Policy

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PREFACE

This Note is part of a series on changes in the militaries and in the national security policies of the East European countries after the revolutions of 1989. It assesses the impact of the military budget and force reductions, for good and ill, on the economies of these countries.

The Note was prepared for the Under Secretary of Defense for Policy. The research was carried out within the International Economic Policy Program of RAND's National Defense Research Institute, a federally funded research and development center supported by the Office of the Secretary of Defense and the Joint Staff. It is part of RAND's research program on international economic policy and should be of interest to policymakers, intelligence officers, and scholars concerned with the rapidly changing security environment.

SUMMARY

CHANGES IN DEFENSE BUDGETS

After the 1989 revolutions in Eastern Europe, the new governments, with the possible exception of Romania, began to reduce their military budgets.

The reductions have been concentrated in procurement. In the mid-1980s, procurement absorbed about half the military budgets of Czechoslovakia, Hungary, Poland, and Romania. It has since fallen to less than 7 percent of the military budget in Hungary and about one quarter of the budget in Poland.

The East Europeans differed substantially in terms of the proportion of military spending in net material product (NMP), the socialist measure of net output, devoted to military spending. The Bulgarians have spent far and away the largest percentage, upwards of 6 percent of NMP, on the military. Czechoslovakia has spent about 5 percent of NMP. Poland and Hungary have spent substantially less, about 3 percent. Romania takes up the rear, devoting less than 1.5 percent of NMP to the military.

It is highly unlikely that the share of military spending in net output will rise in coming years. Hungary and Poland have deliberately cut spending because of economic stringencies and the different priorities of the new governments. Bulgaria is in the midst of a deep economic crisis; as production declines it is unlikely the military will emerge unscathed. The new government in Czechoslovakia is also slashing the defense budget as it solidifies its control. Only in Romania is there some likelihood of an increase in military spending. The Romanian military played an instrumental role in the overthrow of Ceausescu and continues to have substantial influence in the new government. Thus, it is in a good position to call for a greater share of the country's net output.

Planned reductions in military spending will provide sizable, if not major, savings for these economies. In macroeconomic terms the cuts range from almost 1 percent of NMP in Hungary to over .5 percent of NMP in Bulgaria. These resources can now be channeled to other uses.

In normal times such reductions might have had a palpable effect on the delivery of particular government services. For example, 1 percent of NMP could have been used to increase spending on education by 20 percent in Hungary. These, however, are not normal times. The disruptions and adjustments in Eastern Europe caused by changes in economic and political systems, coupled with the collapse of its largest export market, the Soviet

Union, have engendered a severe recession in Hungary, Poland, and Bulgaria and a slightly milder economic decline in Czechoslovakia. Under these circumstances, few countries would experience a payoff from reducing military spending in terms of increases in government services. The cuts have, however, slightly cushioned the declines in consumption and averted even more severe reductions in government services in other sectors.

FORCE REDUCTIONS

The reductions in personnel and equipment in the East European armies have been enormous. Personnel reductions of 30 to 35 percent are taking place in Czechoslovakia, Hungary, and Poland. Plans for cuts in military equipment have been even more dramatic. The Czechs are eliminating 60 percent and the Hungarians 80 percent of their tank forces. In some cases, force levels will be below those stipulated in the 1990 CFE (Conventional Forces in Europe) agreement.

The decisions to cut forces have only been partially related to the new governments' wishes to reduce military spending. The primary determinant of the reductions has been the changes in security policies and doctrines. Adoption of the doctrine of "defensive defense" led to large reductions in equipment holdings in Hungary and Poland. Czechoslovakia, Hungary, and Poland have also reduced their period of conscription, forcing a reduction in the size of their armies.

These decisions have not been without cost. In fact, the costs of dismantling tanks and armored personnel carriers have been substantial at a time of severe budgetary pressures. Although eliminating these weapons from the inventory has reduced maintenance costs, given the low level at which this equipment was operated, the cost reduction has probably not yet covered the cost of scrapping the equipment.

CHANGES IN ARMS PRODUCTION

Poland and Czechoslovakia produce substantial amounts of military equipment; Hungary and presumably Bulgaria are much smaller producers. Enterprises in all four countries are facing significant problems in converting from military to civilian production. In some cases output has been halved and large numbers of workers have been laid off. However, the repercussions of these reductions have been small at the macroeconomic level. Czechoslovakia and Poland face some regional problems. Slovakia, in particular, will be subject to pockets of unemployment stemming from reducing arms production. In Hungary most of the effects are confined to the electronics and communications industry. On balance, however, the benefits of reducing military production appear to substantially outweigh the

costs. **Although costs will be associated with reducing military production, the benefits appear to substantially outweigh them.**

CHANGES IN ARMS TRADE

Because the East Europeans rely on each other for most of their exports, reducing military procurement in one country has had a multiplier effect on producers. Because arms trade has been bilaterally balanced, as countries reduce their imports their exports also fall. Consequently, producers are being hit with a decline in demand on ruble export markets at the same time that domestic procurement has collapsed.

Second, Third World demand for East European arms has also fallen. This has been caused in part by the end of the Iran-Iraq war. However, foreign policy changes, most notably substantially cooler relations with Third World countries such as Cuba and Libya, have also contributed to a decline in arms exports. East European participation in the embargo against Iraq also led to a fall in arms exports.

Declines in imports or exports of arms are unlikely to have a significant effect on East European balance of payments. Because each country must balance arms trade with its primary trading partners, changes in imports have been matched by changes in export demand and have no effects on the ruble balance of payments. East European arms exports to convertible currency areas appear to have been profitable. But even in Poland, where arms have made up the largest share of exports, sales for hard currency have constituted only a small percentage of total convertible currency earnings.

COSTS OF SOVIET TROOP WITHDRAWALS

Withdrawal of Soviet troops has created some contentious issues concerning the value of assets to be left by the Soviets versus the costs to the East Europeans from environmental pollution and repairing poorly maintained buildings. Although these issues have not halted Soviet troop withdrawals, they have left a bitter residue between the two sides that may sour Soviet-East European relations for the next several years.

ACKNOWLEDGMENTS

Insightful comments and criticisms were provided by RAND colleague Charles Cooper. Barbara Kliszewski and Nora Monk of RAND provided invaluable assistance in gathering the data for this Note.

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I. INTRODUCTION

OBJECTIVE

In 1989 the institutions of the old East European regimes crumbled in stages. First, the political powers succumbed. The new political regimes then gained control over the security forces. Finally, economic institutions were revamped.

The armed forces have been the last major institution to be brought into the new order. In general, they have been treated more gingerly than the other institutions. Changes in the officer corps have proceeded carefully. However, as the new governments have consolidated their positions, they have initiated major changes in their security policies ranging from the proclamation of new doctrines and promotion policies to new systems of command and control.

One major area of change has been the military budgets. Parliamentarians have demanded more detailed and more extensive information on the military budget and convincing explanations of why funds should be devoted to this branch of the government. In many ways the new governments have the most direct control over this military policy area. While changes in military operations are difficult to supervise and often seem arcane to the new parliamentarians, the forints, korunas, and zlotys taken by the military are of immediate interest. Constituents frequently clamor for expenditures to go elsewhere, especially as the process of changing from a centrally planned to a market economy has been accompanied by income declines in certain socioeconomic groups.

Pressures from the populace and reductions in military force levels have led to sharp reductions in military expenditures in all the countries, with the possible exception of Romania. Although the reductions provide welcome budgetary relief, they also lead to reduced orders for military equipment. These in turn have led to cutbacks in production and employment by military goods producers. Lower force levels imply cuts in the officer corps as well.

Future security policies in Eastern Europe will be dictated in part by the ultimate size of the East European military budgets, while the success of the economic reforms could depend in part on the magnitude of savings from the defense sector. Defense industry and military layoffs also could have a substantial impact on political stability. For these reasons, this study centers on determining the size and potential economic effects of military budget and force reductions in Eastern Europe.

APPROACH

This Note begins with an analysis of the budget reductions, describing their extent, composition, and likely effects on the macroeconomy. It then assesses the reductions in military force levels and their potential economic impacts.

The Note proceeds to analyze the implications of the budgetary cuts for the production of military goods. This is followed by a section on the implications of reducing military budgets and production for arms trade. The Note does not discuss the issues associated with the dismantling of the former East German military establishment, which has become largely an internal German matter.

The Note relies on open source literature on the economies and military expenditures and forces of Eastern Europe. Over the past several months, following the collapse of the old Communist regimes in these countries, the amount of information available from the popular press has exploded. Fairly precise figures are now given for the production of military goods, budget expenditures by category, and the armed forces. These figures provide markers for changes in policies and expenditure series, thereby highlighting the likely course of future budgetary expenditures and the potential evolution of force structures.

Security policies in these countries are changing rapidly as the new governments come to grips with the tasks of running their nations. Although the analysis attempts to foresee some of the future trends and developments in the military establishments, this Note is not a definitive description of future military spending policies. Rather it is a snapshot taken at one point in a rapidly evolving process. Hopefully, the Note captures some of the enormous changes taking place in the militaries of these countries.

II. CHANGES IN MILITARY BUDGETS

In the first few months of 1989, following Mikhail Gorbachev's announcement of Soviet troop reductions and withdrawals from East Germany, Poland, Hungary, and Czechoslovakia, the East European countries announced substantial reductions in military force levels. In addition to these cuts, they also announced reductions in military expenditures: Bulgaria—12 percent, Czechoslovakia—15 percent, the GDR—10 percent, Hungary—17 percent, and Poland—5.5 to 7.7 percent. These reductions, announced by the old regimes, were later superseded by the new governments' concerted attempts to further reduce military spending.

With the exception of Bulgaria, the countries of Eastern Europe have published their defense budgets for much of the postwar period. As the new governments have taken over, they have discovered that, unlike Soviet budgets, East European budgets have included most of the expenditures actually contributing to the national military effort. Notable omissions included social security taxes on wages (institutions and enterprises paid these taxes, the military did not), some subsidization of investments in military-goods-producing industries, and some subsidization of imports of military equipment. Because the published budgets more or less reflected military spending in the past, these are the figures reported in Table 2.1 and employed in the analysis below.

As can be seen from the table, budgets have been cut in nominal terms in Czechoslovakia, Hungary, and Bulgaria. These countries have substantially reduced spending in real terms as inflation, reported or unreported, has accelerated in recent years. Thus the East European militaries have had to tighten their belts before the advent of the new regimes.

CZECHOSLOVAKIA

Czechoslovakian military expenditures fell in constant price terms until 1984 and did not return to their 1980 levels until 1987. The budget has been cut sharply in 1990, to 31.2 billion korunas, 4.5 billion korunas less than in 1989 (Table 2.1). This is a 13 percent decrease in nominal terms and a substantially larger one in real terms.

In the past the Czechoslovakian government did not provide a breakdown of military expenditures. However, in 1990 they published breakdowns for the 1989 and 1990 budgets. Unfortunately, the format of the two budgets is different, making comparisons difficult (Table 2.2). The two budgets indicate that procurement has fallen sharply, from 34.8 percent of the defense budget in 1989 to possibly 16.5 percent in 1990 (the sum of expenditures on military technology and ammunition). In light of the heavy

Table 2.1
East European Defense Expenditures

Year	Czech		Hungary		Poland		Romania	Bulgaria
	Million Korunas	CP	Billion Forints	CP	Trillion Zlotys	CP	(Million Lei)	(Million Leva)
1980	22,900	100.0	17.7	100.0	71.6	100.0	10,394	NA
1981	23,099	96.2	19.1	102.9	80.6	94.7	10,503	NA
1982	24,560	95.1	20.2	102.1	186.2	104.4	11,339	NA
1983	25,261	98.1	21.9	103.1	201.4	98.9	11,662	NA
1984	26,276	94.3	22.7	98.7	263.4	113.7	11,888	NA
1985	27,393	96.6	23.8	96.7	333.4	122.7	12,278	NA
1986	28,300	99.8	34.5	133.2	381.2	118.9	12,208	1713
1987	28,496	100.4	34.9	123.9	467.6	114.8	11,597	1728
1988	29,236	103.0	38.6	118.5	767.5	113.8	11,552	1751
1989	35,062	NA	42.3	NA	1,982.0	NA	11,753	1605
1990	31,180	NA	40.4	NA	11,121.6	NA	NA	NA

SOURCES: The Czechoslovakian and Polish pre-1989 budgets are taken from their statistical yearbooks, as were the pre-1986 Hungarian budgets. Other budgets were taken from official announcements.

NOTES: CP = constant prices, 1980 = 100, NA = not available. The Hungarian figures for 1989 and 1990 are higher than the budget figures. The difference is due to earnings by the military, primarily through the sale of uncommissioned equipment. The large surge in expenditures in 1986 and 1987 was not due to increased expenditures but to the imposition of social security taxes on military salaries. These taxes ran around 45 percent of total salaries. It was also due in part to accounting changes that merged the aggregate figures for security and defense reported in the statistical yearbook.

The Polish figures for 1986 and 1987 exclude military construction.

Czechoslovakian expenditures were deflated by the wholesale price index; Polish expenditures were deflated by the deflator for socialist production sold and Hungarian expenditures by the Hungarian consumer price index.

reductions taking place in the production of military goods, military procurement must have taken a substantially greater share of the budget in past years. Assuming capital spending in 1990 is the same category as military construction in 1989, the budget shows a very sharp drop, by half, in spending in this category.

Expenditures have been skewed away from procurement toward operations and maintenance. In 1990, 51.6 percent of military spending was earmarked for material and technical purposes. Most of this (60 percent) was spent on materials, spare parts, and training aids, which were of a civilian nature. Wages are also taking a greater share of budgetary expenditures, 18.8 percent in 1990 versus 15.4 percent in 1989.

All of the East European militaries, including the Czechoslovakian, performed a sizable amount of work for the civilian economy. For example, by October 1, 1989, 14,103 soldiers and 1,484 pieces of military machinery had been deployed to work in agriculture during the year.¹ Aside from working in agriculture, soldiers were assigned to help construct the Temelin and Mochovce nuclear power plants, reconstruct the Prague Castle, and help build the Prague subway system.

¹FBIS [Foreign Broadcast Information System]-EEU-89-196, October 12, 1989, pp. 16-17.

Table 2.2
Czechoslovakian Military Budgets, 1989 and 1990

Item	1989	
	Millions of Korunas	Percent
Operating costs	19,716	56.2
Provisions for military	9,611	27.4
Wages	5,400	15.4
Running costs and maintenance	10,105	28.8
Army procurement and construction	14,017	40.0
Construction	1,812	5.2
Procurement of technology	12,205	34.8
Research and development	1,329	3.8
Total	35,062	100.0
1990		
Material and technical supplies	15,902	51.0
Civilian materials	6,548	21.0
Spare parts and operating materials	4,209	13.5
Military technology	3,212	10.3
Ammunition	1,933	6.2
Wages	5,862	18.8
Capital spending	904	2.9
Other costs	8,512	27.3
Total	31,180	100.0

SOURCE: "Structure and Level of Expenditures on the Czechoslovakian Army," *Hospodarske Noviny*, July 3, 1990, p. 2, as translated in FBIS-EEU-90-133, July 11, 1990, p. 19.

These soldiers had contributed 1,119,033 work days, which was less than one tenth of a percent of total days worked in the economy. From a macroeconomic point of view, their contribution to the labor force was insignificant. Moreover, conscript labor is usually quite inefficient. Despite past help in filling labor shortages, in the transition to a market economy and the accompanying increased difficulties in finding employment, the elimination or reduction of military labor in the civilian sector will not be missed.

HUNGARY

The Hungarians have begun to publish fairly detailed figures on military spending in the past two years. These figures reflect the changing composition of Hungarian expenditures. Whereas previously procurement and development accounted for about 60 percent of the budget, by 1988 this category had dropped to 32 percent, while 68 percent of expenditures were devoted to operations, support, and personnel. (Table 2.3.)

Table 2.3
Hungarian Military Budget, 1988

Item	Millions of Forints	Percent
Food	2,240	5.8
Clothing	1,554	4.0
Health services	1,334	3.5
Maintenance and renewal of buildings	2,110	5.5
Barracks	1,370	
Salaries	9,940	25.8
Secondary school hospices	230	0.6
Subtotal	17,408	45.1
Procurement	12,352	32.0
Other	8,840	22.9
Total	38,600	100.0

Hungarian defense spending declined by 30 percent in constant price terms in 1990, after a decline of 17 percent in 1989. In 1989 procurement and investment were halved, dropping to 16 percent of the entire budget, and precipitating large cuts in orders to military goods producers.²

Reductions were even more pronounced in 1990. Operations and maintenance, including personnel costs, were to take 93 percent of the budget; procurement and military research and development only 7 percent of the budget. Of the 93 percent devoted to operations and maintenance, 56 percent of expenditures were related to personnel.³

These figures imply an enormous reduction in spending on procurement. If it is assumed that 60 percent of the budget was formerly devoted to procurement, expenditures in this category dropped from 14.3 billion forints in 1985 to only 2.9 billion forints in 1990. In dollar terms the decline is even more striking; from a possible \$285 million in 1985 to \$50 million in 1990. These reductions have greatly slowed the process of replacing Hungary's old weaponry with new weapons that correspond with its new doctrine of "defensive defense."

POLAND

The Polish government began to reduce the size of its armed forces in 1987. Defense expenditures also began to fall in real terms in that year, although by how much is difficult to judge because of Poland's very high rate of inflation. Defense expenditures were to be reduced by 4 percent in 1989 from 1988 levels. However, Polish government

²Magyar Tavisati Iroda (MTI), December 8, 1988, as translated in FBIS-EEU-88-237, December 9, 1988, p. 24.

³Figures provided by the Hungarian Ministry of Defense.

officials have argued that actual expenditures were 20 percent lower in real terms than in 1988.⁴ The 1990 budget was also reduced.

As in Hungary and Czechoslovakia, the new regime in Poland has released substantially more information about the composition of Polish military spending (Table 2.4). But, as in Hungary, more recent figures on the composition of military spending reflect past patterns poorly. For example, only 22.5 percent of the 1989 budget was spent on procurement. In past years procurement ran about half the budget, similar to the percentages recorded for Hungary and Czechoslovakia.⁵ In the 1990 budget, this percentage rose to 27 percent, while procurement was scheduled to total 2,999 billion out of a total budget of 11,121 billion zlotys.

BULGARIA

Before 1989 Bulgaria had not published information on its defense budget since 1970.⁶ Western analysts were forced to make their own estimates. Table 2.5 compares estimates published by the International Institute of Strategic Studies (IISS) with those recently announced by the Bulgarian authorities.

The Bulgarian budget increased rapidly during the early to mid-1980s under both measures. However, the Western estimates were substantially below actual Bulgarian expenditures. Expenditures peaked in 1988. In 1989 the Bulgarian government announced a reduction of 12 percent in military expenditures for the year. However, the actual nominal reduction was 8.3 percent, substantially less than the promised nominal cut. It is also possible, however, that the announced cut was in real terms, rather than nominal. In this case inflation could account for the discrepancy.

ROMANIA

Although Romania had the poorest record of all the Warsaw Pact member states in providing statistical data on its economy, for political reasons it was the first Warsaw Pact country to release extensive information on military spending. Table 2.6 provides a breakdown of expenditures from the mid-1980s. As the table shows, the Romanians devoted the bulk of expenditures to the army. Romania's air force fared much more poorly than Poland's, indicating the low state of readiness and modernity in the Romanian forces. As with the other East European forces during this earlier period, the largest single item in the budget was procurement, running 40 percent of total outlays.

⁴Warsaw Television, October 12, 1989, as translated in FBIS-EEU-89-198, October 16, 1989, p. 53.

⁵The Chief of the Polish Army Main Political Administration on Changes in the Army," *Slowo Powszechne*, January 23, 1989, p. 2, as translated in FBIS-EEU-89-017, January 27, 1989, p. 49.

⁶Thad Alton, Gregor Lazarcik, Elizabeth M. Bass, and Wassyl Znayenko, "Military Expenditures in Eastern Europe, Post World War II to 1979," OP-63, L.W. International, New York, 1980, p. 2.

Table 2.4
Polish Military Budget, 1989

Item	Percent
Maintenance of personnel	58.0
Food	13.7
Wages	36.0
Training and operations	18.0
Training supplies	1.3
Training	13.7
Procurement and research and development	22.5
Military construction	1.0
Other expenses	.5
Total	100.0
Ground forces	56.0
Air force and national air defense	30.0
Air defense only	10.7
Navy	9.0
Military training and administration	5.0
Total	100.0

SOURCES: Colonel Franciszek Goral, "How Much Does Training Cost?" *Zolnierz Wolnosci*, March 26, 1990, p. 5, as translated in JPRS-EER-90-089 (Joint Publications Research Service, Department of Commerce), June 21, 1990, p. 17; Lieutenant Colonel Jerz Markowski, "Military Doctrines and Concepts of Strategy," *Zolnierz Wolnosci*, February 23-25, 1990, pp. 1, 2, as translated in JPRS-EER-90-050, April 13, 1990, p. 29.

COMPARISON AND FINDINGS

The East European countries are reducing their military budgets, with the possible exception of Romania. Poland and Hungary are reducing their budgets the most rapidly; very deep cuts of 20 percent were imposed on their militaries in 1989, and the trend continued into 1990. The 1989 reduction in Bulgaria was also very sharp, 8.4 percent in nominal terms and considerably more in constant prices. Czechoslovakia's 1990 budget was also radically reduced. These governments have argued that the severe economic problems facing their countries have forced them to cut deeply.

According to national data, the reductions have been concentrated in procurement. In the mid-1980s, procurement absorbed about half the military budgets of Czechoslovakia, Hungary, Poland, and Romania; no information was available on Bulgaria. Since then procurement has fallen to very low levels in Hungary, less than 7 percent of the budget, and to about one quarter the budget in Poland. As force reductions continue, personnel and operations and maintenance costs should decline. Thus, procurement should recover somewhat over the next few years.

The composition of past budgets is indicative of the types of forces in Eastern Europe. The low percentage of funds spent on personnel reflects armies that rely mainly

Table 2.5
Bulgarian Defense Budgets
(In million leva)

Year	Official Budgets	Percent Rate of Change (1986 = 100)	IISS Estimates	Percent Rate of Change (1986 = 100)	Official Budgets/IISS Estimates (Percent)
1980	—	—	790	69.0	—
1981	—	—	859	75.0	—
1982	—	—	901	78.7	—
1983	—	—	932	81.4	—
1984	—	—	969	84.6	—
1985	—	—	1010	88.2	—
1986	1713	100.0	1145	100.0	149.6
1987	1728	100.9	1280	111.8	135.0
1988	1751	102.2	1405	122.7	124.6
1989	1605	93.7	1530	133.6	104.9

Table 2.6
Romanian Military Budget, 1983
(In percent)

Item	Force			Total
	Army	Navy	Air Force	
Personnel	24.1	1.5	2.8	28.4
Operations and maintenance	21.8	1.8	3.1	26.6
Procurement	29.2	3.9	7.7	40.8
Construction	1.9	0.2	0.1	2.1
Research and development	1.5	0.4	0.1	2.0
Total	78.5	7.8	13.7	100.0

on conscripts. The low percentage of funds spent on operations and maintenance reflects the lower operating and training tempos customary for poor countries at peace.

It is interesting to note the diversity among the East Europeans in military spending as a share of net material product (NMP), the socialist measure of net output (Table 2.7). Under the old order, the Bulgarians spent far and away the largest percentage of NMP on the military. However, the definition of Bulgarian military spending is not quite clear; if it includes spending on security forces as well, the percentage would be more in line with that of other countries. After Bulgaria, Czechoslovakia was the heaviest spender, followed by Poland and Hungary. Romania devoted very little of NMP to the military.

It is highly unlikely that these percentages will rise in the coming years. As noted above, Hungary and Poland have deliberately cut spending because of economic

Table 2.7
East European Defense Expenditures
as a Percentage of NMP

Year	Bulgaria	Czech.	Hungary	Poland	Romania
1980	NA	4.71	3.04	3.59	2.04
1981	NA	4.88	3.00	3.73	1.98
1982	NA	4.95	2.90	3.92	1.80
1983	NA	4.97	2.97	3.40	1.77
1984	NA	4.86	2.82	3.67	1.68
1985	NA	4.92	2.83	3.85	1.64
1986	6.38	4.96	3.92	3.56	1.58
1987	6.10	4.89	3.49	3.34	1.45
1988	5.95	4.82	3.33	3.07	NA

NOTE: NA = not available.

stringencies and the different priorities of the new governments. Bulgaria is in the midst of a deep economic crisis; as production declines it is unlikely that the military will emerge unscathed. The new government in Czechoslovakia also slashed military expenditures as it solidified control. Only in Romania is there some likelihood of an increase in military spending. The Romanian military played an instrumental role in the overthrow of Ceausescu and continues to have substantial influence in the new government. Thus, it is in a good position to call on a greater share of the country's net output.

What are these reductions in military spending likely to buy for the East European economies? The cuts will provide sizable, if not major, savings for these economies. In macroeconomic terms the cuts range from almost 1 percent of NMP in Hungary to over .5 percent of NMP in Bulgaria. These resources can now be channeled to other uses.

In normal times such reductions might have had a palpable effect on the delivery of particular government services. For example, 1 percent of NMP could have been used to increase spending on education by 20 percent in Hungary. The other countries could have recorded similar increases. These, however, are not normal times. The disruptions and adjustments in Eastern Europe due to the change in economic and political systems, coupled with the collapse of its largest export market, the Soviet Union, have engendered a severe recession in Hungary, Poland, and Bulgaria and a slightly milder decline in economic activity in Czechoslovakia. Under these circumstances, few countries would experience a payoff from reducing military spending in terms of increases in government services. The cuts have, however, slightly cushioned the declines in consumption and averted even more severe reductions in government services in other sectors.

III. FORCE REDUCTIONS

One of the many startling changes in Eastern Europe since 1989 has been the rapid decline in military forces in terms of personnel and equipment (Table 3.1). The initial announcement of planned reductions followed Gorbachev's December 1988 United Nations speech announcing the withdrawal of some Soviet troops from Eastern Europe and reductions in Soviet armed forces. Although sizable, the initial East European reductions have been followed by further cuts by the new, democratic regimes.

Somewhat surprisingly, the initial budget cuts appear to have been made independently of the force reductions. In fact, much of the discussion in the East European military literature has focused on the costs of demobilization: scrapping tanks and armored personnel carriers (APCs), closing bases, and procuring equipment for the redesigned units called for in the new military doctrines. After the initial force reductions, however, the budget cuts appear to be driving further force reductions.

CZECHOSLOVAKIA

The former government initially promised reductions of 12,000 men in the armed forces.¹ However, later statements note that construction units were to be simultaneously increased by 20,000 men. As seen in Table 3.2, by mid-1990 Czechoslovakia had done little to reduce military manpower; reductions in 1989 totaled only 1,550 troops. However, the new Czechoslovakian Minister of Defense, M. Vacek, announced that the armed forces would be reduced to 140,000 by 1993, i.e., by 60,000 men after an agreement is signed at the Conventional Armed Forces in Europe (CFE) talks in Vienna.²

Future declines in personnel levels will be partially driven by changes in Czechoslovakian conscription laws: The period of conscription has declined from two years to 18 months (Table 3.3), and the government now makes it much easier for young men to obtain conscientious objector status. The other countries face similar pressures.

Each of the two Czechoslovakian republics is a separate military zone. The Western Zone (the Czech Republic) used to have two armies of eight divisions. The Eastern Military Zone, headquartered in Trencin, in Slovakia, consisted of two divisions that primarily served to train noncommissioned officers.³ According to the IISS there was also an independent artillery division.⁴ After the announcement of troop reductions in 1989, six tank regiments

¹ *Izvestiya*, February 5, 1989, p. 4, as translated in FBIS-SOV-89-023, February 6, 1989, p. 44.

² *Verejnost*, June 18, 1990, p. 3, as translated in FBIS-EEU-90-121, June 22, 1990, p. 20.

³ *Ceskoslovenska Tiskova Kancelar (CTK)*, Prague, April 11, 1990, as translated in FBIS-EEU-90-071, April 12, 1990, p. 8.

⁴ IISS, *The Military Balance*, 1984-1985.

Table 3.1
East European Armed Force Levels

Country	Warsaw Pact Figures, Total (End 1988)	Before the Revolution			Official East European Figures After the Revolution			
		IISS Figures (1987)			Total	Army	Navy	Air Force
		Total	Army	Navy				
Bulgaria	117,500	152,800	110,000	8,800	34,000	107,000	—	—
Czechoslovakia	119,700	201,000	145,000	—	56,000	140,000 ^a	—	—
Hungary	106,800	106,000	84,000	—	22,000	80,000	63,000	—
Poland	347,000	394,000	230,000	19,000	80,000	314,000	206,600	21,200
Romania	171,000	179,500	140,000	7,500	32,000	—	—	86,200

SOURCES: For past figures: IISS, *The Military Balance*, 1989. For past Warsaw Pact figures: *Prawda*, January 30, 1989, as translated in FBIS-SOV-89-018, January 30, 1989, p. 1. For future figures: Bulgaria, *Bulgarska Telegrafna Agentsiya (BTA)*, Sofia, February 14, 1990, as translated in FBIS-EEU-90-032, February 15, 1990, pp. 3-4; Czechoslovakia, *Vernejnost*, June 18, 1990, p. 3, as translated in FBIS-EEU-90-121, June 22, 1990, p. 20; Hungary, *MTI*, December 15, 1989, as translated in FBIS-EEU-89-240, December 15, 1989, p. 54; Poland, *Warsaw Domestic Service*, January 15, 1990, as translated in JPRS-TAC-90-002, January 23, 1990, p. 31.

^aIn 1993.

Table 3.2
Promised and Actual Reductions
in East European Personnel

Country	Promised Reductions (Spring 1989)	Actual Reductions (Summer 1990)
Bulgaria	10,000	10,500
Czechoslovakia	12,000	1,550
Hungary	9,300	26,000
Poland	15,000	34,000
Romania	None	NA

SOURCES: Promised reductions—*Argumenty i Fakty*, No. 6, February 11, 1989.

Actual reductions—BTA, Sofia, February 14, 1990, as translated in FBIS-EEU-90-032, February 15, 1990, pp. 3-4; Prague Domestic Service, April 11, 1990, as translated in FBIS-EEU-90-071, April 12, 1990, p. 8; MTI, December 15, 1989, as translated in FBIS-EEU-89-240, December 15, 1989, p. 54; Warsaw Domestic Service, January 15, 1990, as translated in JPRS-TAC-90-002, January 23, 1990, p. 31.

NOTE: NA = not available.

Table 3.3
Warsaw Pact Periods of Conscription
(In months)

Country	Past			Present		
	Army	Navy	Air Force	Army	Navy	Air Force
Bulgaria	24	24	24	18	18	18
Czechoslovakia	24	None	24	18	None	18
Hungary	18	None	18	12	None	12
Poland	24	36	24	18	18	18
Romania	16	24	16	NA	NA	NA

SOURCES: Past figures—Douglas L. Clarke, "Conscription, East and West," *RAD BR/200*, October 30, 1989 p. 2.

Present figures: East European press releases.

NOTE: NA = not available.

were disbanded. However, no division was completely dissolved, although the Czechs did not list the artillery division recorded by the IISS.⁵

The former Czechoslovakian government initially promised to reduce the number of T-54/55 tanks by 850, the number of armored personnel carriers (APCs) by 165, and aircraft by 51 (Table 3.4). By the spring of 1990 these figures had been increased to 3,000 tanks and 3,000 APCs, leaving just 1,585 tanks and 1,900 APCs in the army.⁶ (In the CFE agreement signed on November 3, 1990, Czechoslovakia was permitted 1,435 tanks and 2,050 armed-combat vehicles.) A reduction of this magnitude implies the destruction of 65 percent of the

⁵Prague Domestic Service, November 14, 1989 as translated in FBIS-EEU-89-220, November 16, 1989, p. 18.

⁶Obrman, Jan, "Changes in the Armed Forces," *Report on Eastern Europe*, Radio Free Europe (RFE), April 6, 1990, Vol. 1, No. 14, pp. 10-13.

Table 3.4
East European Equipment Levels

Country	Warsaw Pact Figures (End 1988)		
	Tanks	APCs	Combat Aircraft
Bulgaria	2200	2365	234
Czechoslovakia	4585	4900	407
Hungary	1435	2310	113
Poland	3330	4855	480
Romania	3200	5000	380

Country	IISS Figures (1987)		
	Tanks	APCs	Combat Aircraft
Bulgaria	2550	1410	255
Czechoslovakia	3400	4900	440
Hungary	1400	2050	135
Poland	4050	4400	625
Romania	1860	3325	350

Country	Promised Reductions		
	Tanks	APCs	Combat Aircraft
Bulgaria	200	0	20
Czechoslovakia	3000	3000	51
Hungary	1100	NA	33
Poland	1330	970	274
Romania	0	0	0

SOURCES: For IISS figures: IISS, *The Military Balance*, 1989.
For Warsaw Pact figures: *Izvestiya*, February 5, 1989, p. 4, as translated in FBIS-SOV-89-023, February 6, 1989, p. 44.
For reductions: *Argumenty i Fakty*, No. 6, February 11-17, 1989.
NOTE: NA = not available.

tanks and 60 percent of the APCs and infantry fighting vehicles. This would obviously be an enormous reduction. It will also be expensive. The Czechoslovakian popular press notes that dismantling tanks in the military repair shops in Trencin will be a long, costly process.

HUNGARY

In contrast to the initial announced reductions by Bulgaria, Czechoslovakia, and the GDR, the Hungarian reductions were not entirely unexpected. Hungary embarked on an extensive reform of its military in 1985, shifting from divisions to brigades. The Hungarian army was organized into five armored and ten motorized rifle brigades forming three corps. This reorganization made it possible to reduce personnel costs and the logistical infrastructure. It is also more flexible.⁷ Reductions in Hungary's military budget over the past several years have also created pressures to reduce military personnel.

⁷Dr. Jonathan Eyal, "The Hungarian Armed Forces in a Period of Transition," *Jane's Soviet Intelligence Review*, November 1989, pp. 482-487.

Initially, the Hungarian government promised to reduce personnel by 9,300 people or 8.7 percent of total military personnel. Subsequently, the Hungarian government announced planned reductions of 30 to 35 percent with personnel numbers falling from 106,000 to 80,000.⁸ The armed forces may be further reduced to 75,000.⁹

The move from divisions to brigades was accompanied by a change in doctrine. Hungary espoused a doctrine of "defensive defense," i.e., Hungarian troops would fight only on Hungarian soil. This change precipitated substantial reductions in equipment. After initially announcing reductions of 251 tanks, 30 APCs, and 9 combat aircraft in 1989, in 1990 the Hungarians planned to reduce their holdings of tanks from 1,400 to 300, artillery from 1,700 to 900, and fighter aircraft from 113 to 80. The enormous reduction in tank holdings effectively eliminates almost all the Hungarian army's offensive capabilities. (In the November 1990 CFE treaty, Hungary was permitted to retain 835 tanks, 1,700 armed-combat vehicles, 840 artillery pieces, and 180 combat aircraft. It thus would not retain forces at its permitted levels.)

POLAND

The Polish authorities are predicting very severe declines in the armed forces. Total armed forces are scheduled to decline from 347,000 in 1988 to possibly 200,000 by 1995 (Table 3.5). These declines were precipitated in part through budget cuts, but are primarily due to the reorganization of the Polish military.

In the mid-1980s Poland possessed five armored divisions, eight mechanized divisions, an airborne division, and an amphibious assault division for a total of fifteen. The IISS rated all the armored divisions as Category 1 (close to full complement), three of the mechanized divisions as Category 1, and the rest as Category 3, i.e., more or less shell divisions. The airborne and amphibious assault divisions were also rated Category 1. Subsequently, these two divisions were transformed into brigades.

The pace of change accelerated in 1989. Currently, there are only nine divisions in the Polish army. The Pomeranian Military District (one of three districts) contains the 20th Tank Division and three mechanized divisions: the 8th, the 12th, and the 16th, as well as the 7th Amphibious Brigade. The 15th mechanized division in Olsztyn has been turned into a supply base, and the Poles plan to further reduce their forces there to only three mechanized divisions.

⁸MTI, December 15, 1989, as translated in FBIS-EEU-89-240, December 15, 1989, p. 54.

⁹Zoltan Barany, "A Hungarian Dream Comes True: Soviet Troops to Leave After 45 Years," *RFE Report on Eastern Europe*, No. 13, March 30, 1990, p. 23.

Table 3.5
Polish Armed Forces

Category	1988	1989	1990	1995
Army personnel	—	206,600	183,000	110,000–150,000
Army conscripts	—	—	—	—
Navy personnel	—	21,200	—	15,000–17,000
Air force personnel	—	86,200	—	75,000–80,000
Air force conscripts	—	—	—	10,000–15,000
Total personnel	347,000	314,000	300,000	200,000–250,000
Total conscripts	234,344	—	—	—

NOTE: Numbers have been aggregated by Thomas Szayna from official Polish sources.

Similar changes have occurred in the Silesian Military District, which has two tank divisions, the 5th and the 11th, and two mechanized divisions, the 4th and the 10th. The 10th was a tank division until spring 1989. The 2nd Mechanized Division has been converted into a supply base.

The Warsaw Military District has only one division, the 1st Mechanized, located around Warsaw. The 6th Airborne Brigade is also in this district but located in Krakow. Two supply bases have taken the place of the deactivated 3rd and 9th Mechanized Divisions.

In addition to disbanding four divisions and converting two tank divisions into mechanized divisions, the Poles have reduced the size of the division from four maneuver regiments to three, tank or mechanized. Some 20 tank and mechanized regiments have been disbanded. The number and size of the divisional-level organic combat support units (artillery, antiaircraft, reconnaissance, engineering, and the three battalions of logistic support, i.e., medical, supply, and maintenance) have not changed.

Although Poland has not introduced the corps/brigade/battalion structure adopted by Hungary, it is opting for a single, universal maneuver division with more emphasis on defensive capabilities. These divisions contain less artillery and fewer tanks, armored assault bridges, and infantry combat vehicles and more antitank and antiaircraft systems.¹⁰

Initially, in contrast to Bulgaria, Czechoslovakia, the GDR, and Hungary, Poland made no commitments to reduce military equipment holdings. However, as the armed forces have reorganized, they have removed from service 40 percent of their tanks, 20 percent of their APCs, 1,150 artillery guns, and 274 aircraft (Table 3.6).¹¹ Under the CFE agreement, Poland was to cut its tank holdings from 2,850 to 1,730, its armed-combat vehicle holdings from 2,377 to 2,150, and its artillery holdings from 2,300 to 1,610.

¹⁰Michael Sadykiewicz, "Glasnost' in the Polish Army: Order of Battle Revealed," RFE Background Report/214, December 5, 1989.

¹¹Witold Pasek, "Before the Storm," *Tygodnik Solidarnosc*, April 20, 1990, pp. 12, 13, as translated in FBIS-EEU-90-067, April 6, 1990, p. 44.

Table 3.6
Past and Newly Promised
Reductions in Equipment

Country	Past Promises (Spring 1989)			New Promises (Summer 1990)		
	Tanks	APCs	Aircraft	Tanks	APCs	Aircraft
Bulgaria	200	0	20	503	NA	20
Czechoslovakia	850	165	51	3,000	3,000	NA
Hungary	251	30	9	1,100	NA	33
Poland	0	0	0	1,269	925	274
Romania	0	0	0	NA	NA	NA

SOURCES: Past promises: *Argumenty i Fakty*, No. 6, February 11, 1989. New promises: BTA, Sofia, April 26, 1990, as translated in FBIS-EEU-90-076, April 19, 1990, p. 2; Jan Ohrman, "Changes in the Armed Forces," *Report on Eastern Europe*, RFE, April 6, 1990, Vol. 1, No. 14, pp. 10-13; Barany, "A Hungarian Dream Comes True," p. 23; Pasek, "Before the Storm," p. 44.

NOTE NA=not available.

BULGARIA

Substantially less has been known about the Bulgarian military than about the other militaries in the Warsaw Pact. For example, the IISS estimated total Bulgarian armed forces at 152,800 in 1987 while according to figures given by the Warsaw Pact, Bulgaria had only 117,500 people in the military in that year. On the other hand, IISS estimates of Bulgarian military spending were substantially lower than actual expenditures.

The Bulgarian government stated that it would reduce its armed forces by 10,000 in the few years following 1989 (see Table 3.2 above). Figures released in February 1990 indicate that it has already fulfilled its promise.

Aside from reductions in personnel numbers, Bulgaria may reorganize its military formations. Formerly, the army was organized into motorized infantry divisions and tank brigades. Currently, the Bulgarians are discussing the idea of converting all divisions into brigades.¹² This move would not only make Bulgarian forces more maneuverable but could also reduce costs through a further reduction in personnel.

CONCLUSIONS

The recent reductions in military personnel and equipment holdings are the consequence of large scale restructurings of military forces in these countries. The decision to restructure was a complex one. Although budget reductions had a great influence on deciding the ultimate size of the forces, a number of other factors also came into play. Czechoslovakia, Hungary, and Poland have all reduced their period of conscription, forcing a

¹²"Defense Minister Queried on Military Reductions," *Danas*, June 27, 1989 pp. 56-58, as translated in FBIS-EEU-89-128, July 6, 1989, p. 7.

reduction in the size of their armies. Change in doctrine in Hungary and Poland to "defensive defense" precipitated large reductions in equipment holdings. These decisions have not been cost-free. The costs of dismantling tanks and APCs have been substantial at a time of severe budgetary pressures. Although the elimination of these tanks from inventories has reduced maintenance costs, given the low level with which this equipment was operated, the reduction in maintenance costs has probably not yet covered the cost of scrapping this equipment.

In sum, the reductions in personnel and equipment in the East European armies have been enormous. Personnel reductions are now planned to run 30 to 35 percent in Czechoslovakia, Hungary, and Poland. Equipment reduction plans have been even more dramatic. The Czechs plan to eliminate 60 percent and the Hungarians 80 percent of their tank forces. In some cases, these countries will be reducing to equipment levels below those stipulated in the 1990 CFE treaty. However, the decisions to cut forces have only been partially related to the desire of the new governments to reduce military spending. The primary determinant of the reductions has been the changes in security policies and doctrines rather than the urge to save resources.

IV. CHANGES IN ARMS PRODUCTION

As noted in Sec. II, the reductions in military spending in Eastern Europe are on the order of .5 to 1 percent of NMP. These savings are substantial and permit the governments to sustain spending in other, socially more popular areas. However, the process of reducing military spending also imposes costs. Career servicemen are laid off. Military goods producers face a decline in orders, which is likely to lead to layoffs and lower utilization of their capital stock.

The next two sections assess the extent of these transition costs. The first focuses on the costs of reducing military goods production. The second assesses the implications for the arms trade of the cuts in military spending on procurement for the arms trade in Eastern Europe.

CZECHOSLOVAKIA

Czechoslovakia and Poland have been the two major producers of arms in Eastern Europe. According to the Czechs, arms accounted for 8.3 percent of production of enterprises administered by the Federal Ministry of Metallurgy, Engineering, and Electrotechnical Industry in 1988.¹ This was equivalent to 21 billion korunas or 2 percent of NMP. It is also equivalent to 2.7 percent of net industrial output, a substantial although not overwhelming share.

The Czechoslovakian government has decided to reduce military production by one fourth by 1993. The production of tanks is to be phased out by the end of 1990, and armed personnel carrier production will be halted almost as quickly, although originally production was to be phased out only by 1993. Czechoslovakia will also no longer produce or develop technologies for rockets.

These changes will involve a significant restructuring of Czechoslovakian industry. Restructuring (conversion) will compound the problems for Czechoslovakia of moving from central planning to a market economy. The arms industry was reportedly a very profitable sector; profits (probably margins) on arms were said to be double those of comparable civilian enterprises.² Arms industry workers were very well paid. As output is reduced it will be difficult for these enterprises and employees to find equally profitable products or employment.

¹"General Details Arms Production Phase-out," JPRS-TAC-90-009, April 3, 1990, pp. 18-19.

²Ibid.

Reductions will affect 200,000 to 250,000 employees of military goods producers, 60 percent of whom are in Slovakia. These people compose about 1.7 percent of the labor force of the Czech lands and 5.4 percent in Slovakia. Employees of military goods producers make up 16 percent of those employed in industry in Slovakia, a very substantial share. Thus, adjustment will be geographically concentrated in Slovakia. Slovakia contains a large number of medium-sized towns somewhat distant from each other. In many instances military employers are the single largest employer in these towns.

This concentration of employment creates some problems for the Czechoslovakian government. Slovakia has traditionally been the most underdeveloped part of the country and less densely populated than other regions. Large scale layoffs in military goods producers will likely generate pockets of high, long-term unemployment in this region, as Slovaks will have difficulty in finding similarly well-paying jobs within commuting distance of their home town.

As enterprises have begun to transfer personnel to lower-paying jobs, strikes have already taken place. For example 2,000 employees staged a two hour strike at the Dubnica Heavy Engineering Works protesting transfers to lower paying jobs in the spring of 1990.

The major military-goods-producing enterprises were housed within the Federal Ministry of Metallurgy, Engineering, and Electrotechnical Industry. The Ministry of National Defense also operated its own enterprises. Most of these enterprises appear to have been repair shops for military equipment. Currently they have been charged with dismantling and scrapping tanks and other weaponry that is being withdrawn from divisional holdings. These enterprises were previously operated as administrative units. On July 1, 1989, they were transformed into 30 state enterprises in order to prepare them for the economic reform that was to have been introduced January 1, 1990, if the Czechoslovakian revolution had not intervened.

Initially, government programs focused on conversion: using the same basic raw materials and production base to produce civilian goods in military-goods-producing enterprises. Programs also focused on forestalling layoffs. The government is now beginning to focus on restructuring: encouraging workers to seek jobs in other industries and factories and permitting loss-making factories to go bankrupt.

The Czechoslovakian government has promised some limited assistance to enterprises undergoing conversion. According to current projections, military goods producers will suffer a drop of 50 billion korunas in profits (equivalent to almost .5 percent of NMP). The state is planning on providing only 8 billion korunas in adjustment assistance, to be spread over the next four years. This aid will be provided to only 13 of the 111 enterprises involved in

military goods production: ZTS (Heavy Engineering Works) at Martin, ZVL (Ball Bearing Plant) at Povazska Bystrica, ZVS (General Engineering Works) at Brno, Vihorlat Snina, the Brezno Bridge Building Works, Uhersky Brod Moravian-Slovak Engineering Works, Aero Prague, Tesla Liptovsky Hradok, AVT (Computer Technology Works) at Banska Bystrica, Palmagneton at Kromeriz, Tesla Roznov, and Vlasim Engineering Works.

Some of the current financial problems of military goods producers originated under the old regime. For example, ZTS (a tank factory, the largest producer of military equipment in Czechoslovakia, and located in Martin, Slovakia) had become insolvent by early 1989 despite a long history of profits in earlier years. Production halved in 1989 and loans skyrocketed as inventories of previously ordered components rose. Banks responded by cutting off the enterprise's credit lines. The factory manager originally promised no layoffs, but layoffs of 1,200 workers are likely.³ ZTS eventually was earmarked as an enterprise eligible for state assistance for restructuring.

ZTS has sought to solve its problems by replacing military production with production of civilian goods. In 1989 production of goods for the civilian market, primarily construction and road-building equipment, rose from 14 billion korunas to 24 billion korunas. The company is trying to expand production of its traditional goods such as hydraulics, engines, axles, and electronics. It is also trying to introduce new production lines such as machinery for the food, rubber, and chemical industries. The director of the combine claims that 80 percent of the equipment used to produce military goods can be used for civilian production. ZTS is also trying to establish cooperative links with Western firms in products such as diesel engines and construction machinery.⁴ By 1995 military production is expected to account for only 25 percent of the plant's overall production. As early as February 1989, restructuring affected 3,500 of the plant's 85,000 workers. Of these 3,000 were retrained for civilian production.⁵

Czechoslovakia and Poland will suffer the greatest economic impact from reductions in military spending. These two countries have the highest shares of arms production in industrial output and NMP in Eastern Europe.⁶ A drop in military production of one quarter, the amount mentioned in the Czechoslovakian press, could lead to a decline of .5 percent in NMP and the potential dismissal of .8 percent of the total labor force or 2 percent of the industrial labor force. It will probably be impossible to quickly reallocate labor and

³FBIS-EEU-89-041, March 3, 1989, p. 31. *Pravda*, Bratislava, February 27, 1989, p. 3.

⁴"Average Earnings Have Not Declined," *Rude Pravo*, September 25, 1989, p. 4, as translated in FBIS-EEU-89-189, October 2, 1989, p. 21.

⁵FBIS-EEU-89-032, February 17, 1989, p. 8. CTK, Prague, February 15, 1989.

⁶Because of the limited data from Bulgaria and Romania, making comparisons is difficult.

capital in this sector to similarly productive uses in other sectors of the economy. First, the production of military equipment provides a great deal of value-added, enabling employers to pay above-average wages. Second, much of the capital stock is specifically designed for the production of military equipment and will be difficult to adapt to other uses.

However, the size of the adjustment problem should not be exaggerated. Although large in absolute terms, both the potential declines in output and the numbers of laid-off workers are small in terms of the economy as a whole, running under 1 percent. Most of the inputs used in the manufacture of defense goods can be profitably used elsewhere, especially high quality steels.

Reduced consumption of fuel because of lower training tempos will directly translate into a net benefit for the civilian sector. However, the size of this benefit will be small. The Czechoslovakian Army has accounted for .83 percent of all the gasoline and 1.22 percent of all the diesel fuel consumed in Czechoslovakia in recent years.⁷ When the Soviet Union sharply reduced oil deliveries in July 1990, the army reduced its consumption of gasoline by 20 percent and of diesel fuel by 13 to 14 percent thereby increasing the supply of gasoline and diesel fuel to the civilian sector. However, the release of 65,000 tons of fuel from military stockpiles (1.2 percent of annual consumption) provided about eight times more fuel to the domestic market than these austerity measures did.

The chief problem in Czechoslovakia will be that Slovakia will bear a disproportionate share of the adjustment costs. This has clearly led to political problems, exacerbating the Czech-Slovak split and resulting in open defiance in 1991 by the Slovak authorities of the Prague government's policies in arms production restraints.

HUNGARY

The Extent of Adjustment

In Hungary, as in Czechoslovakia and Poland, enterprises engaged in defense industry production are overseen by the industry branch ministries, not the defense ministry. The only exception is the Machine Factory of the Hungarian People's Army in Godollo, which is indeed overseen by the Ministry of Defense.

Hungary has a much smaller arms industry than does Czechoslovakia or Poland, probably even smaller than Bulgaria's or Romania's. Radio Free Europe estimates of military output ran 13.5 billion forints for 1988 and possibly 7 billion forints for 1989 (\$270 and \$117 million dollars, respectively, at average exchange rates prevailing in the

⁷"The Army's Fuel for the State," *Pravda*, Bratislava, July 19, 1990, p. 2, as translated in FBIS-EEU-90-143, July 25, 1990, p. 14.

appropriate year).⁸ In other words, military equipment accounted for about 1 percent of gross industrial output in 1988 and about .5 percent in 1989. Most of these goods, 80 percent, were exported; the remainder was sold to the Hungarian People's Army, the Workers' Militia, and the Ministry of the Interior. Three quarters of Hungarian production consists of communications equipment and instruments (Table 4.1).

These enterprises were not segregated. The general regulations and subsidies binding on industrial enterprises were also binding in this area of production. However, the Ministry of Industry did make available a separate defense industry fund for enterprises to obtain interest-free loans for investment and research and development. The fund did not favor basic research. Prior to 1985 enterprises were designated to produce particular military products. Since then participation has been voluntary.

Defense workers also received supplemental wages. For example, in the case of Mechanical Laboratories (Mechlabor), a military goods producer, workers received a wage supplement equal to 10 percent of wages.⁹ Initially, this benefit was given to a core of specialists only, but eventually it was extended to everyone. It is not clear whether this was given by the state or merely consisted of permission for the enterprise to pay additional wages because it produced military goods (Hungary had strict laws limiting wage increases).

Enterprises did not get special access to convertible currency imports, primarily because most production was based on parts and components manufactured by other Warsaw Pact nations or was manufactured under license. In fact, the Warsaw Pact high command stipulated that no basic combat equipment could contain components imported from capitalist countries and that equipment had to be manufactured under Soviet licenses. Arms producers received priority import funding only if they had a signed export contract.

Adjustment costs will be much smaller in Hungary than in Czechoslovakia or Poland. In 1986 sales of military goods accounted for only 22–23 percent of the sales of those enterprises engaging in military goods production. The industry reportedly already planned a 35 percent reduction in output for the 1981–1985 Five Year Plan.¹⁰ Whether actual reductions were of this magnitude is unknown. The industry initially expected a 31 percent decline in orders in 1989 compared with 1988 and a fall in employment of 5,000–6,000

⁸Jeremy King, "Hard Times for the Defense Industry," *Hungarian Situation Report*, Radio Free Europe, September 1, 1989, p. 21.

⁹Pal Reti, "Interview with an 'Arms Dealer': Time to Depoliticize the Defense Industry," *Figyelo*, April 13, 1989, p. 4, as translated in JPRS-EER-89-061, May 25, 1989, pp. 41–43.

¹⁰King, "Hard Times for the Defense Industry," p. 21.

Table 4.1
Hungarian Military Equipment Production

Types of Products	Percent
Communications and instruments	75
Artillery, infantry, weapons, ammunition	12
Vehicle and aircraft products	8

Share of Military Production in Some Hungarian Enterprises (1988)		
Enterprise	Percent Military Production	Ranking Among All Enterprises
Mechanical Laboratories	82.2	—
Precision Mechanics Works	79.4	81
Videoton Enterprises	35.3	8
Diosgyor Machine Factory	29.3	52
Weapons and Gas Appliance Enterprise	17.5	—
Danuvia	14.0	NA
Orion	13.1	NA
Magyar Optikai Muvek	12.2	NA
Belioannis Communication Technology	10.5	NA
Matrafem	8.2	NA
Mechanical Works	5.8	NA
Budapest Radio Technology Factory	3.9	NA
NitroChemical Industries	1.8	NA

SOURCES: Pal Reti, "Defense Industry: Which Way Is It Leaning," *Figyelo*, April 13, 1989, pp. 1, 4, as translated in JPRS-EER-89-061, May 25, 1989, p. 39. "Hungary's Military Secret," *Heti Világgazdaság*, April 1, 1989, p. 5, as translated in JPRS-EER-89-058, May 17, 1989, p. 12.

NOTE: NA = not available.

people.¹¹ Subsequently, the decline bordered on 50 percent. The 20 to 25 enterprises that constitute the core of the military-goods-producing sector of the Hungarian economy are now expected to shed 8,000 to 10,000 jobs in contrast to expected job losses of 200,000 in Czechoslovakia. In terms of the macroeconomy, these figures are small, running .6 to .7 percent of employment in industry or .2 of total employment, i.e., if 10,000 people were laid off in one year it would increase the unemployment rate by .2 percent.

The bulk of output declines were due to broken export contracts stemming from the political and economic changes in the other Warsaw Pact countries. These contracts were based on valid intergovernmental agreements; the enterprises had already ordered raw materials, labor, and manufacturing equipment. The decline in orders also led to declines in tax revenue; the government received in taxes from 50 to 60 percent of the value of military goods exports.

¹¹MTI, January 18, 1989, as translated in FBIS-EEU-89-012, January 19, 1989, pp. 37-38.

The state is providing limited assistance for restructuring. Assistance will be provided to transform production from military to civilian goods, but companies have to elaborate schedules for the intended switchover. They have also been encouraged to find foreign partners. Arms producers have been permitted to lower the level of secrecy at their plants so they can show them to foreign investors and thereby look for partners.¹² The push is for a rapid changeover to nonmilitary goods production, especially to production of exports to convertible currency areas.

In general, the government has taken a hard line on assistance for conversion; it expects enterprises to sink or swim. Some enterprises had proposed a three-year transition period during which they would suffer losses. The Ministry of Industry has told them this is unacceptable; they will be compelled to sell assets and reduce the number of employees. The Ministry has accepted the need for a year to transform production.

Because communications equipment and instruments form such a large part of Hungarian military production, the major adjustment problems lie in this industry. In contrast to military production, which relies on Warsaw Pact components and Soviet licenses, civilian production of communications equipment and instruments has primarily relied on domestic suppliers and designs, although it has incorporated Western licenses and components. Thus, it is difficult to integrate military production with nonmilitary production. Moreover, current capacity exceeds domestic demand for civilian products in this industry. Exports do not present a promising solution. Hungarian producers of communications equipment have had very little success exporting to convertible currency markets. Exporting to other East European countries is also likely to be difficult because of limited demand.

Enterprise Strategies for Adjustment

Enterprises are pursuing a variety of approaches to solving these problems. One third of the output of the Building Industry Construction Enterprise is now civilian. Formerly, it was almost entirely engaged in investment projects for the Ministry of Defense and employed a large number of regular soldiers. It is now seeking domestic and foreign partners. The enterprise reorganized some units into limited liability corporations and has established a joint enterprise with the Poles. However, revenues were scheduled to fall 150 million forints

¹²Pal Reti, "Defense Industry: Which Way Is It Leaning," *Figyelo*, April 13, 1989, pp. 1, 4, as translated in JPRS-EER-89-061, May 25, 1989, p. 39.

in 1989, and the enterprise had to release 20 percent of its labor forces and reduce the employment of soldiers.¹³

Eight percent of the output of the Precision Mechanics Works consisted of military products. Exports accounted for 90 percent of this output. Because of a decline in orders the enterprise had to cancel a contract for employing 150 regular soldiers, dismiss 30 Polish guest workers, and stop subcontracting at-home work through agricultural cooperatives. The enterprise expected to dismiss 600 workers and post a loss in 1989. It is seeking new markets and trying to snift production.

The Godollo Mechanical Works has had financial problems because of the accumulation of inventories. Unfortunately, it cannot sell its inventories to other enterprises because a large share of its inputs cannot be used elsewhere. Sales halved in 1989 from 1.5 billion forints in 1988. Furthermore, the enterprise's break-even point was 1.2 billion forints, because it must service investment loans raised in a more prosperous period. It faces a more restrictive environment in which to adapt because it is the only enterprise owned by the military and run by soldiers.

In 1988 a quarter of the sales (4.5 billion forints) of the Diosgyor Machine Factory were military goods, primarily artillery pieces. Military orders halved in 1989 and the factory was forced to lay off 1,200 workers. The company attempted to permit half of these people to take early retirement.¹⁴

Videoton Enterprises is an electronics conglomerate, Hungary's eighth largest firm. It planned to release 1,000 workers by April 1989 because of declines in military orders. More cuts will be necessary. The company had sales of 7 billion forints (\$132 million) in electronic equipment for the military in 1988, which kept 7,000 people employed. Orders are expected to decline to 4.5 billion forints by 1991; 3,000 workers will have to be dismissed and 40 percent of military goods equipment manufacturing capacities idled. The enterprise will likely have difficulty in servicing a 3 billion forint loan it borrowed to finance investments in military goods production.¹⁵

The Weapons and Gas Appliance Enterprise expected to see a decline of a third in handgun production, which accounted for 35 percent of output in 1988. Military output has since fallen to 17.5 percent of total output.

¹³This paragraph and the following two are based on information from Robert Gal, "Will There Be Further Manpower Cuts in the Military Industry?" *Nepszava*, June 2, 1989, p. 5, as translated in FBIS-EEU-89-109, June 8, 1989, pp. 24-25.

¹⁴MTI, January 18, 1989, as translated in FBIS-EEU-89-012, January 19, 1989, pp. 37-38.

¹⁵Ibid.

Mechlabor depends on military goods for over 80 percent of its sales, the largest percentage of any Hungarian enterprise. It exports to both developing and socialist countries and has only one civilian product, professional quality studio tape recorders.¹⁶ It has several thousand employees, so it is one of Hungary's larger enterprises.

In early 1989 Mechlabor's management was fairly confident of the enterprise's ability to surmount the declines in military orders. The enterprise designed its own products so was not dependent on Soviet licenses. It exported to both socialist and convertible currency markets and was not dependent on the Soviet market, although its biggest decline in sales had been in exports to the Soviet Union. The management believed that its product, mobile communications systems linked to computers, would be in continuous demand, especially as the armed forces are compelled to become more efficient and to use existing equipment more effectively. Management is also trying to adapt military equipment for civilian use in postal, meteorological, and navigation networks.

The enterprise is petitioning the government organ that oversees its operations for assistance regarding damages incurred from the abrupt decline in government purchases. It has asked for a reduction in export taxes levied on socialist exports and the elimination of sales taxes to be paid on investment credits obtained with the involvement of the National Defense Committee. (Originally, the enterprise did not have to pay the tax on capital assets financed from this source.) The managers also want to be reimbursed for costs incurred through mandatory product development because they cannot recoup these costs in sales due to the fall in demand.

POLAND

In Poland, as in Czechoslovakia, most arms producers fell under the purview of the civilian branch ministries. This was partly to facilitate planning and the allocation of resources—including these enterprises within the ministry made it easier for the ministry to balance its plans—and also because a large share of output of many of these producers was civilian goods.

Aside from repair and manufacturing facilities run directly by the Ministry of National Defense, roughly 80 plants were designated defense industry enterprises. Most of these were members of the defense industry association. Membership in this association was generally compulsory. The largest military goods producers were the Stalowa Wola Steelworks, the Kaspzrak Radio Works, the Krasnik Ball-Bearing Factory, the Lucznik Works, the Wifama

¹⁶Reti, "Interview with an 'Arms Dealer'."

Combine of Textile Machinery, Stomil (a tire producer), PZL (the Polish Aviation combine), Pronit in Pionki, the Northern and Wisla Shipyards in Gdansk, the Truck Factory in Starchowice, the Polish Optical Works, and the Olkusz Enamel Factory. In addition, the defense association included three planning bureaus and an explosive materials and ammunition plant.¹⁷ Aside from these plants in the Ministry of Industry, the Ministry of Transport, Shipping, and Communications also houses some plants that produce for the military.

Military goods producers accounted for 7 to 8 percent of the output of state-owned enterprises under the control of the Ministry of Industry (8.1 percent in 1989 and 7.3 percent in 1988) and employed about 260,000 people. Military production by these enterprises accounted for 3 percent of overall production in the ministry, about the same as in Czechoslovakia.¹⁸ The Polish armed forces purchased 49 percent of the military goods output, the Ministry of Internal Affairs and the Ministry of Justice purchased 5 percent, and exports accounted for 46 percent.¹⁹

As shown by the above figures, most of these enterprises are major producers of goods for the civilian economy as well. In most cases military output constitutes less than 15 percent of total output,²⁰ and on average military production used only 38 percent of the capacity of these enterprises.²¹ In only three plants (Bumar-Labedy, Radwar, and Warel) was military output more than the average.²²

Adjustment Strategies

These enterprises hold a substantial amount of reserve capacity, some of which may be used in the production of civilian goods. However, in cases where the machinery is expressly designed for armaments production and poorly adapted to the production of civilian goods, military production lines are usually segregated into separate, dedicated departments.

In the fall of 1987 conversion was already becoming a concern in Poland. At that time the government drew up a plan entitled "Implementation Program for the Second Stage of the Economic Reform," which included a target for civilian production by these industries. The plan enjoined enterprises to increase output of consumer goods. This has been relatively

¹⁷ Witold Pasek, "Squaring the Armaments Industry," *Gazeta Wyborcza*, October 10, 1989, pp. 4, 5, as translated in FBIS-EEU-89-201, October 19, 1989, p. 46.

¹⁸ Polska Agencja Prasowa (PAP), July 9, 1989, as translated in FBIS-EEU-89-135, July 9, 1989, p. 40.

¹⁹ Pasek, "Squaring the Armaments Industry."

²⁰ Captain Jan Placzek, "Restructuring in the Defense Industry," *Zolnierz Wolnosci*, June 14, 1989, p. 4, as translated in JPRS-EER-89-079, p. 1.

²¹ Stanislaw Reperowicz, "Changes in the Polish Army," *Contemporary Poland*, Vol. 22, No. 2, 1989, p. 6.

²² Jacek Swiczinski, "A Myth Demolished," *Zycie Warszawy*, September 15, 1989, p. 3, as translated in JPRS-EER-89-120, November 1, 1989, p. 18.

easy for enterprises in light industry but substantially more difficult for plants operating special purpose machinery suitable only for the production of military equipment.²³ Possibly 20 of the 80 plants may be transferred out of the military goods classification in the near future. Enterprises whose output is mostly for national defense are already facing severe financial problems. Planned military orders have been substantially reduced for the 1991-1995 period.

The costs of conversion for these enterprises will be high. First, they will have to pay higher taxes. Military production incurred lower turnover and capital asset taxes than did civilian production, although it was not tax exempt nor was it directly subsidized. There will also be costs associated with the introduction of new products, including imports and installation of machinery, purchases of licenses, and the cost of retraining staff. Past credits will also be costly to service. Moreover, civilian production has been much less profitable than military production, which will make it difficult to pay the high wages that have been characteristic of the industry. Producers of explosives and some weapons must keep their production lines operational in event of war, even though they will not be producing products.

Enterprise managers have been granted full discretion on how best to use their factories and machinery including the right to transfer employees from military to civilian production. One of the major such producers is Bumar-Labedy Engineering Equipment Combine in Gliwice, which makes tanks. It employs 10,000-20,000 people so is obviously a major employer in the area. It is an enormous, modern facility employing numerically controlled machine tools and automatic welding and cutting tools, equipment designed at the end of the 1970s, a rarity in present-day Poland.²⁴ The plant sells tanks to almost anyone in the world except NATO countries and the Soviet Union, which produces its own. Although the T-72 is built on a license from the Soviet Union, the Poles use their own manufacturing technology. The Soviets have adopted some Polish innovations in their own production processes.

Production fell 30 percent in 1988. Because of the rapid rate of inflation and the collapse of government finances, the Ministry of National Defense fell 7 billion zlotys behind in payments in 1989. Bumar-Labedy threatened to stop delivery and the director, Ryszard Jankowski, who is also a Parliamentary deputy, took the issue up at General Siwicki's

²³Placzek, "Restructuring in the Defense Industry."

²⁴Tadeusz Biedzki, "Behind the High Wall," *Przegląd Tygodniowy*, No. 12, March 19, 1989, p. 9, as translated in JPRS-EER-89-052, May 8, 1989.

confirmation hearings for the post of Minister of Defense.²⁵ The enterprise has also suffered due to the disappearance of tax concessions for military producers. In the past, 50 percent of the taxes on profits were rebated; wage taxes were also reduced. The factory was working at only half capacity at the end of 1989 and has had difficulty in attracting new engineers and workers. Pay has declined in real terms and the combine is no longer competitive on the local labor market. Like its Czechoslovakian counterpart, ZTS in Martin, Slovakia, Bumar-Labedy is suffering severe financial problems. Suppliers continued to ship components even as production slowed down. The costs of credits needed to finance these inventories have been a great burden for the enterprise. The management has been hoping for some support from the central government.

Because of the collapse in demand in Poland and the Warsaw Pact, the enterprise has sought convertible currency export markets. In 1987 and 1988 over 80 percent of output was exported for convertible currency.²⁶ The factory's management is also attempting to look for alternative products for production, but it is much less sanguine than the Czechs are. The factory, one of 22 in the world, is a highly automated facility dedicated to the production of tanks. Much of the manufacturing equipment would be poorly adapted to producing other products. Over 95 percent of output in the past was military production; the rest consisted of mobile cranes for civilian use. Furthermore, the current management is obligated to maintain full production capacities so that tank manufacture can be resumed at full speed at any time.²⁷

Forays into civilian production have produced mixed results. In 1988 the enterprise took over the manufacture of coal loaders from a mining machinery manufacturing plant. It adapted some of its specialized equipment and found space for production. However, the mines experienced financial difficulties and were unable to purchase the machinery they had ordered. Currently, the enterprise is undergoing trials to produce a digger under license. It may also produce large construction and agricultural machines whose production technology is similar to that of tanks, besides continuing to produce self-propelled cranes.

The Ministry of National Defense runs 19 of its own plants, called military repair and manufacturing enterprises, that are primarily engaged in repair work. They employ 17,000 people. In 1988 total production of these enterprises equaled 56.4 billion zlotys or .2 percent of industrial output sold by state-owned Polish enterprises. Less than 50 percent of this

²⁵Jan Dziadul, "On the Tracks," *Polityka*, October 14, 1989, p. 7, as translated in FBIS-EEU-89-216, October 14, 1989, p. 59.

²⁶Biedzki, "Behind the High Wall."

²⁷Ibid, p. 59.

production was for the domestic military. Nonmilitary sales accounted for 15.6 percent of output in 1988. The remainder consisted of exports, most of which went to convertible currency areas.

The declines in military procurement characteristic of the 1980s have had a significant impact on these producers. At some plants military work has dropped 30–80 percent depending on the production line. Managers are trying to employ their underused capacity but are facing a number of problems in converting capacities to civilian production. For one, the enterprises remain military plants and are obligated to follow military commands. Consequently, they may be much less reliable suppliers than are purely civilian producers. Military motor vehicle facilities have had the easiest transition from military to civilian work. They overhaul vehicles, which is much the same work in either sector. Repair shops for aircraft, communication equipment, and the armaments plants have had a more difficult time.²⁸

The enterprises are not to be subsidized by the Ministry of Defense. One sought to produce agricultural equipment because of the major government push to provide more agricultural inputs. None of the Polish producers wanted to cooperate, because they wanted to protect their market position. The enterprise has since produced a number of odds and ends including trailers, computer desks, lamps, and kitchen cabinets. As one can see from these anecdotes, military enterprises are currently turning to the production of a ragtag group of commodities to keep from making losses. Because their output is so small, even if they converted entirely to civilian production they would have little effect on aggregate industrial output or Polish industry.

Additional Sources of Supplies from the Military

In 1989 some attention was paid in Poland to using military stockpiles to mitigate the shortages endemic to the country in that year. The reduction in force levels also made it possible to reduce permanently the size of stockpiles. The resulting release of goods for public consumption was very small, however, with the partial exception of gasoline and diesel fuel.²⁹ This is not to argue that the military was unwilling to release stockpiles. Rather, the size of stockpiles in relation to total consumption was so small that it had little effect on the market.

²⁸Interview with Col. Ireneusz Rosiak, director of the military armaments plants in Krakow, *Zolnierz Wolnosci*, December 29, 1989, p. 3.

²⁹Lt. Col. Ireneusz Czyzewski, "Army Stockpiles Could Alleviate But Cannot Solve the Market Difficulties," *Trybuna Ludu*, October 20, 1989, p. 7 as translated in FBIS-EEU-89-207, October 20, 1989, p. 62.

BULGARIA

Information on Bulgarian military production is as scanty as is other information on Bulgarian defense. Bulgaria produces some weapons domestically of its own design. It also produces weapons under Soviet licenses in cooperation with the Soviet Union and other Warsaw Pact countries.³⁰ However, the Bulgarians, like the rest of the members of the Warsaw Pact, plan to convert military production capacity to the production of civilian goods. The government hopes to use up to 85 percent of military capacity for the production of such civilian items as equipment for the food and textile industry, road construction equipment, and small-scale farming machinery.³¹ For example, the Khan Krum Machine Repair Plant, located in Turgovishte, used to manufacture and repair only military equipment. It now produces over 10,000 consumer goods.³²

CONCLUSIONS

Poland and Czechoslovakia produce substantial amounts of military equipment; Hungary and presumably Bulgaria are much smaller producers. Enterprises in all four countries are facing significant problems in the transition from military to civilian production. In some cases, production has more than halved, and large numbers of workers have been laid off. However, the repercussions of these reductions have been small at the macroeconomic level. Czechoslovakia and Poland face some regional problems. Slovakia, in particular, will be subject to pockets of unemployment stemming from reductions in arms production. In Hungary most of the effects are confined to the electronics and communications industry. In short, although costs will be associated with declining military production, the benefits of reduced expenditures appear to substantially outweigh potential adjustment costs.

³⁰Defense Minister Queried on Military Reductions," *Danas*, p. 7.

³¹ BTA, "Army Chief Announces 1989 Military Cuts," February 14, 1990, as translated in FBIS-EEU-90-032, February 15, 1990, p. 3.

³²BTA, "Conversion Becomes Reality" as translated in FBIS-EEU-90-076, April 19, 1990, p. 2.

V. CHANGES IN ARMS TRADE

Another potential benefit or cost associated with the reductions in East European arms expenditures is the effects on the balance of payments as arms exports (Table 5.1) and imports change. In general, the effects of a reduction in expenditures should be positive: reduced expenditures imply fewer imports. However, the complicated system of trade among the East European countries and the Soviet Union places qualifiers on this conclusion. Arms trade among the members of the Warsaw Pact has been balanced in the past. As these countries have reduced imports, their trading partners have reduced their own imports by the same amount. This has meant that exports have fallen as fast as imports have been cut.

A substantial share of arms exports were sold for convertible currency. In this case exports did not decline with the fall in domestic procurement. However, arms exports in general have fallen with the improvement in U.S.-Soviet relations and the end of a number of the wars of the 1980s. These developments have also affected East European arms exports unfavorably. Thus, a precipitous drop has occurred in foreign demand for East European arms products. This has greatly exacerbated their concurrent problems of a collapse in domestic demand.

The data on East European arms trade are a good deal scantier than those on production and expenditures. This is probably due to the general secrecy surrounding arms trade in the rest of the world.

CZECHOSLOVAKIA

In past years Czechoslovakia exported 75 percent of its output of military goods.¹ Exports have declined sharply in the past year as have imports. Purchases of tanks, aviation technology, ammunition, and other items have all been reduced.²

HUNGARY

In recent years Hungary has marketed arms at professional shows in NATO countries such as the Federal Republic of Germany and Greece. The market in these instances is the delegations from developing countries. Friendly developing countries have been important customers for a number of Hungarian military goods producers. Sales were frequently paid in cash in dollars.

¹"General Details Arms Production Phase-out," pp. 18-19.

²Army General Milan Vaclavik, "On the 45th Anniversary of the Carpathian Dukla Operation; Our Army Supports the Helsinki Process," *Rude Pravo*, October 6, 1989, p. 3, as translated in FBIS-EEU-89-196, October 12, 1989, p. 17.

Table 5.1
Bulgarian, Hungarian, and Polish Arms Exports

Year	Bulgaria (Million Dollars)	Hungary (Million Dollars)	Total (Million Dollars)	Poland	
				Armored Equipment Million Rubles	Million Dollars
1985	310	NA	NA	NA	NA
1986	240	NA	NA	NA	234
1987	280	NA	NA	NA	170
1988	270	220	250	1,100	147
1989	NA	90	320	850	73
1990	NA	NA	18 ^a	403 ^a	NA

SOURCES: Hungary—computed from Jeremy King, "Hard Times for the Defense Industry," *Hungarian Situation Report*, Radio Free Europe, September 1, 1989, p. 21. Note that other sources claim a \$50 million decline in Hungarian arms exports in 1989.

Poland—Krzysztof Szczesniak, "Tanks for Money," *Rzeczpospolita*, March 29, 1990, p. 1, as translated in FBIS-EEU-90-067, April 6, 1990, p. 44; Jan Dziadul, "On the Tracks," *Polityka*, October 14, 1989, p. 7, as translated in FBIS-EEU-89-216, October 14, 1989, p. 59.

NOTE: NA = not available.

^aFirst half of the year only.

With the reduction in demand for military goods in the Warsaw Pact, enterprises have jockeyed for the remaining quotas in intra-CMEA trade. A sharp debate started in 1989 concerning the allocation of the remaining export quotas for arms to socialist countries. Some enterprises argue that quotas should be given to those that have significant convertible currency exports; ruble exports provide these enterprises with a firm production base from which they can bid for convertible currency exports. Those enterprises that have not been successful on convertible currency markets have argued for proportional reductions or other criteria.

Arms producers have lobbied for the elimination of the monopoly on foreign trade in arms held by the Technology Foreign Trade Enterprise. Enterprise managers argue that sales are limited to markets where the Technology Foreign Trade Enterprise has established relations, so their markets are unnecessarily restricted. If other foreign trade enterprises were also allowed to export arms, arms producers would have a wider market. Domestic military goods producers have decided to establish a common marketing organization and advertise Hungarian products in order to mitigate this problem.

POLAND

Poland, like Czechoslovakia, has been an important arms exporter. Poland began exporting weapons during the 1950s, most of which went to other members of the Warsaw Pact. Exports primarily consisted of artillery, howitzers, mortars, and small arms. In the

1960s Poland began to export T-55 tanks to the Middle East. More than 3,000 of these tanks were exported over the years, making them Poland's most important military export throughout the 1970s. Mi-2 helicopters, AN-2 aircraft, Iskra trainers and small arms were also important items. In the 1980s the T-72s, APCs, and radar and air defense guidance systems became important.³ Poland also provided military training to other countries for a fee, generally for pilots and seaman. Foreign nationals usually trained in Poland, but Poland also at times sent training teams to foreign countries.

According to recently released figures, Poland earned over \$300 million a year in convertible currency from arms exports in the late 1980s (see Table 5.1 above). In 1988 total arms exports totaled about 320 billion zlotys, equivalent to 13.6 percent of machinery exports.⁴ Of these exports, two thirds were shipped to other socialist countries and one third was sold for hard currency. Using the estimate cited above, this implies arms exports of 1,100 million rubles and \$250 million in 1988. Although rough estimates, these are indicative of the size of Polish arms exports in the past. The most important export has been armored weapons. In 1988 Bumar-Labedy, the tank manufacturer, had exports of 200 million rubles to socialist countries and \$147 million in convertible currency exports.

Until 1951 Polish arms trade was conducted by the armed forces of Poland in conjunction with those of the USSR. In 1951 an engineering department was set up in the Ministry of Foreign Trade in order to conduct arms trade (similar institutions were created at the same time in other socialist countries). This department was primarily involved in importing military equipment, solely from the USSR. In 1955 the Central Board of Engineering (CENZIN) was established in the Ministry of Foreign Affairs. CENZIN has the exclusive right to sell military equipment to foreign countries and is responsible for exporting arms manufactured in Poland, supplying the Polish armed forces with imported arms, and administering cooperation deliveries (import-export deliveries) to defense industries. It is headed by a full colonel.

In the past many Polish products were based on Soviet licenses. Poland paid a fee of several percent on the gross value of sales of these products. Intra-Warsaw Pact arms trade was coordinated at meetings of the Warsaw Pact Command where decisions on production specialization and supply quotas were arranged. The command also determined production

³Wlodzimerz Kalicki, "Will Sell Good Tank on Favorable Terms," *Gazeta Wyborcza*, November 8, 1989, pp. 4, 5, as translated in FBIS-EEU-89-221, November 17, 1989, p. 78.

⁴This figure was calculated by multiplying the percentage of arms production in industrial output (3 percent) cited above by the share of arms exports in arms production (46 percent) by the industrial output of state-owned industries given in *Rocznik Statystyczny*, 1989.

quotas for major military goods producers.⁵ In general, trade consisted of supplying the relevant armies with equipment not produced in that country. Because decisions on quotas were taken by the command, CENZIN was only involved in negotiating prices and organizational matters. Once agreements were reached, arms export obligations were compulsory.⁶

The Polish government recently decided to end CENZIN's monopoly on arms trade and make the organization into a normal foreign trade enterprise. This decision was precipitated by an attack on a Polish ship carrying arms in the Red Sea unbeknownst to important Polish policymakers. In the future, enterprises will be able to market their own products, rather than go only through CENZIN, provided they first obtain an export permit from the Ministry of Foreign Affairs. In the past, control of arms exports was frequently conducted orally, which led to a number of discrepancies. The new system will hopefully lead to better control.⁷ It is also designed to facilitate exports for arms producers.

Like Czechoslovakian producers, many Polish arms exporters are in serious financial difficulties because of the collapse in demand for their products, primarily from Warsaw Pact customers. The demand for tanks, the mainstay of Polish arms exports, has fallen considerably.⁸ Terms have also become less advantageous for the Poles. During times of tension purchasers pay in cash. Third World clients are now demanding credits, which the Polish government cannot afford to provide because of its own financial plight. In addition, Polish arms are becoming outmoded, as the country lacks the resources to modernize arms production. In light of these problems, CENZIN has been concentrating on providing repair and refitting services and modernizing existing equipment. A substantial demand exists for these activities. CENZIN is also conducting a small but profitable business in selling antique or outmoded arms to collectors, including T-34 tanks.

Arms trade with socialist countries was conducted on a barter basis. Consequently, as Polish purchases have declined, partner countries have cut back on their purchases of Polish arms.⁹ Some socialist countries, most notably Kampuchea, South Yemen, Mozambique, Nicaragua, and a few guerrilla groups such as SWAPO (South West Africa People's Organization) received Polish weapons free of charge. However, in the late 1980s the value of these deliveries was very small, less than .16 percent of Polish arms exports.

⁵Dziadul, "On the Tracks," p. 59.

⁶Placzek, "Restructuring in the Defense Industry," p. 1.

⁷"The Arms Business," *Gazeta Wyborcza*, March 21, 1990, p. 1, as translated in FBIS-EEU-90-067, April 6, 1990, p. 44.

⁸Kalicki, "Will Sell Good Tank on Favorable Terms," p. 70.

⁹Ibid.

As in Czechoslovakia, in Poland the arms exports have apparently been very profitable. This said, the \$73 million Poland earned from convertible currency arms exports in 1989 equals less than 2 percent of total convertible currency exports in that year. Further declines in arms exports would have a marginal impact on the trade accounts.

BULGARIA

Bulgaria entered the arms trade in 1961 with exports of arms to the interim government of Algeria. Arms exports are channeled through the Kintex Trading Enterprise. This foreign trade organization, soon to become a joint stock company, accounted for 10 percent of Bulgaria's total convertible currency export earnings in the 1980s.¹⁰ This implies convertible currency arms exports of roughly \$300 million a year during this period.

CONCLUSIONS

The data and information on East European arms trade are still much scantier than on other military areas. This said, a few conclusions can be drawn from the literature. First, because the East Europeans relied on other members of the Warsaw Pact for most of their exports, reductions in military procurement in one country had a multiplier effect on producers. As one country reduced imports, the other countries reduced their imports by a like amount because of state agreements to balance arms trade bilaterally in the Warsaw Pact. Consequently, producers suffered from a decline in demand on ruble export markets at the same time that domestic procurement collapsed.

Second, Third World demand for East European arms has also fallen. This was due in part to the end of the Iran-Iraq war. However, foreign policy changes, most notably substantially cooler relations with Third World countries such as Cuba and Libya, have also contributed to a decline in arms exports. East European participation in the embargo against Iraq also led to a fall in arms exports.

Declines in arms imports or exports have not had a significant effect on East European balance of payments. Because arms trade was balanced between Warsaw Pact primary trading partners, changes in imports have been matched by changes in export demand and have no effects on the ruble balance of payments. East European arms exports to convertible currency areas appear to have been profitable. But even Polish exports have constituted only a few percent of total convertible currency exports. Only in Bulgaria and Czechoslovakia have such exports made up a large share of hard currency earnings.

¹⁰BTA, "Kintex—Revealing the Mystery," May 17, 1990, as reported in FBIS-EEU-90-097, May 18, 1990, p. 1.

VI. COSTS OF SOVIET TROOP WITHDRAWALS

A new, highly emotional financial issue has emerged in the course of the reorganization and reduction of the Warsaw Pact. This is the costs associated with the withdrawal of Soviet troops. The East European countries have complained of environmental damage associated with fuel and ammunition dumps as well as damage to houses and facilities turned over to the Soviets. The latter complaint probably deserves less credence because many of these facilities were taken over by the Soviets shortly after World War II (in Czechoslovakia, after 1968). The period of time has been so long that the buildings probably would have tumbled down if the Soviets had not been in them.

On the other hand, Soviets are demanding compensation for vacating facilities they have constructed. In most instances, the Soviets built the facilities for their own purposes without informing their East European hosts. The East Europeans have little desire or use for buildings left behind by a force that many saw as an occupying power.

CZECHOSLOVAKIA

The Czechs have argued that the Soviet army created 168 million korunas in damage during its stay in Olomouc alone. Houses, apartments, the airport, and storage sites have been damaged. They calculate the average repair cost of apartments at 50,000 korunas apiece.

In addition to structural damage, the ecological situation has the Czechs concerned. They have had no access to the bases for 20 years and do not know where toxic substances are buried. Czech Premier Petr Pithart has asked Washington for U.S. financial and technical assistance. A U.S. company, Martech, has said that cleaning the pollution at the Soviet base in Frenstat pod Radehostem will cost \$2.5 million. The Czechs have already contracted with U.S. firms for cleaning bases at a cost of almost \$5 million.¹

HUNGARY

The Hungarians and Soviets are engaged in a heated exchange over who owes what to whom. The Soviets are demanding 50 billion forints (2.7 billion rubles) for 6,000 buildings they constructed, even though they received permission to build only 2,000. The buildings are to be given to the Hungarian forces. The Hungarians are arguing that the 2,000 structures built with permission are worth 10 billion forints at the most. They are unwilling

¹Prague Television Service, May 2, 1990, as translated in FBIS-EEU-90-086, May 3, 1990, p. 11.

to pay for the other structures. Furthermore, they want compensation for environmental damage and payment to survivors who were deported to the Soviet Union as temporary labor in the 1940s. The Hungarians have estimated cleanup costs at \$30 million to \$40 million for areas vacated in 1990 alone.² Burlakov, the general in charge of the Group of Southern Forces, threatened to slow or stop the withdrawal of Soviet troops from Hungary unless these demands were met. After the ensuing uproar, the Soviets and Hungarians agreed to raise the issue to a higher level.³

POLAND

Because Poland has agreed to the continued presence of Soviet forces for an interim period, specific issues of recompense have not been broached as sharply as in Hungary and Czechoslovakia. Nonetheless, issues of damage compensation have cropped up frequently in the newspapers. In June 1990, the Poles and the Soviets agreed that the latter would have to pay the full market price for food and other supplies purchased in Poland, rather than the more favorable prices granted the Polish army.

CONCLUSIONS

The withdrawal of Soviet troops has created a number of contentious issues concerning the value of assets to be left by the Soviets versus the costs to the East Europeans from environmental pollution and building repair. In the case of Hungary, the Soviets have valued their assets at 540 million to 2.7 billion rubles or \$490 million to \$2.4 billion at the recently agreed ruble-dollar exchange rate. (Similar figures are likely to be applied to Czechoslovakia.) The Hungarians argue that environmental-damage costs are roughly the same and will not agree to payments of this magnitude. Although these issues are unlikely to halt Soviet troop withdrawals, they have left a bitter residue between the two sides that may sour Soviet-East European relations for the next several years.

²*Magyar Nemzet*, June 14, 1990, p. 3, as translated in JPRS-EER-90-103, July 12, 1990, pp. 2-3.

³Csaba Poor, "Halting the Withdrawal of Soviet Troops Was Burlakov's Personal Opinion," *Magyar Hirlap*, July 12, 1990, p. 1, as translated in FBIS-EEU-90-135, July 13, 1990, p. 22.

VII. CONCLUSIONS

The reductions in military budgets and force levels reported in Eastern Europe have been truly massive. Poland and Hungary have passed budgets cutting over 20 percent in real terms. Bulgaria and Czechoslovakia have also slashed spending. Personnel is being cut by 30 percent or more from former levels. Czechoslovakia and Hungary are cutting heavy weaponry by upwards of 60 percent.

In general, these reductions are having a beneficial impact on Eastern Europe. At a time when its major export market, the Soviet Union, is collapsing and it is moving from centrally planned to market economies, Eastern Europe's budgetary reductions have enabled governments to save .5 to 1 percent of NMP for other uses. Most of these savings currently come from declines in the procurement of weapons, many of which are imported. In the future, lower operating and personnel costs will also be a source of savings.

The benefits from reduced military spending are partly offset by the consequent adjustment of military-goods-producing industries. In Eastern Europe, arms and military equipment manufacturers are operating at a much lower capacity, often at a third of past levels. Workers are being laid off and assembly lines closed. To date, layoffs have not had a perceptible impact on national unemployment figures; the numbers have been too small. However, layoffs are having a substantial regional impact in Czechoslovakia and, to a lesser extent, in Poland. In Czechoslovakia, in particular, arms manufacture is concentrated in Slovakia where alternative, well-paying jobs are much more scarce than in Moravia or Bohemia.

Although the problems facing military-goods-producing enterprises in Eastern Europe are large, these enterprises have never accounted for as large a share of industrial output as in the Soviet Union. If the East European military-goods-producing industry were closed down, industrial output would fall by 2.7 percent in Czechoslovakia, less than .5 percent in Hungary, and less than 3 percent in Poland. Although sizable, the potential declines in output are small compared with other dislocations in these economies.

In addition to layoffs of production workers, many officers are being released as a result of the reductions in the armed forces. At this time, the number of unemployed former officers is likely to be too small to create noticeable pockets of unemployment. Many are taking early retirement and leaving the labor force. Others have already voluntarily left for other employment. Because many are fairly well educated, alternative employment has not yet been a problem. The decline in the number of soldiers has been made possible through

reductions in the term of conscription. This in turn has made it possible for personnel to complete post-high-school training and enter the labor market more quickly. The change in conscription periods may eventually lead to slightly higher levels of teenage unemployment as larger pools of new entrants look for jobs in the labor force over the next few years.

The declines in military goods imports will not be followed by an improvement in balance of payments. Most arms exports are delivered between Warsaw Pact countries, whose agreements stipulate that arms trade is to be balanced bilaterally. Consequently, one country's reductions in procurement and imports have been immediately followed by the partner country's reductions in export orders. In addition, traditional clients in the Third World have recently cut their own demand.

The Soviet withdrawal from Eastern Europe will probably impose an additional, unexpected cost on the East Europeans. The Soviets are demanding recompense for facilities they built and are leaving behind. The East Europeans are resisting providing such compensation, because in many cases they have little use for those facilities. The East Europeans, in turn, are asking for financial compensation for cleaning up abandoned Soviet military bases. In many cases oil and other chemical spills have permeated the ground with toxic residues, and Czechoslovakian and Hungarian estimates of cleanup costs run into the hundreds of millions of dollars.

In short, reductions in military forces and budgets in Eastern Europe will provide small but tangible benefits for the new leaderships struggling to establish new economic systems and the basis of democratic government.