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Soviet Spending for Defense: Trends Since 1965 and the Outlook for the 1980s

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An Intelligence Assessment

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October 1979

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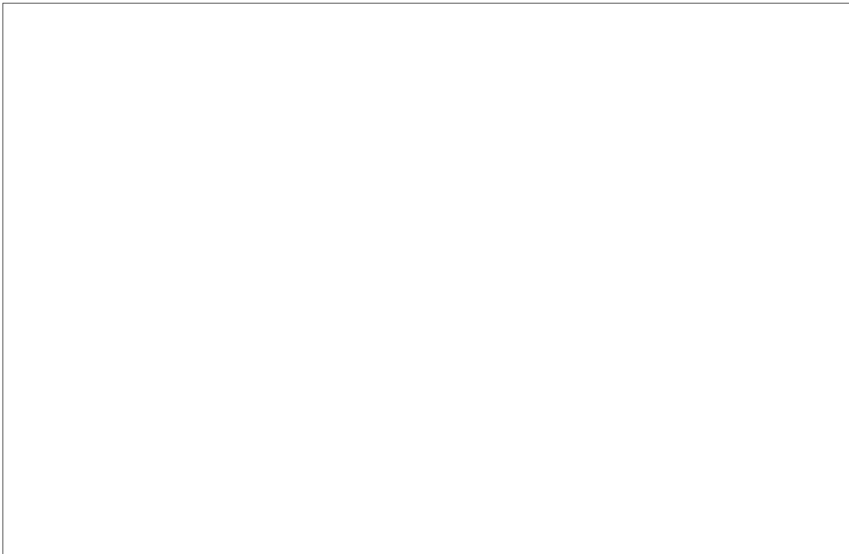
Soviet Spending for Defense: Trends Since 1965 and the Outlook for the 1980s



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An Intelligence Assessment

*Information available as of 10 October 1979
was used in the preparation of this report.*



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Key Judgments

Trends in Defense Spending and Programs

When the current Soviet regime took power in the mid-1960s it continued a policy, which probably had begun in the late 1950s or early 1960s, of increasing the commitment of resources to the military forces. Since 1965, Soviet defense expenditures in constant 1970 rubles have increased at a real average annual rate of 4 to 5 percent. Because defense spending grew at about the same rate as the economy as a whole, these expenditures absorbed a relatively constant 11 to 12 percent of the Soviet GNP. This figure reflects defense as it is defined in the United States; under a broader definition, which the Soviets may use, the defense share of GNP was about 1 percent higher.¹



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The increase in Soviet expenditures on defense between 1965 and 1979 resulted from both a substantial expansion of Soviet military forces and an across-the-board improvement in the quality of weapons and equipment. Total Soviet military manpower increased by 30 percent during those years. The most significant increases in force size took place in Frontal (tactical) Aviation and Ground Forces—especially those along the Sino-Soviet border—and in strategic missile forces. All of the Soviet military services benefited from the introduction of successive generations of major weapons and support systems.



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Outlook for Future Defense Spending

Changing economic and political factors make it difficult to forecast Soviet defense programs and expenditures in the 1980s:

- The rate of Soviet economic growth has been slowing and has recently fallen below the rate of growth that we estimate for defense expenditures.
- Energy problems and demographic problems are likely to lead to a further economic slowdown in the 1980s, so that defense activities could begin to consume an increasing share of Soviet resources.

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¹ This estimate is presented in ruble terms to reflect the cost of military programs and activities in the USSR.



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- A political succession is imminent, and the potential candidates for the top positions appear to hold differing views on resource allocation issues.
- Arms control negotiations now under way could affect the future composition of Soviet military forces and expenditures.

These factors take on particular importance in the light of decisions that the Soviet leaders are making now on economic plans for 1981-85. [redacted]

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Despite these complications, we have sufficient evidence to predict general trends in Soviet defense spending for the next five years or so. This includes information on:

- The Soviet leaders' views of the potential military threats from China and the West and of important deficiencies in some of their forces.
- Current Soviet weapon production programs (many of which will continue into the 1980s), weapon development activity (which is continuing at a high level), and the costs of new generations of major Soviet weapon systems (which are increasing).
- Continuing expansion in the Soviet defense industries, which will provide additional capacity for military production in the 1980s. [redacted]

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On the basis of this information, we believe that Soviet defense spending will continue to increase in real terms at least through 1985. The available evidence indicates that, if the Soviets do not alter their current plans, defense spending probably will continue to grow over the next five years at or near the rate of the past 15 years. If economic pressures became particularly severe, however, the Soviets could moderate the rate of increase in defense spending by economizing in ways that would have only modest impact on the modernization of their forces—by stretching out selected weapon programs, for example, or by taking advantage of the limited direct savings made possible by arms control agreements. [redacted]

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In the longer term, growing economic difficulties may push the Soviet leaders to reexamine their plans with a view to reducing the growth of defense spending. But they will have to weigh their economic concern against their perception of future military requirements and their strong sense of the utility of military power in advancing Soviet policy objectives. Whatever choices they make with regard to defense spending, we think it highly unlikely that, even in the longer term, economic difficulties will force a reversal of the Soviet leaders' longstanding policy of continuing to improve their military capabilities. [redacted]

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**Soviet Spending for Defense:
Trends Since 1965 and
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Introduction

Since the accession to power of the current Soviet regime in the mid-1960s, the USSR has carried out a major expansion and modernization of its military establishment. This effort—which began before the present leaders assumed office—has paid substantial dividends in military capability and political prestige. But the cost has been high: the effort has directed toward the Soviet military a growing infusion of scarce human and technical resources and raw materials.

The estimates are based for the most part on a detailed identification and direct costing of the activities and components that make up the Soviet defense program for each year. We have greater confidence in the estimates of total expenditures than in those for lower levels of aggregation. We also have greater confidence in our estimates for past years than in our projections of future spending. A more detailed description of our methodology, our concepts, and our confidence in the estimates can be found in the appendix.

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One way in which the US Intelligence Community measures the Soviet commitment of resources to its military forces is to estimate the annual ruble expenditures for defense. This report analyzes the level and trend of these expenditures over the last 15 years, their distribution among resource categories and military services, and the major weapon procurement programs that have provided the principal impetus for their growth. It then evaluates those defense spending trends in the light of a projected transition from the generally steady economic growth and political stability of the past 15 years to a decline in that growth and the instability of a political succession. Finally, on the basis of that evaluation, we attempt an assessment of future Soviet defense programs.

Soviet Spending for Defense

Since 1965, the USSR has carried out over 40 major weapon programs and expanded its standing military force from about 3.3 million to about 4.3 million men.² As a consequence, military expenditures have risen substantially. The Soviet Union's pervasive secrecy on military matters, however, precludes a clear understanding of how Soviet leaders and planners measure military expenditures. For this reason our report examines several alternative measurements.

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The Announced "Defense" Budget

In the published state budget, the Soviet Union annually includes a single-line figure for "defense," which is expressed in current prices. The definition of defense—what activities are included in this figure—has not been publicly released. Announced Soviet defense spending was 12.8 billion rubles in 1965. It increased in the late 1960s and remained stable at about 17.9 billion rubles in the early 1970s. It fell to 17.2 billion rubles in 1977 and has remained at that level ever since.

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The estimates presented in this report are expressed in rubles to reflect our understanding of the costs of military equipment and activities in the USSR. Such estimates help us assess the resource considerations confronting Soviet defense planners, the relative priorities assigned to the forces and activities that make up the defense effort, and the impact of defense on the Soviet economy. We use constant prices so that the estimates reflect real changes in defense activities rather than the effects of inflation. The use of 1970 prices permits the comparison of estimated defense expenditures with other Central Intelligence Agency estimates of Soviet economic performance, which also use that price base.

² Major weapon systems are defined here as those with a cumulative total procurement cost (including initial spare parts) of 1 billion rubles or more over the period since 1965. The manpower figures reflect personnel assigned to what the United States would consider national security roles and do not count over one-half million men assigned to militarized security units of the Ministry of Internal Affairs or to Construction and Transportation Troops.

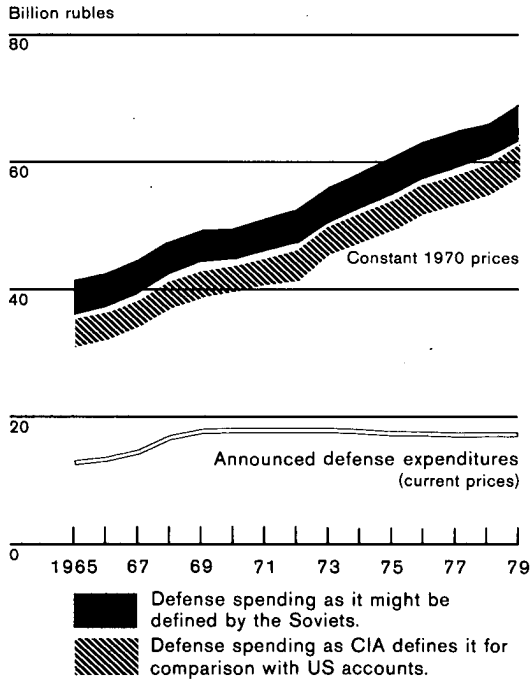
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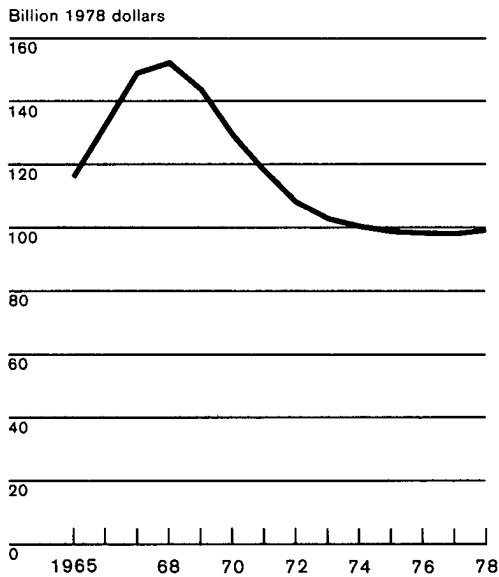
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Estimated Soviet Defense Expenditures, 1965-79



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US Defense Expenditures, 1965-78



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The relatively low level of the announced "defense" figure, coupled with its remarkable stability in recent years, suggests that if it reflects any set of actual expenditures at all, the set must be only a portion of the total. If the Soviets base their figure on an actual inventory of defense activities, then over time they have apparently changed its scope; this would enable them to manipulate the announced figure for political purposes while at the same time enlarging their military effort.

Defense Spending as Defined in the United States

Several definitions or ways of measuring defense expenditures are used in the United States. Probably the most common is the one used in the annual budget of the Department of Defense (DoD). This measure, however, includes funds for some nondefense activities that the Department administers and excludes various defense-related expenditures administered by other government organizations. In the US gross national product (GNP) accounts, the Department of Commerce uses a broader definition, intended to cover all government purchases of defense-related goods and services. The CIA, in its comparisons of the dollar cost of US and Soviet defense activities, uses yet another definition.³ This is similar to the definition used in GNP accounts, but it excludes some activities—such as net expenditures on foreign military assistance—whose costs for the USSR cannot be estimated with confidence. It includes—for the United States—national security programs carried out by the Department of Defense and the defense-related programs of the Department of Energy, the Coast Guard, and the Selective Service Commission and—for the USSR—equivalent Soviet activities.

According to this CIA definition, estimated Soviet defense expenditures in 1965 were about 31-36 billion rubles (measured in constant 1970 prices). They have increased since then at a real average annual rate of growth of 4 to 5 percent, and we estimate that in 1979 they will reach 58-63 billion rubles. Growth rates varied from year to year, primarily in response to fluctuations in the procurement of strategic missiles and aircraft. The continuing increase in estimated Soviet defense expenditures is in keeping with observed trends in Soviet military activities. The trend in US

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defense expenditures is in marked contrast. From the Vietnam peak of 1968, US defense outlays declined through 1976. They increased slightly in 1977, however, and by a larger amount in 1978. [redacted]



Analysis of Expenditures by Resource Category: Measures of Force Expansion and Modernization

One breakdown is in terms of three principal resource categories—operating, RDT&E (research, development, testing, and evaluation), and investment. The 25X1

operating category includes expenditures for personnel and for operating and maintaining current forces. 25X1

RDT&E expenditures are used for exploring new technologies, developing new weapons and improving existing weapons. Investment expenditures are those associated with the acquisition and capital repair of weapons, equipment, and facilities. [redacted] 25X1

A breakdown into these categories reveals that Soviet military planners devoted about 30 percent of total defense expenditures over the 1965-79 period to operating expenses and about one-half to investment. The remaining one-fifth appears to have been allocated to RDT&E. Expenditures for all three resource categories increased between 1965 and 1979. We estimate that spending for RDT&E grew more rapidly than operating or investment expenditures. While this estimate is subject to particular uncertainty, its rapid growth suggests that qualitative improvement is becoming increasingly important in shaping Soviet defense spending. [redacted] 25X1

Patterns and Priorities Revealed by Analysis of Expenditures

The “direct-costing” methodology for estimating Soviet defense spending makes it possible to analyze expenditure patterns in a number of ways.⁴ Analysis by resource category provides a measure of Soviet force expansion and modernization; analysis of major procurement programs reveals the principal determinants of defense spending; and analysis of expenditures by the individual services provides an insight into changing Soviet military priorities. [redacted]

The analyses of expenditures in the sections that follow are based on narrow definition of defense, corresponding to that used in the CIA comparisons of US and Soviet defense activities. [redacted]

Operating Expenditures

The operating category includes expenditures for personnel—pay and allowances, food, personal equipment, medical care, and travel—and for the operation and maintenance (O&M) of active forces. Between 1965 and 1979, personnel expenditures (except pensions, which are excluded from this analysis) accounted for about 15 percent of total Soviet military expenditures and for over 50 percent of operating expenses. There was an increase of over 35 percent in personnel costs over the period, resulting mainly from an increase of 1 million men in Soviet active military 25X1

manpower. Most of the growth in manpower took place before 1972, reflecting primarily the growth and modernization of the Soviet Ground Forces. [redacted] 25X1

⁴ See appendix for a discussion of direct costing.

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In the O&M part of the operating category we include our data on Soviet expenditures for the maintenance of equipment and facilities, for petroleum products, utilities, and civilian personnel, and for the leasing of communications. Between 1965 and 1979 these costs accounted for about 15 percent of total defense expenditures and for almost one-half of the expenditures in the operating category. O&M expenditures almost doubled during this period, largely because more (and more sophisticated) weapons require more (and more costly) maintenance. [redacted]

expenditures in the investment category and over 45 percent of total expenditures. Construction received a far smaller share than procurement. [redacted]

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Spending for the investment category as a whole grew at nearly the same rate as total defense spending during the period, although its growth rate varied from year to year. The growth pattern for investment was determined, for the most part, by procurement cycles for aircraft and missiles. [redacted]

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RDT&E

We consider the estimate of Soviet RDT&E outlays to be less reliable than the estimates of operating and investment expenditures. Nevertheless, information is available on some particular RDT&E projects, and we have access to published Soviet statistics on science and to statements by Soviet authorities on the financing of research. These sources indicate that military RDT&E expenditures are large and growing. This indication is reinforced by evidence that the Soviets have increased the manpower and facilities devoted to military RDT&E programs. [redacted]

Major Procurement Programs: the Drivers of Defense Spending

When we analyze Soviet defense spending between 1965 and 1979, it becomes apparent that the procurement of new weapons and equipment was the major factor driving it upward. Procurement accounted for a large part of the increase (more than either RDT&E or operating costs) and also accounted for its variations: the initiation and completion of major procurement programs was primarily responsible for the cyclical fluctuations in the rate of growth of the total. [redacted]

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Our estimate suggests that outlays for RDT&E accounted for about 20 percent of total Soviet military expenditures during the 1965-79 period. The estimated share has increased over time and this year probably will reach almost 25 percent of the total. We believe that the growth in Soviet spending for the RDT&E category (as for the investment category) varied from year to year with the initiation and completion of individual development programs. [redacted]

About three-quarters of the Soviet procurement expenditure was for major weapon systems—aircraft, missiles, naval ships and land arms—and major spare parts for these weapons. We define a major weapons program as one that requires cumulative procurement expenditures of 1 billion rubles or more⁶—and since 1965 the Soviets have engaged in more than 40 of them. Together these 40 programs accounted for nearly half of the total procurement expenditures. The 20 most costly weapons programs (see table 1) made up one-third of the cumulative Soviet military procurement expenditures during the 1965-79 period. [redacted]

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Because our calculations are based on highly aggregated and uncertain data, we cannot speak with confidence, nor in detail, about the allocation of RDT&E spending among the services or among military missions. [redacted]

The 20 most costly programs included two or more systems for each of the five Soviet services, and the weapons were for a wide range of strategic and theater warfare missions. Procurement of tactical aviation and strategic air defense systems was particularly important. [redacted]

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Investment

The investment category is divided into two components: the procurement of weapons and equipment and the construction of facilities.⁵ During 1965-79, procurement accounted for over 90 percent of the

⁶ When we discuss procurement expenditures at this level, we include only the purchase of the weapon itself and the initial spare parts. We are less confident in our estimates of defense expenditures at the individual program level than in those at higher levels of aggregation. [redacted]

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⁵ For the purpose of this study we have defined both procurement and construction to include a portion of the spending for capital repair and for the recurring purchase of spare parts. This is consistent with our understanding of Soviet accounting practice. [redacted]

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Table 1

The Top Twenty Soviet Military Procurement Programs, 1965-79

Rank ¹	Program ²	Type of Weapon System	Service
1	Flogger	Interceptor/ground attack aircraft	Air Forces, National Air Defense Forces
2	D-class SSBN ³	Nuclear-powered ballistic missile submarine	Navy
3	Y-class SSBN ³	Nuclear-powered ballistic missile submarine	Navy
4	Hip-Haze	Helicopter	Air Forces, National Air Defense Forces, Navy, Strategic Rocket Forces
5	Foxbat	Interceptor/reconnaissance aircraft	Air Forces, National Air Defense Forces
6	Fencer	Ground attack aircraft	Air Forces
7	SS-11	ICBM	Strategic Rocket Forces
8	Backfire	Bomber	Air Forces, Navy
9	Fitter	Fighter-bomber	Air Forces, Navy
10	SS-18	ICBM	Strategic Rocket Forces
11	Fishbed	Fighter-interceptor	Air Forces, National Air Defense Forces
12	Flagon	Interceptor	National Air Defense Forces
13	Candid	Transport aircraft	Air Forces
14	V-class SSN	Nuclear-powered attack submarine	Navy
15	SS-19	ICBM	Strategic Rocket Forces
16	T-62	Tank	Ground Forces
17	SS-20	IRBM	Strategic Rocket Forces
18	SA-5	Surface-to-air missile	National Air Defense Forces
19	SS-9	ICBM	Strategic Rocket Forces
20	T-72	Tank	Ground Forces

¹ The ranking shown here is based on estimated cumulative procurement cost (including initial spare parts) during the 1965-79 period in 1970 rubles. This does not necessarily reflect total procurement expenditures for all programs, because some began before 1965 and some will continue beyond 1979.

² Weapon systems are identified in this table by the designations assigned to them by Western intelligence services. The Soviets use their own designations and program definitions, of which we are not always aware; consequently this ranking does not necessarily reflect the Soviets' perception of the costliness of their weapons programs.

³ Cost is considered to include the procurement of the submarine's complement of missiles.

In terms of expenditures, the largest Soviet procurement program of the last 15 years has been the Flogger fighter. The Flogger was introduced in 1970 and has undergone several modifications. It is currently in service with both Frontal (tactical) Aviation and the National Air Defense Forces. Five other tactical and air defense aircraft were also in the top 20. These six programs together accounted for almost 15 percent of total procurement expenditures. Introduction of these systems improved significantly the firepower and flexibility of Soviet tactical and air defense air forces.

Also important in the top 20 were strategic attack systems, intended to deliver nuclear weapons to intercontinental ranges or to strategic targets on the periphery of the USSR. The eight strategic attack programs in the table—which include two nuclear-powered ballistic missile submarines (SSBNs), four ICBMs, one intermediate-range ballistic missile (IRBM), and a bomber—accounted for nearly another 15 percent of procurement spending. Acquisition of these systems improved Soviet capabilities to attack both hard and soft strategic targets and improved the flexibility and survivability of the strategic forces.

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Three of the top 20 programs—two tanks and a large helicopter program—improved the firepower and mobility of Soviet theater forces. Deployment of the SA-5 surface-to-air missile (SAM) was an important element in enhancing Soviet defenses against manned bombers. Acquisition of the Candid transport increased Soviet airlift capacity, and production of the V-class nuclear-powered attack submarine improved the antisubmarine warfare (ASW) potential of naval forces. [redacted]

Expenditures by the Military Services: Insights into Changing Institutional Priorities

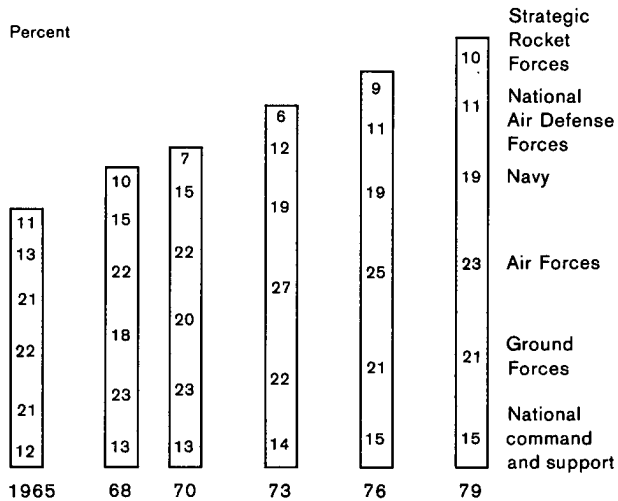
The Soviet armed forces are organized into five major service groups—Air Forces, Ground Forces, Navy, National Air Defense Forces, and Strategic Rocket Forces (SRF). Using the direct-costing approach, we can form a reasonable picture of the allocation of most defense spending among these services and gain insights into trends in Soviet priorities for allocating defense resources among competing claimants. The spending that we cannot confidently allocate in this way includes the costs of RDT&E and of certain national command functions and rear service and other support functions. Therefore the analysis that follows will examine the investment and operating expenditures of the services but exclude their expenditures on RDT&E, and it will treat the national command and support⁷ functions as a category separate from the various services. [redacted]

Overview

The annual distribution of Soviet military investment and operating expenditures changed during the 1965-79 period in response to changing Soviet perceptions of military threats and to the development of new doctrines for the employment of military forces. The perceived threat from China and the improvements in Western strategic and conventional forces were two important influences, and a third was an emerging Soviet military doctrine that reemphasized the possibility of large-scale conventional conflict (rather than

⁷ The command and support category should not be confused with command, control, and communications, the costs of which we have allocated among the categories analyzed in this section. [redacted]

Shares of Estimated Soviet Investment and Operating Expenditures for Military Services



Calculated on basis of data in 1970 rubles.

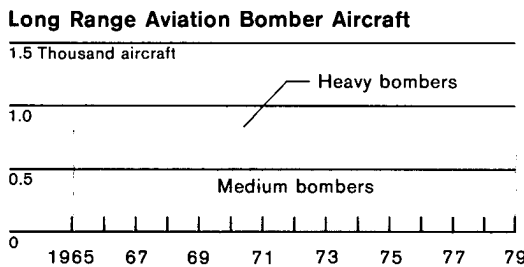
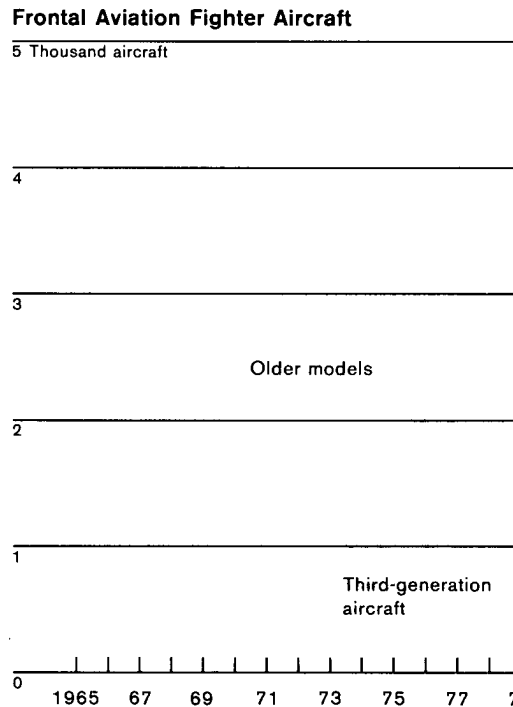
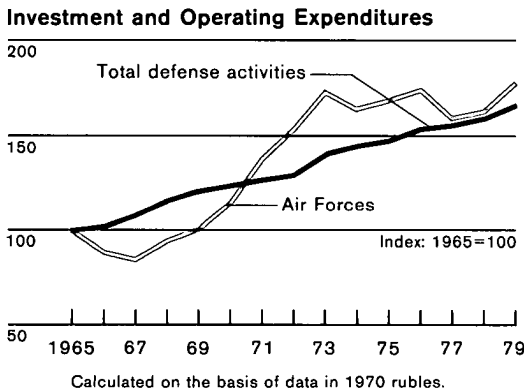
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[redacted] assuming an immediate use of nuclear weapons) and therefore required a more balanced modernization of all the forces. [redacted]

The Air Forces and Ground Forces each claimed over one-fifth of investment and operating expenditures during 1965-79. The Ground Forces share remained relatively constant throughout but increased slightly from 1965 through 1972 as a result of the Soviet buildup along the Sino-Soviet border. The Air Forces, on the other hand, experienced significant fluctuations in its share. [redacted]

The Navy share, which declined slightly, accounted for about one-fifth of total investment and operating spending for the period as a whole. After peaking in 1969, the National Air Defense Force share declined in the early 1970s and has fluctuated in recent years. It accounted for less than 15 percent of investment and operating expenditures during the entire period. The SRF share, which rose and fell depending on the deployment cycles of new missile systems, accounted for less than 10 percent of total investment and operating expenditures during the 1965-79 period. The national command and support share averaged less than 15 percent of investment and operating expenditures during the period and increased slightly. [redacted]

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**Air Forces:
Expenditures and Composition of Forces, 1965-79**



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Air Forces

The Soviet Air Forces includes three components: Frontal (tactical) Aviation, Long Range Aviation (LRA), and Military Transport Aviation. Frontal Aviation missions include counterair, ground attack, reconnaissance, electronic warfare, and helicopter ground attack and troop lift. The primary missions of LRA are intercontinental nuclear strikes and conventional or nuclear strikes in support of theater forces. Military Transport Aviation is responsible for the transport of airborne assault forces. [Redacted]

weapon acquisition programs—the Flogger interceptor/ground attack aircraft, the Hip/Haze helicopters, the Foxbat reconnaissance aircraft, the Fencer ground attack aircraft, the Backfire bomber, the Fitter fighter-bomber, and the Fishbed fighter. These seven programs accounted for almost two-thirds of all Air Forces procurement. (The Flogger program alone accounted for almost 20 percent of Air Forces procurement.) [Redacted]

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Procurement of weapons and equipment accounted for two-thirds of Soviet Air Forces investment and operating expenditures during 1965-79. A significant portion of these expenditures was for the buildup of forces along the Sino-Soviet border, and another large part was for a modernization program. The Air Forces participated in seven out of the 10 most costly Soviet

Frontal Aviation. Within the Air Forces, Frontal Aviation has consistently absorbed the largest share of spending, and during 1965-79 it was responsible for a major shift in defense resource allocation. Its expenditures more than doubled during the period and accounted for over 70 percent of the investment and operating resources going to Soviet Air Forces. [Redacted]

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There was a marked quantitative expansion of Frontal Aviation in the late 1960s, resulting primarily from a buildup of forces opposite China. In about 1969 the Soviets began a major reequipment program for Frontal Aviation, first for fighter units and several years later for fighter-bomber units. The new third-generation aircraft introduced into Frontal Aviation (Flogger, Fencer, and Foxbat, for example) have greater ranges, can carry larger payloads, are equipped with more advanced avionics, and are armed with more effective munitions than their predecessors. These attributes combined to give Frontal Aviation the capacity to deliver more effective firepower under a greater variety of conditions. [redacted]

Long Range Aviation. LRA expenditures remained relatively constant throughout 1965-79 and accounted for just over 10 percent of investment and operating expenditures for the Air Forces. The most costly LRA procurement program of the period was the Backfire bomber. LRA provides a relatively small portion of the total Soviet intercontinental strike capability but is an important factor in Soviet capabilities for attacking targets along the Eurasian periphery. [redacted]

Military Transport Aviation. Military Transport Aviation expenditures increased more than 50 percent during the period and accounted for almost 15 percent of Air Forces expenditures. The total number of transports has remained relatively stable since the late 1960s, but the introduction of new aircraft has improved the capabilities of the force. These improvements involve not only the combat lift of airborne troops, but also the administrative lift of troops, equipment, supplies, and weapons. In addition, Military Transport Aviation's mission of delivering military and economic assistance material to the Third World has been expanded in recent years. [redacted]

The remaining 5 percent of Air Forces investment and operating expenditures were for command and general support of aviation forces and cannot be allocated among the three force components. [redacted]

Ground Forces

Annual Ground Forces investment and operating expenditure increased between 1965 and 1979 at almost the same rate as total military expenditures. The major sources of this growth were an increase in

Ground Forces active military personnel by 40 percent and the procurement of new weapons and equipment; and these in turn were in response to the need to meet expanded requirements for conventional war. [redacted]

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Ground Forces military manpower increased from 1.3 million men in 1965 to almost 1.8 million men in 1979. More than half of this increase resulted from the buildup of Ground Forces along the Sino-Soviet border, where the number of divisions more than doubled and manpower more than tripled between the mid-1960s and mid-1979. [redacted]

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Since the mid-1960s, Soviet ground forces also have been modernized, with emphasis on improved mobility and conventional firepower. At the same time, the number of weapons in Soviet divisions and in the nondivisional combat support elements has increased. Procurement of land armaments (with ammunition) grew by almost 75 percent between 1965 and 1979 and accounted for over half of the total Ground Forces procurement. The most expensive land armaments procurement programs during this period—in decreasing order of cost—were the T-62 and T-72 tanks, the BMP armored combat vehicle, the T-55 tank, and the ZSU-23-4 self-propelled antiaircraft gun. The T-72 and its immediate predecessor, the T-64, have improved mobility and better armor protection than earlier tanks and mount a larger caliber main gun system with an automatic loader. The BMP has greater armor protection, mobility, and firepower than the earlier BTR series of armored vehicles. The T-64, T-72, and BMP also have protective systems that permit operations in a toxic or radioactive environment. [redacted]

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Missile and electronics procurement also grew in response to the changing views of the battlefield environment, and each of these categories accounted for about 15 percent of total Ground Forces procurement costs. Since the mid-1960s, the Soviets have introduced five tactical air defense missiles (to replace older missiles and air defense guns) and have deployed four new tactical surface-to-surface missiles. They have also upgraded their capabilities against armored forces by introducing two new antitank guided missiles (ATGMs). Procurement expenditures for ATGMs are estimated to have quadrupled between 1965 and 1979. [redacted]

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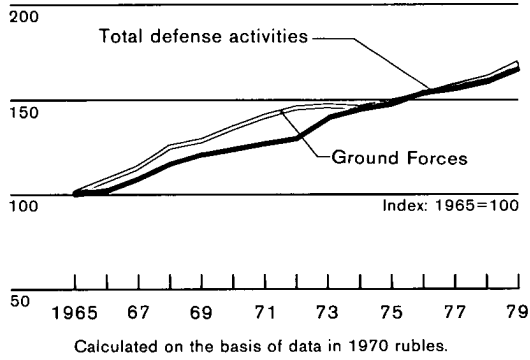
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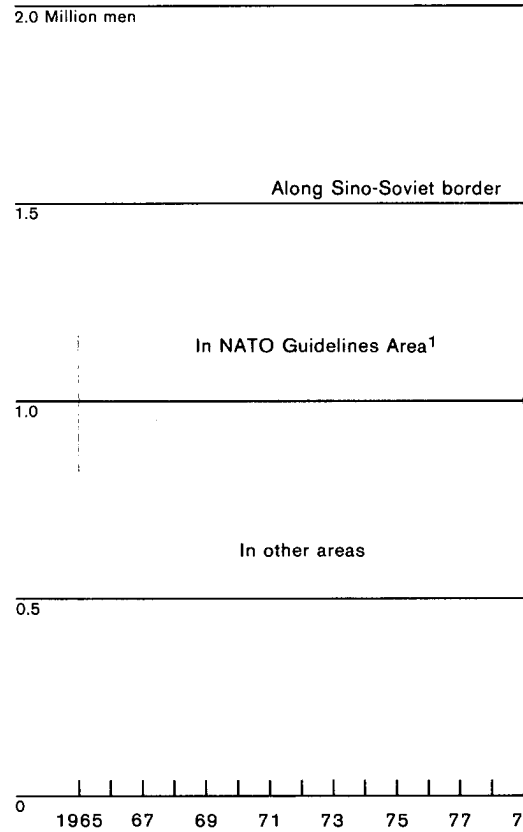
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**Ground Forces:
Expenditures and Deployment of Forces, 1965-79**

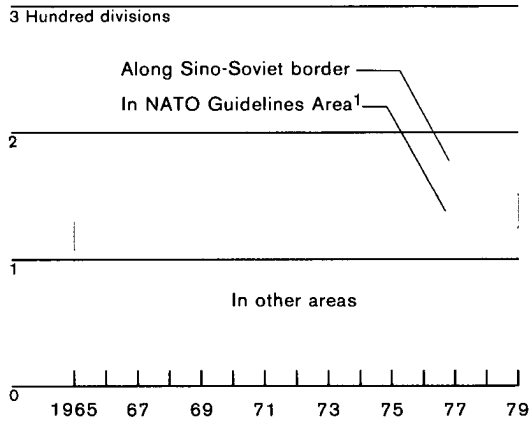
Investment and Operating Expenditures



Manpower



Ground Forces Divisions



1. The NATO Guidelines Area includes East Germany, Poland, and Czechoslovakia.

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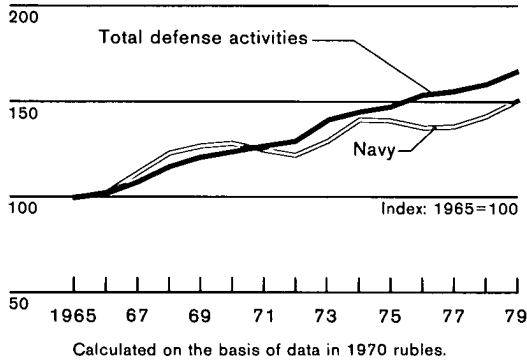
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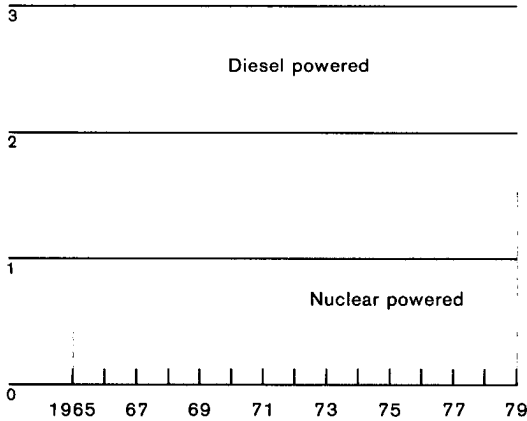
**Navy:
Expenditures and Composition of Forces, 1965-79**

Investment and Operating Expenditures



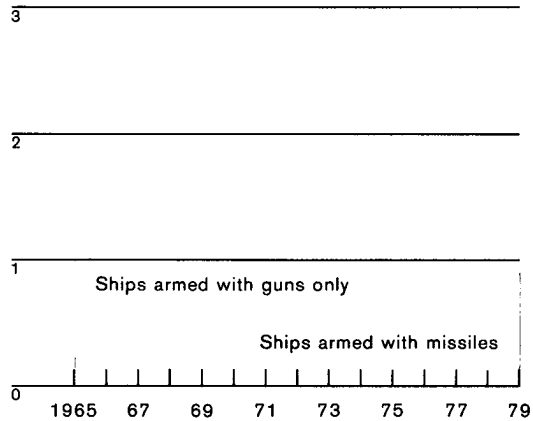
Submarines

4 Hundred units



Major Surface Combatants¹

4 Hundred units



1. Major surface combatants are defined as those with displacements of 3,000 tons or more.

[Redacted]

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Navy

Over the last 15 years, the Soviets have undertaken programs aimed at acquiring naval forces with improved capabilities for both conventional and nuclear war. They have invested most heavily in strategic and general purpose submarines but have also increased expenditures for surface ships and naval aircraft. They have also increased the peacetime operations of their ships away from home waters. As a result, annual expenditures by the Soviet Navy have grown substantially and probably will be about 50 percent greater in 1979 than they were in 1965. [redacted]

During 1965-79 the Navy consumed approximately 20 percent of Soviet military investment and operating expenditures. Investment programs made up over three-quarters of the total naval expenditures, and procurement of ships, aircraft, weapons, and equipment accounted for nearly all of this share. Total Navy expenditures fluctuated in a pattern corresponding to the fluctuation of expenditures for the major ship procurement programs. Ship procurement⁸ accounted for about 60 percent of overall naval procurement, and ballistic missile and attack submarines accounted for over 70 percent of total ship procurement. (Most of these submarines were nuclear powered.) Missiles and aircraft each accounted for about 15 percent of overall naval procurement expenditures. [redacted]

Of the total investment and operating expenditures for the Navy between 1965 and 1979, investment and operating expenditures for ballistic missile submarines assigned to the strategic attack mission made up almost one-quarter. The share increased from 1965 through 1974, with the successive introduction of the Y- and D-class SSBNs. It has fallen since then, as the pace of the SSBN programs has slowed, and will probably be about 15 percent this year. [redacted]

Within the ship procurement category, the most costly programs were for submarines—the D-class SSBN (the most expensive), then the Y-class SSBN, the V-class nuclear-powered torpedo attack submarine, and the C-class nuclear-powered cruise missile submarine. The most costly surface combatant programs were for the Krivak-class destroyer, the Petya- and

⁸ Ship procurement, as defined here, includes the ship and its initial outfittings but excludes missiles, torpedoes, and other ammunition. [redacted]

Grisha-class frigates, the Kashin-class destroyer, and the Kresta-class cruiser. [redacted]

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Most of the major combatant ships introduced since 1965 have been equipped with surface-to-air, antiship, or ASW missiles.⁹ The SS-N-6 submarine-launched ballistic missile (SLBM) was the largest naval missile procurement program, followed by the SS-N-8 SLBM, the SS-N-3 cruise missile, the SS-N-18 SLBM, and the SS-N-2 cruise missile. The most expensive naval aircraft programs were the Backfire bomber, the Bear-F ASW aircraft, the Hormone helicopter, the May ASW aircraft, and the Forger A carrier-based short-takeoff-and-landing aircraft. [redacted]

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The Soviet Navy's operating expenditures increased by almost 40 percent between 1965 and 1979, primarily as a result of the increasing costs of maintaining complex ships and aircraft. [redacted]

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National Air Defense Forces

The Soviets have traditionally placed great emphasis on strategic defensive forces. These are under the jurisdiction of the National Air Defense Forces. During 1965-79, expenditures for this service reflected continuing concern about the threat from manned aircraft and about the deployment of antiballistic-missile (ABM) systems—until the costly ABM competition with the United States was constrained by treaty in 1972. Recent Soviet procurement programs show a continuing emphasis on countering manned bombers, especially those capable of penetrating at low altitude, and a new emphasis on meeting a new Western strategic threat, the cruise missile. [redacted]

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Soviet expenditures for the National Air Defense Forces rose in the late 1960s, peaking in 1969 at a level 50 percent higher than that of 1965. This reflected primarily the rapid and costly deployment of the Moscow ABM system and the procurement of the SA-5 SAM. Expenditures fell until 1974 and have fluctuated—but generally increased—ever since. Procurement of new third-generation fighter aircraft has been an important influence on spending in the 1970s. [redacted]

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⁹ Major surface combatants are defined as those with displacements of 3,000 tons or more. [redacted]

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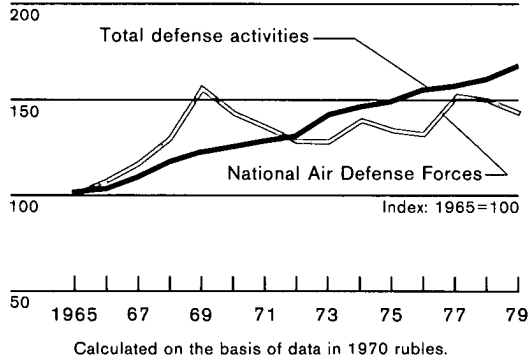
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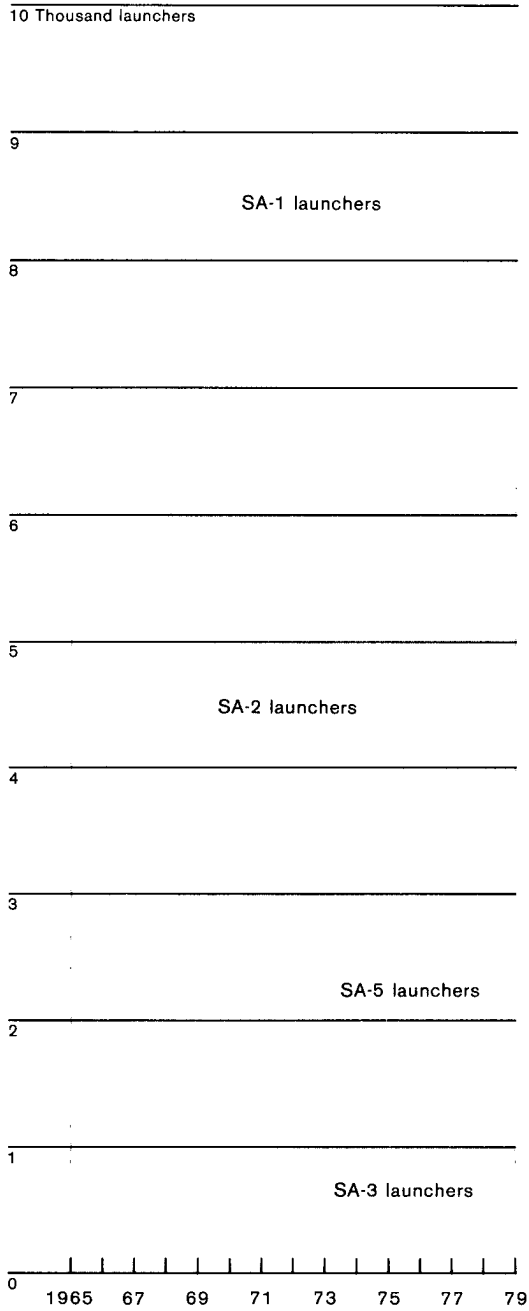
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**National Air Defense Forces:
Expenditures and Composition of Forces, 1965-79**

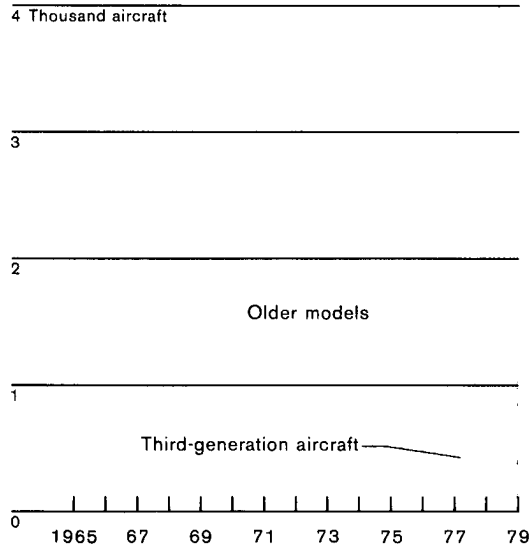
Investment and Operating Expenditures



Surface-to-Air Missile Launchers



Interceptors



[Redacted box]

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Procurement programs established the trend of total expenditures for the National Air Defense Forces and amounted to almost 60 percent of its total expenditures during the period. The largest aircraft procurement programs for this service—in decreasing order of cost—were for the Foxbat, Flagon, Flogger, Fiddler, and Firebar interceptors. The most costly missile systems were, in order, the SA-5, SA-3, and SA-2 SAMs and the AA-6 and AA-3 air-to-air missiles. These 10 programs collectively accounted for over half of total air defense procurement expenditures.

gets on the periphery of the USSR. Deployment of these ICBMs, together with the introduction of new SLBMs, enabled the USSR to exceed the United States in number of intercontinental nuclear delivery vehicles in the early 1970s. The Soviets improved the survivability of their ICBM forces and their destructive potential against both hard and soft targets. In addition, through the introduction of multiple, independently targetable reentry vehicles (MIRVs), they have increased the target coverage of their intercontinental and their peripheral attack missiles.

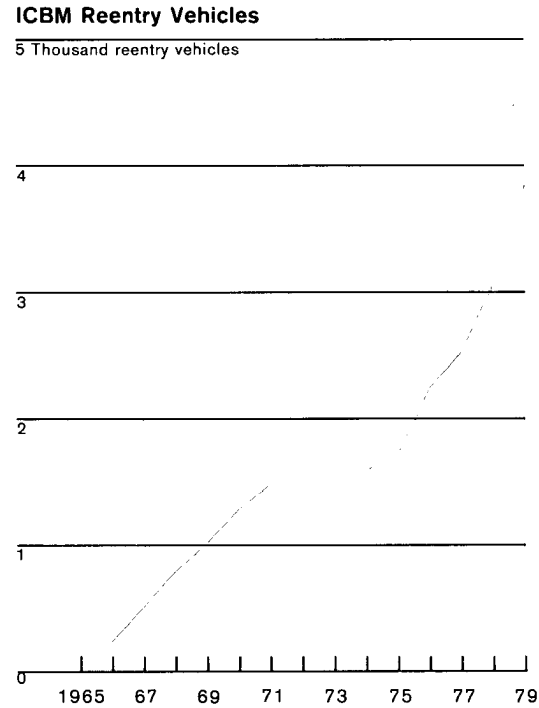
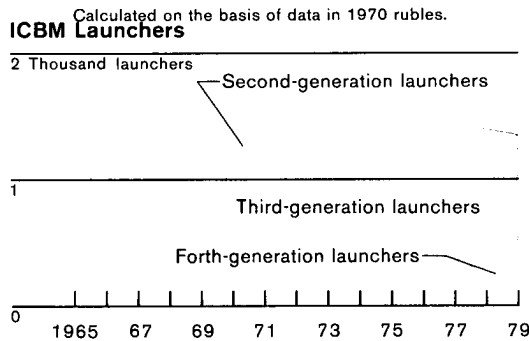
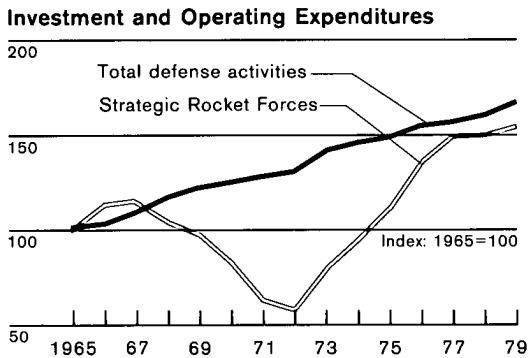
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Strategic Rocket Forces

Land-based ballistic missiles, which are operated by the SRF, are the mainstay of the Soviet strategic attack forces. Over the past 15 years, the Soviets have introduced two generations (the third and fourth) of ICBMs, and they recently introduced a new intermediate-range ballistic missile (IRBM) for attacking tar-

The deployment of new-generation strategic missiles is clearly reflected in the trend of total SRF expenditures. They peaked in 1967 with the deployment of third-generation SS-11 and SS-9 ICBMs and fell through 1972 as that deployment was completed. Expenditures then increased throughout the remainder of the period, reflecting the addition of fourth-

**Strategic Rocket Forces:
Expenditures and Composition of Forces, 1965-79**



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generation SS-17, SS-18, and SS-19 ICBMs and the SS-20 IRBM to the force. The SRF was the only service to experience a decline in operating expenditures. This resulted from the deactivation—influenced in part by strategic arms limitation (SAL) constraints—of older missile systems with high personnel and O&M costs. [redacted]

Missile systems procurement consumed over 85 percent of the total SRF procurement funds and nearly 60 percent of all the investment and operating funds allocated to the service. The most costly systems were—in decreasing order of cost—the SS-18, SS-11, SS-19 and SS-9 ICBMs and the SS-20 IRBM. These five systems accounted for nearly 60 percent of the total SRF procurement. [redacted]

National Command and Support Activities

Expenditures for national command and support climbed during this period and are expected to be over twice as much in 1979 as they were in 1965. The increase in support costs reflects an increase in the size of the Soviet armed forces and of the central Ministry of Defense apparatus, as well as the increased complexity of the task of controlling and supporting the more advanced weapon systems. [redacted]

Another important contributor to the increase in expenditures for command and support was the substantial growth of the Soviet military space effort. The most costly military space programs of the past 15 years were those for photographic, electronic, and ocean reconnaissance satellites, for manned spacecraft with military missions, and for military communications satellites. [redacted]

Factors Affecting Future Defense Expenditures

We have less confidence in our projections of future Soviet defense expenditures than in our estimates of past spending. This is chiefly because of uncertainties about how the Soviet leaders will weigh military, political, and economic factors in making their decisions on future military forces. The economic and political environments, in particular, are becoming increasingly complex. Although Soviet economic growth has been slowing since the 1950s, its rate has only recently fallen below that of defense spending.

Similarly, the advancing age of the top political leaders and the poor health of many of them make the coming political succession increasingly relevant to the question of future defense activities. We review below some of the major forces that are likely to affect Soviet decisions on military programs and expenditures during the period between 1980 and 1985. [redacted]

Economic Considerations

Past Trends. Before we can consider the future relationship between the general Soviet economy and the defense effort, we must examine the past relationships. The defense effort of the past 15 years has had a substantial impact on the economy, but there is no single measure that adequately describes this impact or how the Soviet leaders and planners might perceive it. The discussion that follows presents several alternative measures of the relationship between Soviet defense expenditures and economic growth during 1965-78. [redacted]

Soviet defense spending (as defense is defined in the United States) consumed about 11 to 12 percent of the Soviet GNP at factor cost between 1965 and 1978.¹⁰ Because defense spending grew at about the same rate as the GNP, there was little change in its share between 1965 and 1978. (There were minor shifts in the share from year to year because of fluctuations in GNP growth and the cyclical behavior of defense spending.) [redacted]

If we consider only the nonagricultural sectors of the Soviet economy, we see that they generally have grown more rapidly than GNP as a whole and more rapidly than defense spending. The defense share of the nonagricultural GNP averaged some 14 to 15 percent during the period but was slightly lower in 1978 than in 1965. The growth of the final output of Soviet industry—and of the final output of the machine building and metalworking sector (which produces civilian investment and consumer durable goods as well as military hardware)—were also higher for the period than the growth of defense purchases from these sectors. Defense programs consumed on the average nearly 15 percent of the final output of industry in general and over one-third of the final output of

¹⁰ Under the broader definition that the Soviets may use, the share was about 12 to 13 percent. See the appendix for a discussion of the factor cost adjustment. [redacted]

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machine building in particular. In each category, the defense share was lower at the end of the period than at the beginning. [redacted]

the first 6 months of 1979 indicate that the Soviet economy is headed for one of the worst years in almost three decades. [redacted]

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The above discussion of alternative measures of the defense "burden" understates its impact on the Soviet economy to the extent that it fails to take into account qualitative considerations and the effect of defense programs on key sectors of the economy. Defense takes a large share of the nation's best scientific, technical, and management talent and draws heavily on the output of science and of high-quality components and equipment. In addition, defense programs take substantial portions of the output of important industries such as steel and electronics. [redacted]

Defense spending has grown at a slightly lower than average rate for the past several years. This appears to reflect cycles in procurement (as several major weapons programs reached a low point) rather than signaling a new trend. In fact, our observations of Soviet military programs in 1978 and the first half of 1979 suggest that in defense spending the rate of growth is beginning to turn up again. The defense share in three of our four measures—GNP, non-agricultural GNP, and the final output of industry—has been fairly stable since the mid-1970s. Defense purchases of machinery, however, have continued in this period to grow more slowly than the final output of machinery. [redacted]

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Moreover, these four quantitative measures of the economic impact of defense are based on Western estimates of Soviet economic performance. It is difficult to determine how the Soviets perceive this defense impact.¹¹ Our information on their view of their own economy is indirect—it consists mainly of general statements by Soviet leaders and our analysis of their actions. [redacted]

Prospects. Over the next several years, developing demographic and energy problems will combine with the difficulties of longer standing to cause an even sharper decrease in economic growth. Recent information on Soviet economic performance in 1978 and the first half of 1979 suggests that our 1978 forecast of Soviet economic growth during 1981-85 (3 to 3.5 percent a year) may have been overoptimistic. It now appears that during the early 1980s the average annual rate of growth may not be more than 2 percent. If defense spending returns to its long-term trend—growing at 4 to 5 percent a year—it will consume an increasing share of Soviet resources. In 1985 the defense share of GNP (as defense is defined in the United States) could be as much as 13 to 15 percent, rather than the current 11 to 12 percent. [redacted]

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Economic factors do not appear to have limited Soviet military programs by much, over the past 15 years. In the USSR the military sector has a priority claim on scarce resources, and this claim is institutionalized in the Soviet administrative systems for economic management, material supply, and the supervision of production. Soviet leaders have funded the defense programs well, even during periods of lower than average economic growth, and the follow-through on key programs has been strong. [redacted]

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Recent Developments. In recent years the rate of growth in all four of these measures of economic performance has declined. The primary cause of this slowdown has been declining growth in factor productivity—inefficient use of labor, capital, and natural resources. But Soviet leaders also have to cope with a tightening labor supply and with natural resources that are less accessible and more expensive than in the past. In 1978, Soviet industrial employment grew by only 1 percent, the lowest rate in over 29 years, and the increase in Soviet oil production in that year was the smallest in the postwar period. Statistics for

Recent Soviet statements indicate increasing concern over declining economic growth. Some Soviet officials have linked economic problems directly to the costly defense effort, and recent speeches by the top leaders suggest differences over the relative priority to be given to future defense programs. As the economy slows, the level of defense spending is likely to become more of an issue for the leadership. [redacted]

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¹¹ See the appendix for a further discussion of this point. [redacted]

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Political Considerations

Over the past year there has been increased evidence of political maneuvering in Moscow in preparation for the departure of Brezhnev from the scene, but we have too little information to predict the makeup of the post-Brezhnev leadership or its likely policy preferences. The dissatisfaction of the political leaders with the performance of their economy has increased, and differences on questions of resource allocation and economic management are becoming more clear. We cannot determine how they will be resolved, but we anticipate that they will become increasingly politicized—providing the potential for an adjustment (perhaps even a reduction) in planned defense spending. [redacted]

At the same time, the Soviets see disturbing factors in international politics which they will have to weigh against the disturbing domestic economic factors. They have long been concerned about the dynamism of Western military programs and about the potential military threat from China; their perceptions of China's military, economic, and scientific and technical progress will strongly influence future defense programs. The Soviets have sought support from their Warsaw Pact allies in the form of increased defense expenditures, arguing that such support is required by both the Chinese threat and NATO's goal of a 3-percent real increase in defense spending. The request suggests that the Soviet leaders, while concerned about the nation's economic difficulties, are also concerned about the adequacy of its military posture. [redacted]

Requirements for Future Military Forces

Although the Soviets have made substantial improvements in their military capabilities in recent years, they continue to perceive important deficiencies in their forces. These take on increased importance in the context of the improvements in Western and Chinese military forces that Soviet planners undoubtedly project. [redacted]

In the strategic area, the Soviets face particular uncertainty, being well aware that several major US and NATO strategic program alternatives are still undecided. They must try to counter planned US strategic force improvements for the middle and late 1980s, such as cruise missiles and more advanced

SSBNs and SLBMs. They must also consider such prospective programs for the late 1980s as advanced US mobile or shelter-based ICBMs; these probably are particularly unsettling because they would threaten the survivability and counterforce potential of the USSR's primary strategic force—silo-based ICBMs.

[redacted]

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In the theater forces, the Soviets are particularly concerned with neutralizing NATO's antitank defenses, with perceived deficiencies in their own tactical air posture vis-a-vis NATO, and with an imbalance in tactical nuclear forces. They also see important shortcomings in their naval posture—especially in submarine detection, fleet air defense, and logistic support. In all of their forces they see a need to improve the responsiveness and flexibility of the command, control and communications systems. [redacted]

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Almost all of these problems require costly high-technology solutions. They demand the continual upgrading of current weapons and the development of new systems and thus directly affect future investment and RDT&E expenditures. [redacted]

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Arms Control Agreements

The USSR is currently engaged in a number of arms control negotiations that could provide opportunities to moderate the growth of defense spending. Although past agreements have not apparently caused a reduction in defense spending, current economic developments could encourage the Soviets to pursue the potential economic benefits of arms control. We have therefore analyzed in detail the potential impact of SALT and MBFR on Soviet defense spending and studied briefly the possible economic benefits of other negotiations. [redacted]

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We have calculated the cost implications of the US Intelligence Community's estimates of Soviet strategic forces, with and without a SALT II agreement. [redacted]

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[redacted]

Our analysis indicates that Soviet spending for strategic attack forces (intercontinental and peripheral attack) would increase between 1980 and 1985 in all of the projections. The increase probably would be smaller with a SALT agreement than without one, but the impact of this difference on total defense spending

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would be small. This is because investment and operating expenditures for strategic attack forces make up only about 10 to 15 percent of total defense spending, so that even major changes in strategic force allocations have only a minor effect on the total. Even if all the difference in expenditures under a SALT agreement were transferred to civilian investment, the short-term effect on the economy would be marginal at most. None of the various alternative forces [redacted] would have a significant impact on the rate of growth of GNP and industrial production through 1985. [redacted]

The effect of an MBFR agreement on Soviet defense spending would also be small. Its most probable outcome would entail the redeployment of Soviet Ground Forces units from Eastern Europe to the Western USSR or the Far East. If some of their personnel were demobilized in the process, the redeployment would permit a reduction of a few tenths of a percent in total defense spending projected through 1985. If the units were maintained at full strength, the potential savings would be smaller; and if their redeployment required the construction of new bases, it could bring no savings at all. [redacted]

The several other negotiations under way appear to offer even less potential for direct reductions in the growth of Soviet defense spending. A comprehensive nuclear test ban—unless accompanied by a substantial reduction in the procurement of new nuclear weapon systems—probably would have little impact on total defense expenditures. The negotiations to limit naval deployments in the Indian Ocean, now in a dormant phase, could moderate the growth in Soviet naval operations in that area, but its impact on expenditures would be insignificant. Limitations on antisatellite programs, which account for a very small portion of Soviet defense resources, would also have a very small impact on the total. [redacted]

Even the conclusion of all the current negotiations would not alter significantly the current growth of total Soviet defense expenditures, because it would provide only limited opportunities for direct reduction in the programs already planned. Nevertheless, the Soviets may anticipate some future economic benefit from arms control negotiations: if such negotiations reduced their uncertainty about future Western defense pro-

grams, the Soviets might feel that they need not incur the additional costs of the increased military preparedness required by an unconstrained strategic environment [redacted]

The Planning Process

Soviet economic plans provide the fundamental directions for industrial activity in both the civilian and the defense sectors. During plan preparation periods, the Soviet leaders project the future environment and arrive at a consensus on national objectives. Plan targets can be modified after they have been established—adjustments are constantly needed—but each change creates complications, and their reverberating impact creates a strong aversion to plan modification. [redacted]

The Soviet leaders are currently engaged in the formulation of the 11th Five Year Plan, which will cover the period from 1981 to 1985; by early 1980 they will endorse a basic plan outline. They therefore have a powerful incentive to determine now the major lines of the overall defense program through 1985. The factors described above—economic performance, domestic political considerations, potential foreign threats, and future arms control negotiations—are almost certainly under active consideration. The major choices will be made soon, and thereafter the Soviets' latitude for making fundamental changes in defense spending patterns will diminish until the next plan preparation in the mid-1980s. [redacted]

Evidence on Future Defense Programs

These complicating factors make it particularly difficult for the US Intelligence Community to forecast future Soviet defense spending. However, this process is aided by the fact that, over the next five years or so, Soviet defense expenditures will be determined primarily by programs already in train and identified by intelligence. The evidence available on current and planned defense production and development programs, therefore, provides a basis for our projection of Soviet expenditures. We believe that we can project general trends with substantial confidence for the next year or two and with somewhat less confidence through the mid-1980s. The evidence underlying this projection includes our data on weapons production programs

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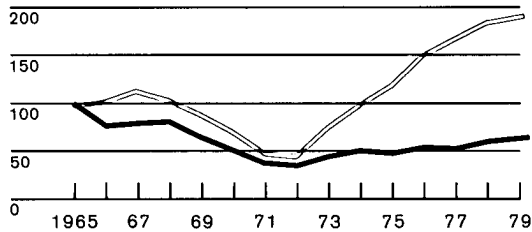
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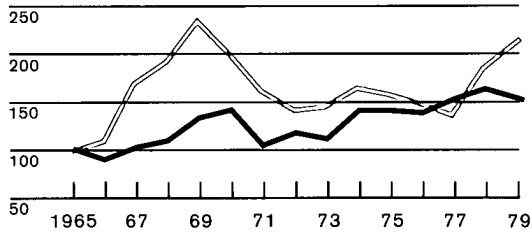
Estimated Production and Procurement Expenditures for Selected Major Soviet Weapon Systems, 1965-79

Index: 1965=100

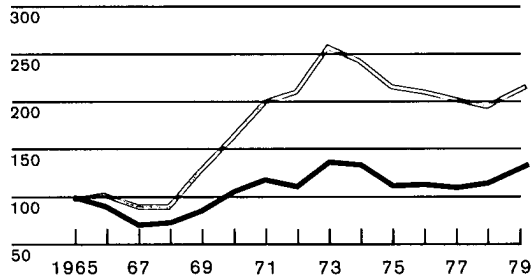
Strategic Missiles¹



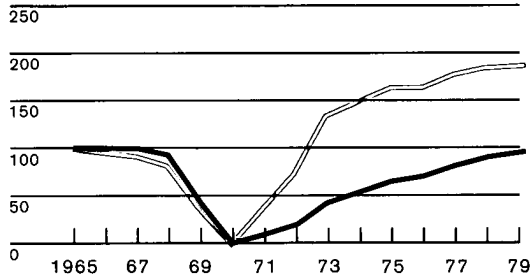
Surface-to-Air Missiles²



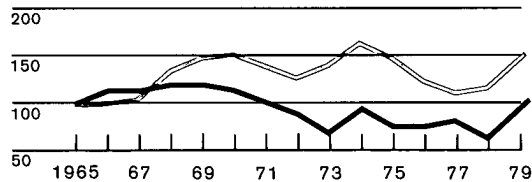
Fighters and Interceptors



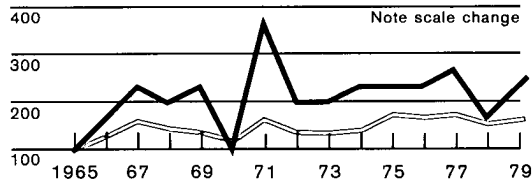
Medium and Heavy Bombers



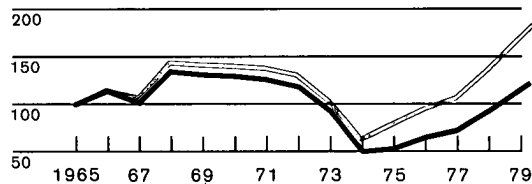
Submarines



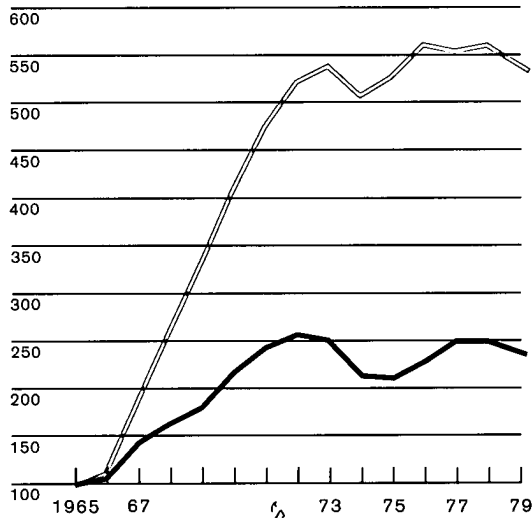
Major Surface Combatants³



Tanks



Armored Vehicles



— Procurement expenditures based on estimates in constant 1970 rubles
 — Production (in number of units)

1. ICBMs, SLBMs, and IRBMs.

2. Excludes SA-7 and SA-9.

3. Major surface combatants are defined as those with displacements of 3,000 tons or more.

[Redacted box]

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that are under way and are likely to continue into the 1980s, as well as our knowledge of weapons under development and of trends in weapon system costs and in capital construction in the Soviet defense industries.

Military Production Programs Under Way

We see no evidence to date that economic difficulties are affecting current Soviet military production programs or altering production plans for the near term. We have identified about 170 Soviet programs now under way for the production of military aircraft, missiles, ships, space systems, and land arms.¹² The number of programs, which has been relatively constant since the early 1970s, is nearly 50 percent greater than it was in the mid-1960s. Nearly three-fifths of the programs concerned have entered production in the last five years, and most of these will continue to be produced through the early 1980s. For most major weapons, annual production rates have remained stable or have increased since the mid-1960s, and we see no evidence that production rates are being cut in response to economic constraints. As discussed below, even for systems whose production rates have fallen, most of the procurement expenditures have been constant or have increased as the increasing sophistication of new weapons has driven unit procurement costs upward.

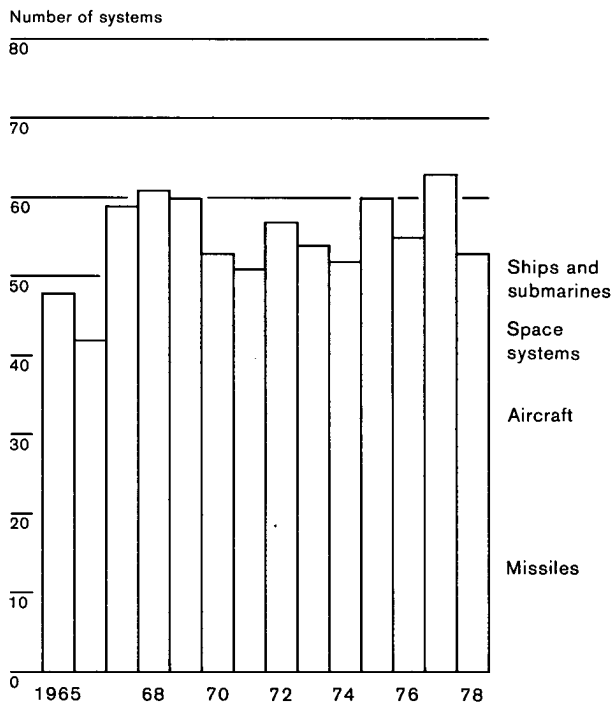
Weapons Testing and Development Activities

Evidence on activities at Soviet test facilities indicates that the pace of weapons development is continuing at a high level and that a number of new weapons will soon enter production. These development programs imply that the current high level of production will continue in the early 1980s. We estimate that the new or modified aircraft, missiles, naval ships, and military space systems currently in flight test or trials number more than 50.¹³ This is about the average that has been maintained since the mid-1960s. Since the early 1960s the Soviets have shown a strong commitment to their development programs—of the systems that we have identified as having reached the flight test or trial stage, over 90 percent have eventually been deployed.

¹² This figure excludes ammunition, small arms, and vehicles.

¹³ Land arms programs are excluded because we lack a comprehensive data base on the developmental periods of these systems.

New or Modified Soviet Weapon Systems in Flight Test or Trials¹



1. Land arms programs are excluded from this chart because of gaps in our data base on their development periods.

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We have also identified a number of programs that have not yet reached the flight test or trial stage. The systems include new combat and support aircraft; new or modified strategic attack, surface-to-air, antitank, and naval cruise missiles; advanced naval surface ships and submarines; ground force weapons, including a new tank; and new space systems. They also include some advanced system concepts, such as laser weapons and nonacoustic submarine sensors. These programs will increase the Soviets RDT&E expenditures in the early 1980s, and some of them could begin to affect procurement spending by the early 1980s.

Trends in Costs of Weapons

The consistently high levels of weapon production and development—coupled with rising weapon costs—portend a further increase in Soviet expenditures for weapons procurement. The production of advanced

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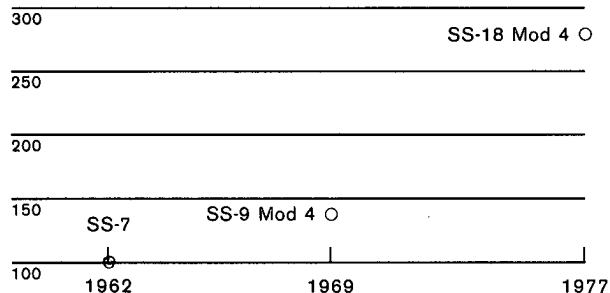
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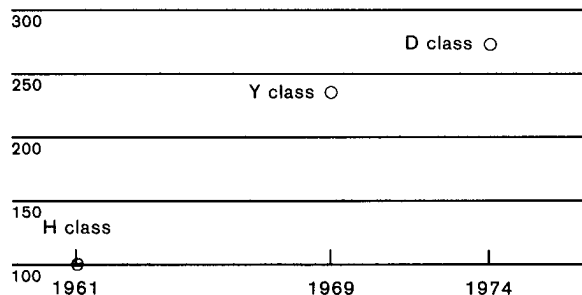
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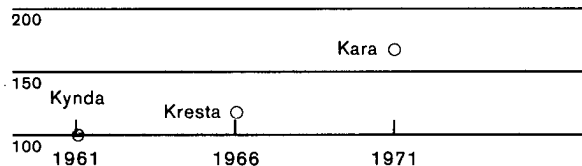
**Trends in Unit Costs of Soviet Weapon Systems
Intercontinental Ballistic Missiles**



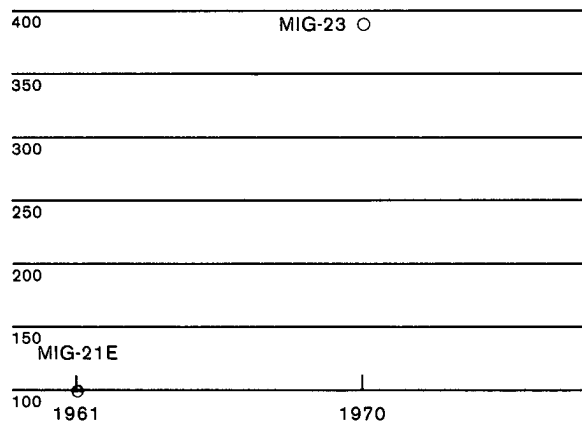
Ballistic Missile Submarines



Major Surface Combatant Ships



Tactical Aircraft



Calculated on basis of initial unit cost in 1970 rubles; the first entry in each category is indexed to 100.

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weapons is relatively expensive in the Soviet Union. As Soviet military programs have shifted more and more toward advanced technology, the costs of new generations of weapons have increased steadily. Our projections of the cost of future weapon systems indicate that this upward trend in unit procurement costs will continue. The increasing complexity of the systems will also require an increase in maintenance and support costs, which further adds to the total cost of military programs.

Trends in Construction of Defense-Industrial Facilities

The Soviets continue to commit substantial capital to support future defense production. An analysis of capital construction at major Soviet weapons-producing plants shows a continuous increase in production capacity since the early 1960s. Historically, there has been a close relationship between the completion of new facilities and an upswing in the rate of growth of defense spending as they begin to produce new weapons. For example, the Soviet production capacity for missiles and aircraft was increased substantially during the mid-1960s in preparation for new missile and aircraft procurement programs, and the programs in turn were accompanied by an upturn in the rate of growth of defense spending in the late 1960s. Similarly, the expansion of production facilities in the early 1970s preceded a cyclical increase in spending in the mid-1970s. The construction now under way in the defense industries indicates that new production programs will soon begin, probably to be followed by another increase in the defense spending growth rate before the mid-1980s.

Outlook for Defense Spending

Through 1985

On balance, we believe that Soviet defense spending will continue to increase in real terms at least through 1985. Evidence on specific defense activities now under way indicates that the Soviets have not yet altered their defense programs in response to economic difficulties. If they do not alter them, defense spending probably will continue to grow over the next five years or so at or near the historic long-term rate of 4 to 5 percent a year.

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Construction Under Way in the Soviet Defense Industries, 1963-78



Based on observed construction activity for military programs under way at major aircraft, missile, and land arms final assembly plants and shipyards.

Continuing economic difficulties probably will give the Soviet leaders an increasingly strong incentive to reexamine these plans with a view to reducing the growth of military spending in the long run. They might well be undertaking such a reexamination in conjunction with the major choices to be made on the allocation of economic resources in the 11th Five-Year Plan, and it is possible that the coming political succession will affect these choices significantly.

However, Soviet military expenditures over the next five years—and even beyond—are already determined to a large extent by programs now in production or in late stages of development. The decisions that set these programs in motion were made some time ago. They reflect agreements already reached between Soviet political and military leaders on defense requirements for the 1980s, and sizable resource commitments, including expansion of defense industrial capacity, have already been made. It is possible that the leaders could reverse a number of these decisions and thereby slow the growth of defense spending significantly. But we think they would be more likely to limit their alterations of ongoing programs to reducing production targets, stretching out some weapon programs, and possibly taking greater advantage than in the past of the limited direct savings permitted by arms control agreements. The Soviets might also intensify their efforts to improve efficiency and lower production

costs in the defense industries and to improve their analysis of military force requirements. These measures could moderate the rate of growth in defense spending through 1985 and would be of some benefit to the economy. Moreover, they would not in themselves slow the modernization of the Soviet armed forces significantly.

Longer Term Considerations

The Soviets themselves probably do not know what additional steps they might take over the longer term. However, from now on their decisions regarding new military programs and future investment in the defense industries may reflect a greater concern for the impact of military programs on the economy and for the implications that the declining rate of economic growth will have for the capability of the economy to support the defense establishment. Because military programs have long lead times, most current decisions would not begin to affect defense expenditures until the late 1980s. It is possible that the Soviets will soon make decisions that attempt to reduce the growth of military spending in the late 1980s. Such decisions will depend on how the leaders weigh the potential economic savings against their forecast of the strategic environment of that period and its military requirements, as well as on their perception of how their military effort enhances their security and advances their foreign policy goals. The decision will also depend on the defense and foreign policy actions of their potential adversaries, and perhaps on progress in arms control negotiations.

Whatever decisions the Soviet leaders make for the longer term, it is highly unlikely that economic difficulties will force a reversal of their longstanding policy of continuing to improve their military capabilities. A reduction in the rate of growth of defense spending in the late 1980s could delay force improvements in some areas and could pose difficult choices for Soviet defense planners. However, the present level of Soviet military investment is so high that even with a reduction in the rate of growth—or indeed with no growth at all—substantial modernization of the Soviet armed forces as a whole would continue.

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Defense Spending Priorities in the 1980s

Within the context of the projected continuation in the growth of Soviet defense spending, we have examined the major military programs and activities that the Soviets are likely to undertake through the mid-1980s. If the SALT II Treaty enters into force they would probably give slightly less emphasis in expenditures to intercontinental attack forces and slightly more to conventional, theater nuclear, and (especially) strategic defense forces. [redacted]

Qualitative factors are likely to become much more important in shaping Soviet defense spending in the 1980s than they are now: The Soviets will face demographic problems that probably will limit increases in force size, and the rate of growth of operating costs during 1980-85 probably will be lower than it was in the past. The requirement for high-technology remedies for current deficiencies, however, indicates that force modernization will continue to be rapid. The decreasing availability of manpower could also spur the Soviets to seek more capable, less manpower-intensive weapon systems. Military investment and RDT&E expenditures, therefore, probably will show increased growth. [redacted]

Major Procurement Programs

Procurement expenditures—together with continued rapid growth in RDT&E—will set the trend of total expenditures. Between now and 1985 (as in the past 15 years) the major weapons procurement programs (those with cumulative costs of more than 1 billion rubles each) probably will number about 40 and account for about one-half of total procurement. The top 20 programs in terms of ruble costs (see table 2) probably will account for over one-third of total procurement expenditures and determine the pattern of growth in total spending. [redacted]

Of the 20 most expensive programs we project for the first half of the 1980s, 10 either are currently in production or are modifications of systems now being deployed. We have at least some evidence that eight of the other 10 are in development or testing. The remaining two programs—follow-on attack submarines—are projected on the basis of Soviet requirements, recent trends in Soviet programs, and the availability of shipyard resources. [redacted]

The top 20 programs that we project for the next five years (like those we have observed in the past 15) include weapons for all services and missions, and most of them are for strategic, tactical air, and air defense weapons. However, in the projected list more of the strategic programs are associated with peripheral attack than in the past, and a greater emphasis on strategic defense is evident in the programs for interceptors, air defense missiles, and attack submarines.¹⁴ [redacted]

Impact on the Military Services

Changing Soviet priorities and the constraints of SALT will alter the distribution of investment and operating expenditures among the services in the 1980s. The average shares of these expenditures devoted to the Navy, Ground Forces, and Air Forces during 1980-85 probably will be about the same as their current shares. Under a SALT II agreement, the share allocated to the SRF probably will fall slightly from its current level, along with the share allocated to national command and support. The National Air Defense Forces, however, are likely to take an increasing share of investment and operating expenditures in the early 1980s. [redacted]

Air Forces. Expenditures for the Air Forces are projected to increase at about the same rate as total defense investment and operating spending. Only minor shifts are likely in the allocation of resources among the three components of the Air Forces. [redacted]

Expenditures for Frontal Aviation will increase through the mid-1980s as the Soviets continue to introduce advanced aircraft and munitions. Fighter production is likely to be dominated by the modified Flogger (which entered service during 1978). We anticipate limited production of a specialized close-support aircraft, as well as a continuation of the Fitter and Fencer programs. Deployment of two new air superiority fighters is projected to begin about 1983. [redacted]

¹⁴ The listing of programs given here is based on the assumption that a SALT II agreement will be in effect in the 1980s. Without such an agreement, most of the intercontinental attack programs would have a higher rank. [redacted]

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Table 2

The Top Twenty Soviet Procurement Programs, 1979-85 (SALT Environment)

Rank ¹	Program ²	Type of Weapon System	Service
1	Flogger/modified Flogger ³	Interceptor/ground attack aircraft	Air Forces, National Air Defense Forces
2	Modified Foxbat ⁴	Interceptor	National Air Defense Forces
3	Typhoon SSBN ^{4, 5}	Nuclear-powered ballistic missile submarine	Navy
4	Backfire ³	Bomber	Air Forces, Navy
5	SS-20 ³	IRBM	Strategic Rocket Forces
6	T-72 ³	Tank	Ground Forces
7	Fencer ³	Ground attack aircraft	Air Forces
8	SS-19/follow-on ³	ICBM	Strategic Rocket Forces
9	Advanced fighter-interceptor ⁴	Fighter-interceptor	Air Forces, National Air Defense Forces
10	V follow-on SSN	Nuclear-powered attack submarine	Navy
11	SS-18/follow-on ³	ICBM	Strategic Rocket Forces
12	Hip/Haze ³	Transport/ASW helicopter	Air Forces, National Air Defense Forces, Navy, Strategic Rocket Forces
13	New long-range bomber or cruise missile carrier ⁴	Strategic attack aircraft	Air Forces
14	Large follow-on ICBM ⁴	ICBM	Strategic Rocket Forces
15	SA-X-10 ⁴	SAM	National Air Defense Forces
16	AA-X-9 ⁴	Air-to-air missile	National Air Defense Forces
17	Candid ³	Transport/airborne warning and control aircraft	Air Forces, National Air Defense Forces
18	Hind ³	Armed gunship helicopter	Air Forces
19	Modified SS-20 ⁴	IRBM	Strategic Rocket Forces
20	New class of SSN	Nuclear-powered attack submarine	Navy

¹ The ranking shown here is based on estimated cumulative procurement cost (including initial spare parts) in 1970 rubles and on the assumption that a SALT II agreement enters into force in 1979. Without a SALT II agreement, most of the intercontinental attack programs would have a higher rank.

² There are other major programs projected for the 1980s that entail substantial expenditures but do not appear on this list because they

are to come into production relatively late in the period. These include a new medium-size, solid-propellant ICBM, a new long-range ASW aircraft, and a new air-to-surface missile (the AS-X-11).

³ Continuation of current program.

⁴ Evidence of the development of this system is available.

⁵ Cost is considered to include the procurement of the submarine's complement of missiles.

[Redacted]

There is some evidence that the Soviets are developing a new long-range bomber or an air-launched cruise missile carrier—or possibly both. If so, these programs could give LRA a new lease on life. Together with the Backfire, a new heavy bomber program—even if limited by SALT—would increase the LRA share of the Air Forces' expenditures. [Redacted]

Expenditures for Military Transport Aviation probably will increase as the force is modernized with newer aircraft—especially the IL-76 Candid. The size of the force probably will not change significantly, but its lift capacity will increase. [Redacted]

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For the Air Forces as a whole, the largest programs of the early 1980s are likely to be the Flogger fighter, the Fencer ground attack aircraft, the Candid transport, the Backfire bomber, and a new advanced fighter-interceptor. [redacted]

Ground Forces. Qualitative improvements in weapon systems probably will be the major factor in Ground Forces expenditures through 1985. There probably will be some continuing increase in the number of ground combat units along the Sino-Soviet border, but the number of units opposite NATO probably will be stable, barring an agreement on force reductions in Europe. New weapon systems will enter the force, but total equipment holdings—with the possible exception of artillery—will not increase substantially. Consequently, operating expenditures probably will show little growth. [redacted]

Investment—and particularly procurement—expenditures probably will grow more rapidly. The most expensive Ground Forces procurement programs of the early 1980s probably will involve systems already being produced—the T-72 tank, the BMP, the SA-6 and SA-4 air defense missiles, and the AT-5 ATGM. Production of new self-propelled artillery also will continue. By the mid-1980s, new weapons programs—especially the new T-80 tank, the SA-X-11 air defense missile, new theater nuclear delivery systems such as the SS-21, and new ATGMs—will begin to affect Ground Forces expenditures. These programs and others are intended to improve the survivability of Soviet armored forces on the modern battlefield and to remedy the imbalance the Soviets perceive in battlefield nuclear capabilities. [redacted]

Navy. Force modernization, rather than expansion, probably will dominate investment and operating expenditures for the Navy. As new ships, aircraft, and missiles enter the force, procurement expenditures probably will increase at about the same rate as in the past. However, the number of major surface combatants will remain about the same, and the number of submarines probably will fall somewhat in the 1980s because retirement of older units will not be fully offset by new production. As a result, operating expenditures will show little growth. [redacted]

The Navy's procurement of new ballistic missile submarines will be constrained by a SALT II agreement. Nevertheless, these programs will continue to be costly. A new SSBN called the Typhoon probably will be the most costly naval program of the early 1980s. [redacted]

Within the general purpose naval forces, the principal emphasis probably will be on acquiring improved ASW capabilities. ASW has long been a serious concern of the Soviet naval leaders, but (despite a high priority in procurement programs since the mid-1960s) progress to date has been limited. Since about 1976 the Soviets have been increasing their production of general purpose submarines. In the 1980s they probably will further increase their emphasis on nuclear-powered torpedo attack submarines, which they consider the best suited for ASW. The Soviets may also introduce a new long-range ASW aircraft. [redacted]

The most expensive naval procurement programs of the early 1980s probably will be submarines—the new SSBN and several new attack submarines. These programs probably will account for over half of the ship procurement expenditures through 1985. The most expensive surface combatant ship—in terms of unit cost if not of total program cost—will be a nuclear-powered guided missile cruiser now under construction. This is the Soviet Navy's first nuclear-powered surface combatant. This program might be followed by further applications of marine nuclear propulsion—perhaps in a large aircraft carrier that could enter the force in the late 1980s. The Backfire bomber and a new long-range ASW aircraft probably will be the most costly naval aircraft procurement programs of the early 1980s. The missile carried by the new SSBN, a follow-on to the SS-N-8 SLBM, the SS-N-18 SLBM, and two types of ASW missiles probably will be the five most costly naval missile procurement programs. [redacted]

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National Air Defense Forces. Expenditures for the National Air Defense Forces are projected to increase substantially through the mid-1980s, as the Soviets attempt to shore up their defenses against low-altitude bomber and cruise missile attack. The size of the air defense forces probably will not increase significantly, and consequently operating expenditures probably will show less growth than in the past. But the mix of systems will change, with greater emphasis on weapons to counter the low-altitude threat. These advanced-technology weapons are particularly costly for the Soviets. As a result, investment—and particularly procurement—expenditures probably will increase very rapidly. [redacted]

The five most costly air defense aircraft deployed during this period probably will be a modified version of the Foxbat (now being tested); an airborne warning and control aircraft; the Flogger; a recently introduced modification of the Flogger; and an advanced fighter-interceptor. The AA-X-9 and SA-X-10 probably will be the largest missile programs for the National Air Defense Forces. The SA-X-10 appears to have very high priority, and the Soviets apparently plan widespread deployment of it. [redacted]

SRF. The SRF will be the service most affected by a SALT II agreement, although its expenditures will grow in any event. Operating expenditures probably will remain fairly stable between now and 1985 because the reduction that would result from the dismantling of older intercontinental attack systems (to meet SALT constraints) will probably be counterbalanced by the increased costs of operating the new weapons. The continued modernization of intercontinental attack forces and a greater emphasis on new peripheral attack systems will keep investment expenditures at a high level. These force improvements will increase the number of online intercontinental nuclear weapons and the hard-target capabilities of the ICBM force. Continued deployment and upgrading of new IRBMs will increase the target coverage of the peripheral attack forces and their flexibility to support various nuclear strike options. [redacted]

The five largest SRF procurement programs in a SALT environment would be the SS-20 IRBM; a follow-on to the SS-19; a new solid-propellant ICBM; a follow-on to the SS-18 heavy ICBM; and an upgraded version of the SS-17. Without a SALT II agreement, the ICBM programs probably would be larger. [redacted]

National Command and Support. National command and support expenditures probably will continue to increase through 1985, as the increasing complexity of the Soviet forces requires a larger and more costly infrastructure. Major command and support programs of the early 1980s will include the continued upgrading of national-level command and control facilities and systems and the introduction of new space communications and reconnaissance and support systems. [redacted]

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Appendix

Methodology, Concepts and Confidence in the Estimates

Methodology

CIA's estimates of Soviet defense spending are based primarily on direct costing—that is, first identifying individual components of the Soviet defense effort and then calculating the costs of each. [redacted]

[redacted] we compile a detailed list of the activities and physical components which make up the Soviet defense program for a given year. This list includes data on order of battle, manpower, production of equipment, construction of facilities, and operating rates for the Soviet military forces. [redacted]

By a variety of methods this data base is converted into monetary estimates. For many components the data are costed directly in rubles—this method is suitable for military personnel; RDT&E; construction; procurement of hull, propulsion, and machinery components of naval surface ships; and some operation and maintenance expenditures. (For this report, about half of Soviet defense spending for 1979 was estimated directly in rubles.) For the remaining components, we first estimate what it would cost to carry out the Soviet activities in the United States and then convert these dollar costs to ruble terms. [redacted]

[redacted] Our price samples have increased in number significantly in recent years; we now have, for example, prices for nearly one-third of the military procurement programs whose costs between 1965 and 1979 exceeded 1 billion rubles. [redacted]

Where possible, the ruble estimates derived from this technique are checked for reasonableness against other intelligence information or against Soviet statistics. [redacted]

For two of the main categories of defense spending—investment and operating expenditures—prices and quantities are estimated separately for each major activity and component. We cannot, at present, apply

this approach to the third category—RDT&E. The cost of military RDT&E, which is the weakest part of our estimate, is derived by another method—analysis of Soviet information on expenditures for science. [redacted]

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Concepts

Our methodology is intended to provide an estimate of the level of, and an indication of the real trend in, the annual Soviet resource commitment to military forces. We use ruble prices to reflect as accurately as possible the relative prices of military programs and activities within the Soviet economic system. The estimates can be used to assess the resource constraints confronting Soviet military planners, the priorities they assign to the components of the defense effort, and the impact of defense programs on the Soviet economy. [redacted]

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For assessing the trends of the Soviet defense effort and the priorities of the various components within that effort, we use estimates of “established prices”—the actual prices paid by the Soviet Ministry of Defense for goods and services. For example, our estimates of total defense spending and of spending by the individual military services are based on established prices. In the Soviet economy, however, prices are established administratively, not by market forces. Consequently, they are less accurate in reflecting relative scarcity and value than prices in a market economy would be. As a result, these established prices give a misleading picture of the real economic impact of Soviet defense activities. [redacted]

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In order to improve the validity of ruble prices for economic analyses—for example, in calculating the defense share of GNP—we adjust our established-price ruble valuations so that they more nearly reflect the real allocation of resources in the Soviet economy.

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This procedure is called a factor cost adjustment.¹⁵ When the direct-costing estimate of defense expenditures has been adjusted to factor cost, it can then be compared with other estimates of Soviet economic performance made in factor cost terms. [redacted]

The estimates in this paper are presented in constant prices so that they reflect real changes in defense activities, excluding the effect of inflation. The base year is 1970. We use 1970 as a price base for several reasons:

- Other CIA measures of Soviet economic performance (such as estimates of GNP) also use a 1970 price base.
- Our samples of ruble prices for military equipment cluster around the year 1970. Our understanding of price inflation in the defense sector is too fragmentary to permit us to move these prices with confidence to a later base year.
- The Soviets undertook in 1967 a major price reform intended to make prices more representative of real resource costs. Implementation of the reform was essentially complete by 1970. [redacted]

Our data differ from data that the Soviets would use in two ways. First, our definition of defense activities and our categories of expenditures are different. [redacted]

Second, and more important, Soviet planners would use a different price base. The Soviets present their economic data either in the prices prevailing in each year (current prices) or in what they call comparable prices for a given year. The Soviets' comparable prices are intended to show trends in real terms, but they are constructed differently from Western-style constant [redacted]

prices and often display quite different growth trends.¹⁶ [redacted]

Thus, the perceptions the Soviets draw from their own data may differ from the analysis in this paper in ways that are hard for us to determine. We do know, however, that although their measures of overall economic performance differ from ours in concept and price base, they too perceive a slowdown in their economy (see table 3). Similarly, Soviet perceptions of the economic impact and priorities of their defense programs probably differ from ours in detail. But the planners clearly are aware that the defense effort has had a substantial effect on their economy and that this effect is likely to increase. [redacted]

Confidence in the Estimates

The estimates presented in this paper reflect a continuing effort to acquire more and better data and to improve our methods. [redacted]

Even so, the margin of error for some items may be substantial. [redacted]

We have greater confidence in our estimates for total defense spending than in those for any of the individual subaggregates. [redacted]

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Table 3

Comparison of Western and Soviet Measures of Soviet Economic Growth

Western Measures (based on CIA estimates in constant 1970 prices)	Average Annual Rate of Growth (percent)		Soviet Measures (based on Soviet data in "comparable" prices)	Average Annual Rate of Growth (percent)	
	1965-75	1975-78		1965-75	1975-78
Gross national product (factor cost) ¹	4.6	3.6	National income produced ¹	6.7	5.1
Final output of industry ²	6.1	3.8	Gross value of output of industry ²	8.0	5.1
Final output of machine building and metalworking ²	7.6	5.9	Gross value of output of machine building and metalworking ²	11.7	9.1

² The Soviet gross value of output for any given sector differs from the Western final output by including the sector's sales to itself.

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[redacted] the 4 to 5 percent implied by our estimates. [redacted] 25X1

[redacted] when adjusted for inflation, also implies a 4- to 5-percent growth rate in Soviet defense spending from 1969 to 1972. [redacted] 25X1

[redacted] 25X1

[redacted] General Secretary Brezhnev, who is reported to have said in 1972, "I simply am afraid for our people to know that every third ruble in the state budget goes for defense." One-third of the total 1972 Soviet state budget was between 57 and 58 billion rubles. Taking inflation into account, this is within the range of our estimate (stated in constant 1970 prices) for total defense spending in 1972 under the broad definition. [redacted] 25X1

Our confidence in the estimates at the lower levels of aggregation varies from category to category. We have the highest confidence in our estimates of personnel costs. [redacted] 25X1

[redacted] We also have substantial confidence in our estimates of military procurement, especially for naval ships and for missile and aircraft systems. [redacted] 25X1

[redacted] 25X1

[redacted] We make our initial estimates for missiles and aircraft in dollars, but the factors we use to convert these estimates to ruble terms are based on our largest and most reliable samples of ruble prices. We have less confidence in our cost estimates for construction and for the operation and maintenance of weapon systems [redacted] 25X1

Because the direct-costing methodology is based on observation and therefore reflects the actual changes observed in Soviet defense activities over time, we are confident that the upward trend in these estimates is correct. We have greater confidence in this general trend than in our estimates of changes from year to year (each year's estimate is sensitive to our judgments regarding the phasing of costs for major long-term procurement programs). Over the past 15 years, the average annual rate of growth in Soviet defense spending (in terms of our constant price concept) has probably not been significantly higher or lower than

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We are least confident of the estimates for Soviet military RDT&E, which we derive in the aggregate on the basis of a methodology which is less certain than those we employ for estimating Soviet investment and operating spending. The level and trend of our estimate, however, are consistent with our judgments (made with high confidence) that the military RDT&E effort is large and that the resources devoted to it are growing. [redacted]

Despite these difficulties, we do have a reasonable basis for an assessment of the future:

- Our estimates of past Soviet defense spending.
- The evidence gathered in preparing those estimates.
- The trends revealed by them.
- Our understanding of the factors the Soviet leaders consider in making their decisions on resource allocations.

On this basis, we believe that we can forecast general trends in defense spending for the next year or two with substantial confidence and for four or five years with somewhat less confidence. We have little confidence in projections beyond five years because of the difficulties inherent in projecting individual defense programs, to say nothing of the problems in anticipating Soviet decisions on defense resource allocation in the changing political and economic situations of the 1980s. For this reason, the discussion of future defense spending in the text is for the most part limited to the period from now through 1985. [redacted]

Problems in Projecting Defense Spending

Our projections of future Soviet spending for defense are less certain than our estimates of spending in past years. This is due in part to general uncertainties about the future Soviet economic, strategic, and political environment and in part to more specific uncertainties about the size of future forces, the numbers and types of new weapons to be deployed, and the weapons' physical and technical characteristics. Even greater uncertainties surround our estimates of the costs of future weapon systems, which are closely related to technical characteristics. [redacted]

[redacted] The difficulties inherent in forecasting the future Soviet RDT&E effort compound the uncertainty in our estimates. [redacted]

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