

22557



National
Foreign
Assessment
Center

~~Secret~~

12715
1161

CIA/SR/77-10156

Estimate: Soviet Defense
Spending in Rubles
Recent Trends and Prospects

~~Secret~~

SR 77-10156
December 1977

Case No. 1 A 2

NATIONAL SECURITY INFORMATION
Unauthorized Disclosure Subject to Criminal Sanctions

Classified by [redacted]
Exempt from General Declassification Schedule
of E.O. 11652, exemption category:
Sec. 1.5(a)
Automatically declassified on
date impossible to determine

~~SECRET~~

Estimated Soviet Defense Spending in Rubles: Recent Trends and Prospects

*Central Intelligence Agency
National Foreign Assessment Center*

December 1977

Key Judgments

Total Defense Spending

Our estimates of the ruble cost of Soviet defense activities during the period 1970-76 indicate that:

- Soviet spending for defense, defined to correspond to US budgetary accounts and measured in constant 1970 prices, has been growing at an average annual rate of 4 to 5 percent, from 40-45 billion rubles in 1970 to 52-57 billion rubles in 1976.
- Defined more broadly, as Soviet practice might require, defense spending grew from 45-50 billion rubles in 1970 to 57-62 billion rubles in 1976.

Composition and Allocation

Ruble estimates provide insight into the resource composition of the Soviet defense effort and the trends in resource allocations among the branches of service. Analysis based on the narrower definition of defense—for which the estimates are more detailed and precise—indicates that:

- The shares allocated to investment, operating, and RDT&E remained fairly constant during the 1970-76 period. About half of total spending went for investment, about 30 percent for operating expenditures, and about 20 percent for RDT&E.
- The Soviet Navy and Ground Forces received roughly constant shares of investment and operating spending during the period. Spending for the Strategic Rocket Forces and the Air Forces displayed cyclical behavior, and the Air Defense Forces' share of investment and operating expenditures decreased by about one-fifth.

~~SECRET~~

Economic Impact

The defense effort has had a substantial impact on the Soviet economy:

- During the 1970-76 period, defense spending consumed an almost constant share of Soviet GNP—11 to 12 percent or 12 to 13 percent, depending on how defense spending is defined.
- Defense production consumed about one-third of the final product of machine-building and metalworking, the branch of industry that produces investment goods as well as military hardware.

Prospects

The average annual growth rate of 4 to 5 percent implied by these estimates exceeds the average annual rate at which we expect the Soviet economy to grow in the years ahead. Econometric projections are that Soviet GNP will grow at about 4 percent a year through 1980, but that growth will fall off thereafter—probably to about 3 to 3.5 percent. Yet, the projected economic slowdown notwithstanding, Soviet spending for defense is likely to continue to grow at roughly its current rate into the 1980s, whether or not a SALT II agreement is concluded.

CONTENTS

	<i>Page</i>
Key Judgments	i
Preface	iv
Methodology	1
Confidence in the Estimates	1
Estimates of Total Defense Spending	1
Resource Implications	2
Prospects	2
Impact of a SALT II Agreement	4
Defense Spending by Resource Category	4
Investment	4
Operating	4
RDT&E.....	5
Spending by the Services	5
Strategic Rocket Forces	6
Air Defense Forces	6
Air Forces	6
Navy	6
Ground Forces	7
Command and Support	7

Charts

	<i>Page</i>
Figure 1. Estimated Soviet Expenditures for Defense, 1970-76	2
Figure 2. Percentage Shares of Estimated Soviet Investment and Operating Expenditures for Military Services	5
Figure 3. Growth of Estimated Soviet Investment and Operating Expenditures by Branch of Service, 1970-76	5

~~SECRET~~

PREFACE

This report presents CIA's estimates of Soviet spending for defense during the 1970-76 period. It complements our dollar cost comparison of Soviet and US defense activities¹ and expands upon the estimates which the Director of Central Intelligence presented to the Joint Economic Committee of the US Congress in June 1977.

The estimates are couched in ruble terms to reflect the costs of military equipment and activities in the USSR. Such estimates are done to assist in assessing the impact of defense on the Soviet economy, resource considerations confronting Soviet defense planners, and the relative priorities assigned to the forces and activities which make up the Soviet defense effort. Constant prices are used so that the estimates reflect only real changes in defense activities, not the effects of inflation. The use of 1970 prices permits comparison of estimated defense expenditures with other CIA estimates of Soviet economic performance, which also use that price base.

¹ SR 77-10140, *A Dollar Cost Comparison of Soviet and US Defense Activities, 1966-76*, October 1977 (SECRET).

iv
~~SECRET~~

Estimated Soviet Defense Spending in Rubles: Recent Trends and Prospects

Methodology

In the USSR, information on defense spending is a closely guarded state secret. Only one statistic—a single-line entry for “defense”—is reported each year in the published state budget. This figure is uninformative, because its scope is not clearly defined and its size appears to be manipulated to suit Soviet political purposes. (Changes in the announced defense figure do not appear to reflect the changes we have observed in the level of military activities.)

To provide the information which the official “defense” entry does not, CIA annually estimates the cost of Soviet defense activities. Our estimates begin with the detailed identification and listing of the activities and physical components which make up the Soviet defense program for a given year. By a variety of methods this data base is converted into two value estimates, one in rubles, the other in dollars. For some components, such as military personnel, the data are costed directly, using available ruble prices and costs and dollar prices and costs. For other components, conversions are made from one value base to the other by applying dollar-to-ruble and, to a much more limited degree, ruble-to-dollar conversion factors. Where possible, the results of direct costing are checked for reasonableness against Soviet statistics.

For two of the main components of defense spending—investment and operating expenditures—prices and quantities are estimated separately for each major element. The remaining component—military research, development, testing, and evaluation (RDT&E)—does not lend itself to this approach. Consequently, the cost of military RDT&E is estimated by another method—analysis of Soviet information on expenditures for science.

Confidence in the Estimates

Our annual estimates reflect a continuing effort to acquire more and better data and to improve our methods. The past year's effort has increased our confidence in the estimates. Still, those presented in this report have a margin of error which could be substantial for some items. Our confidence is highest in the estimates of the aggregate total and the investment category. Analysis of published Soviet economic statistics and intelligence information relating to the year 1970 yields results which are consistent with our direct costing estimates for that year. Moreover, because the direct costing methodology reflects the actual changes observed in Soviet defense activities over time, we are confident that the general upward trend in these estimates is correct.

Our confidence in the estimates at the lower levels of aggregation varies from category to category. We have high confidence in our estimates for major naval ships. These are easily observed and are costed directly in rubles, using Soviet data which have been found to be reliable. Reasonable confidence can also be assigned to the estimates of spending for missile and aircraft systems and for pay and allowances of uniformed military personnel. We have less confidence in our cost estimates for the smaller procurement items such as general purpose vehicles and some ground force weapons. We are least confident of the estimates of military RDT&E costs. These estimates rely on Soviet data which are ill-defined and difficult to analyze.

Estimates of Total Defense Spending

We do not know precisely how the Soviets define their defense spending. This report uses two definitions: one corresponding to that used in

Estimated Soviet Expenditures for Defense, 1970-76

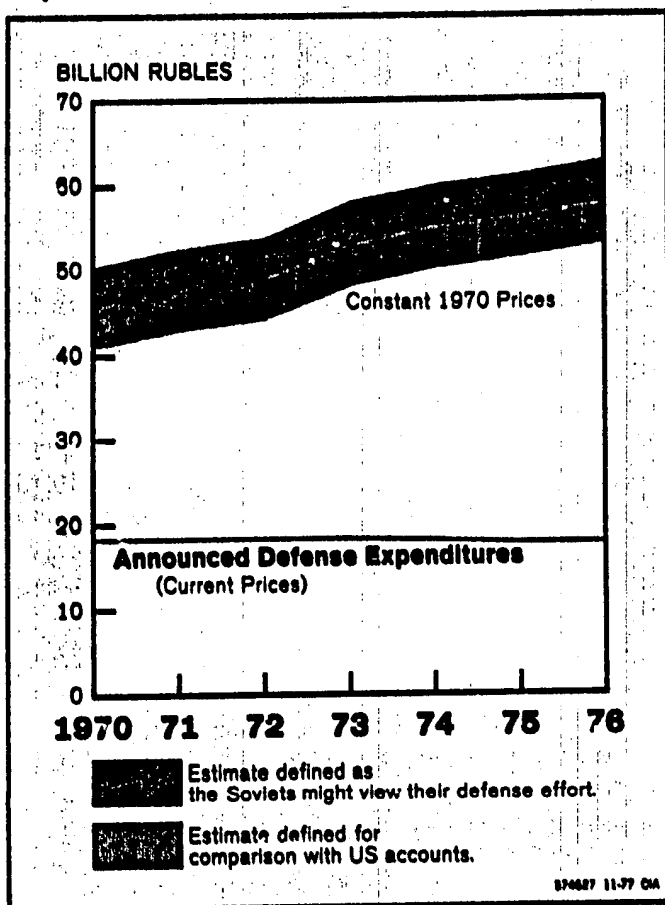


FIGURE 1

SECRET

the United States and a broader definition including additional costs which the Soviets might classify as spending for defense. These additional costs include expenditures for military stockpiling, foreign military assistance, and space programs that are operated by the military in the USSR but by the National Aeronautics and Space Administration in the United States.

Defined to correspond to US accounts, estimated Soviet spending for defense increased from 40-45 billion rubles in 1970 to 52-57 billion rubles in 1976, measured in constant 1970 prices. Defined as the Soviets might view their defense effort, estimated spending increased from 45-50 billion rubles in 1970 to 57-62 billion rubles in 1976.

Under the narrower definition, for which the estimates are more detailed and precise, esti-

mated Soviet defense spending increased at an average annual rate of 4 to 5 percent for the period. The annual growth rates varied during the period, however, reflecting primarily fluctuations in procurement outlays for aircraft and strategic missiles. As in earlier periods, procurement displayed a cyclical pattern as acquisition of older weapon systems tapered off before that of follow-on systems peaked.

Resource Implications

Although no single measure adequately describes the economic impact of the Soviet defense effort, defense spending's share of GNP often is used for this purpose. Defense now accounts for 11 to 12 percent of Soviet GNP under the narrower definition of defense spending and for 12 to 13 percent of GNP under the broader definition. Because defense spending grew only slightly faster than the economy as a whole during the 1970-76 period, there was little change in the share of GNP taken by defense.

Another indication of the economic impact of defense activities is defense's share of crucial industrial output. During the period, defense consumed about one-third of the final product of machine-building and metalworking, the branch of Soviet industry that produces investment goods as well as military hardware. Defense requirements also absorbed most of the output of integrated circuits.

These measures give evidence of a substantial commitment of resources to defense. But there are also a number of noneconomic considerations which Soviet leaders would weigh in deciding on future defense programs. These factors include the leaders' views of foreign military threats, their perception of the relationship between military power and the success or failure of Soviet foreign policies, and the strength of the institutional forces which support defense programs.

Prospects

The Soviet economy probably will continue to grow at its current rate of roughly 4 percent a year through 1980, but we believe that from 1981

through 1985 the average annual growth of GNP will fall—probably to about 3 to 3.5 percent, and possibly to about 2 to 2.5 percent. (The higher projection reflects the likely impact of a declining growth rate in the labor force and continuing Soviet inability to achieve offsetting growth in productivity. The lower projection reflects, in addition, the impact of a projected decline in oil production unaccompanied by vigorous energy conservation measures.)¹

Our projections of Soviet spending for defense into the 1980s are less certain than our estimates of spending in past years. But the trends revealed by our estimates and the evidence gathered in preparing them provide a reasonable basis for such projections. We believe defense spending is likely to continue to grow into the 1980s at about its current rate—some 4 to 5 percent per year. The increasing costs of new military hardware, the weapons development programs currently under way, and continuing capital investment in the defense industries all lead us to this conclusion. The scant return likely from a transfer of resources from defense to civilian production and the Soviet perception of the future strategic environment also lead us to believe that Soviet defense spending will continue to grow.

A major factor in the growth of Soviet defense spending is the rapidly increasing costs of new weapon systems. As in the United States, the increasing complexity of new weapons has resulted in escalating development, production, and maintenance costs. Such cost escalation is clearly evident in the new systems entering the forces in the 1970s—particularly in aircraft, ballistic missiles, and naval ships.

Given the new weapons development programs now under way, the increasing cost of new military hardware is likely to become a more important determinant of defense spending in the 1980s. Military RDT&E programs include potentially costly systems for all of the Soviet armed services. In the strategic forces, new solid- and liquid-propellant ICBMs, including a large

follow-on to the SS-18, are being developed, as are new strategic naval missiles. Air defense programs for improving surveillance and control and for new fighters and low-altitude surface-to-air missiles are being pursued. Still other systems are being developed for the air, ground, and naval forces. Not all of these systems under development will be deployed, but several will enter production by the early 1980s, continuing to shift the weapons acquisition mix toward more expensive systems. Even if procured at a slower pace than their predecessors, these systems will drive weapons acquisition and maintenance costs upward.

We also see continued capital construction at defense industrial facilities—some apparently related to weapons development programs and some apparently designed to enhance productive capacity. Much of the capital construction [redacted] is occurring at facilities associated with the production of land- and sea-based strategic missiles and high-performance aircraft—those costly systems that have been driving procurement and maintenance costs upward.

We believe that if the Soviets were to reduce defense spending's growth as a remedy for their economic ills, they would have to break sharply with current spending trends to achieve appreciable results. Our econometric analysis indicates, for example, that freezing defense investment at its projected 1980 level and reducing military manpower by 1 million between 1981 and 1985 would increase the average annual rate of growth in Soviet GNP by about one quarter of one percent.² A shift from defense to consumer goods production—which might seem attractive to some Soviet leaders—also would yield limited returns and would be difficult to implement because many defense production resources could not be transferred readily to consumer goods production. Moreover, it would probably encounter opposition from substantial segments of the civilian economic establishment as well as from the powerful leaders and institutions of the defense sector.

¹ See [redacted] *Soviet Economic Problems and Prospects*, July 1977 [redacted]

² See ER 77-10436.

~~SECRET~~

Soviet perceptions of the future strategic environment also increase the likelihood that the upward trend in defense spending will continue into the 1980s. The Soviets are impressed by the dynamism of Western military programs and are concerned with the Chinese threat. They are particularly unsettled by recent US discussions of the neutron bomb and by decisions on the B-1 bomber, cruise missile, and M-X mobile missile. The uncertainty with which they view the future strategic relationship with the West argues for Soviet prudence in planning future military forces and discourages measures to reverse the upward trend in defense spending.

Impact of a SALT II Agreement

A strategic arms limitation agreement along the lines currently being discussed probably would not slow the growth in Soviet defense spending significantly. Strategic weapons development and production programs might be stretched out, and missile procurement levels could be somewhat lower than otherwise forecast. But procurement and maintenance of intercontinental attack systems subject to limitation currently account for only about one-tenth of annual ruble expenditures for defense, and the impact of the strategic forces on growth in defense spending has been muted in recent years by the increasing importance of expenditures for general purpose aircraft. In addition, because many of the resources devoted to strategic programs are highly specialized, the Soviets would be more likely to reallocate them to weapons programs not limited by the agreement than to civilian uses. Thus the effects of a SALT II agreement on economic growth and consumer satisfaction would be small and probably do not in themselves constitute a strong incentive for an agreement.

Defense Spending by Resource Category

A useful way of analyzing Soviet defense spending is to break it down into three principal resource categories—investment, operating, and RDT&E. Investment spending reflects the flow of new equipment and facilities into the military forces; operating expenditures are those associ-

ated with the day-to-day functioning of the military; and RDT&E expenditures give some indication of plans for future force modernization. The resource analysis that follows is based on estimates of defense spending defined to correspond to US accounts.

During the 1970-76 period the relative shares of investment, operating, and RDT&E expenditures in total Soviet spending for defense remained fairly constant. About half of defense spending went for investment, about 30 percent for operating expenses, and about 20 percent for RDT&E.⁴

Investment

Defense investment consists of the procurement of weapons, equipment, and major spare parts and the construction of facilities. Most investment—more than 90 percent—was for procurement, and most procurement spending was for the acquisition of weapons. The bulk of weapons acquisition outlays went for large, expensive items—first for aircraft and then for missiles and naval surface ships and submarines. Spending for equipment for the support of deployed forces—such as radar and general purpose vehicles—was lower but grew rapidly and steadily throughout the period.

Operating

Operating expenditures can be divided into personnel costs and operation and maintenance expenditures. Personnel costs—for pay and allowances, food, personal equipment, retirement, and medical care—averaged about 60 percent of operating expenditures and approximately 15 percent of total spending for defense between 1970 and 1976. Operation and maintenance expenditures—for the maintenance of equipment and facilities, purchases of petroleum and lubricants, utilities, transportation, and com-

⁴ A previous paper on estimated Soviet defense spending () reported that investment and operating each consumed 40 percent of total spending. The difference between that report and this one reflects a change in definitions. Spending for major spare parts is now classified as an investment rather than an operating expense. The change makes our reporting consistent with US Department of Defense practice and with reported Soviet practice as well.

~~SECRET~~

munications leasing—were consistently lower than personnel costs, but increased more rapidly.

RDT&E

Because the ruble cost estimate for RDT&E is based on highly aggregated and tenuous data, its growth and composition cannot be discussed with great confidence or in detail. Nevertheless, the information on which the estimates are based—published Soviet statistics on science, statements by Soviet authorities on the financing of research, and evidence on particular RDT&E projects—suggests that military RDT&E activities receive approximately 20 percent of total defense spending and that they grew steadily during the period.

Spending by the Services

The Soviet armed services are organized into five branches—Strategic Rocket Forces, Air Defense Forces, Air Forces, Navy, and Ground Forces. Our costing methodology makes it possible to estimate the allocation of much of defense spending among these forces. We cannot, however, estimate how the costs of RDT&E or of

Percentage Shares of Estimated Soviet Investment and Operating Expenditures for Military Services

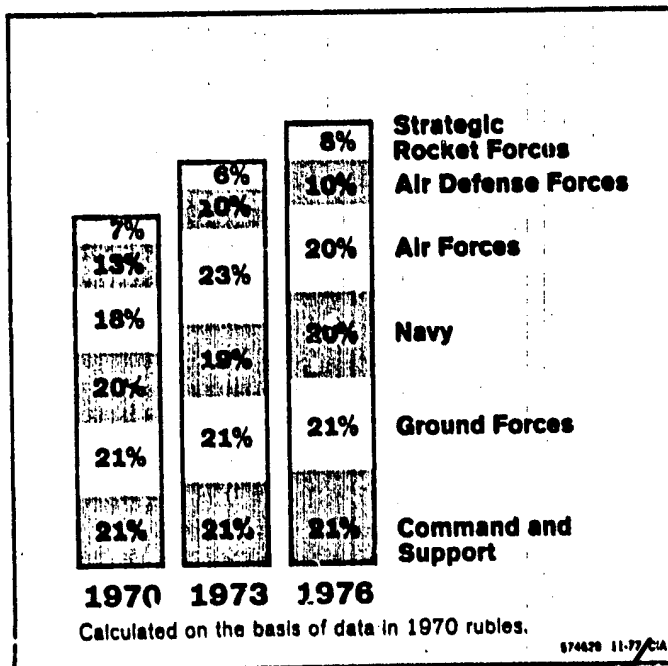


FIGURE 2
~~SECRET~~

~~SECRET~~

Growth of Estimated Soviet Investment and Operating Expenditures by Branch of Service, 1970-76

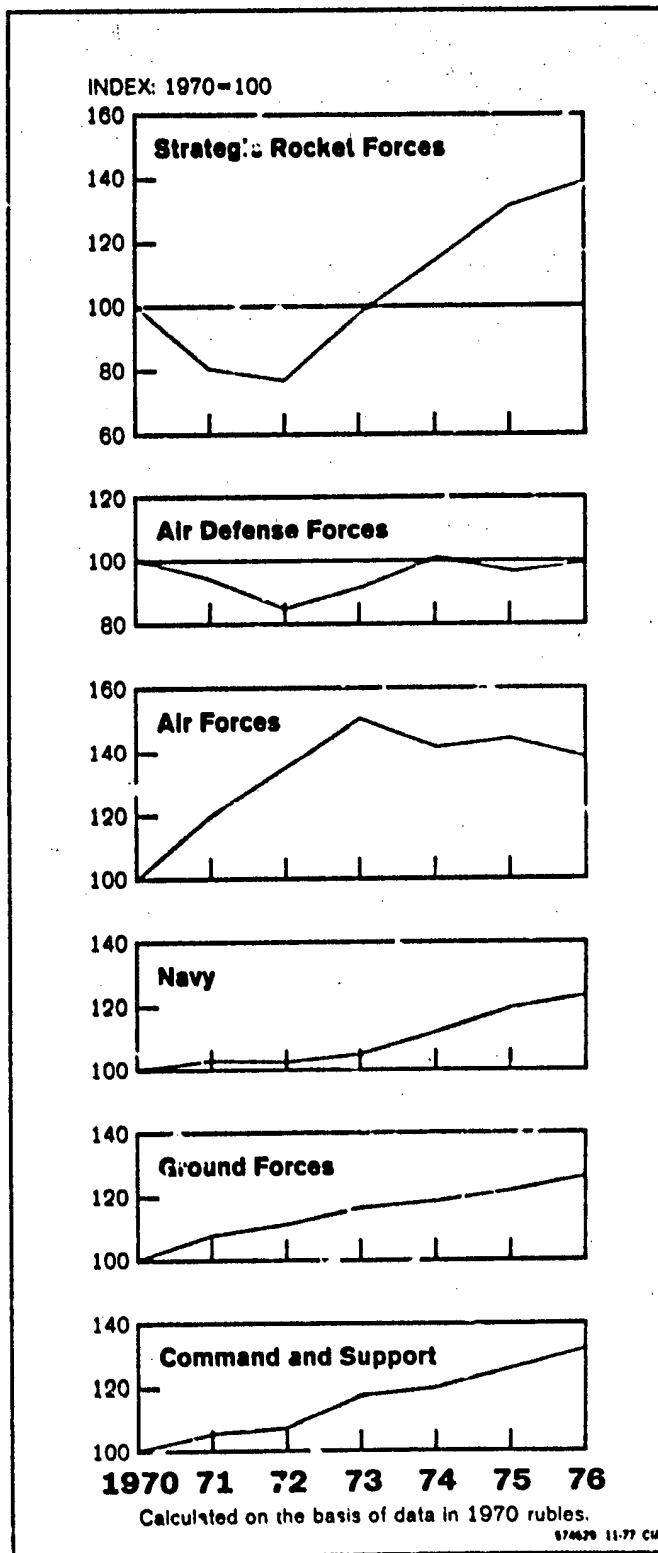


FIGURE 3

~~SECRET~~

certain command, rear service, and other support functions are allocated to the separate forces. The discussion that follows excludes RDT&E and assigns the command and support functions to a separate category.⁵ Again, the analysis is based on the narrower and more detailed definition of spending for defense.

Strategic Rocket Forces

Spending for the Soviet Strategic Rocket Forces (SRF), which operate land-based strategic missiles, averaged about 7 percent of total investment and operating spending during the 1970-76 period. But SRF spending moved in a cyclical fashion. From 1970 to 1972 it decreased both absolutely and as a share of total outlays, reflecting the decreasing procurement of the SS-9, SS-11, and SS-13 ICBM systems. Thereafter, the level and share of spending for the SRF increased as a new missile procurement cycle began with the deployment of the SS-17, SS-18, and SS-19 ICBMs.⁶

Air Defense Forces

The Soviet Air Defense Forces are responsible for defending the USSR against attack by hostile aircraft and ballistic missiles. Spending for this branch of service averaged about 10 percent of total investment and operating expenditures during the 1970-76 period. Between 1970 and 1972, however, it fell both absolutely and relatively, and while the absolute level of the Air Defense

⁵ This category should not be confused with command, control, and communications, the costs of which are distributed among all the forces in this analysis.

⁶ We now believe that the SRF's average share of spending is lower and its cyclical fluctuations are less pronounced than reported in our last published estimates. The earlier estimates showed the share of defense spending allocated to the SRF growing from 11 percent in 1970 to 14 percent in 1975, compared with the current estimate of 7 percent in 1970 and 8 percent in 1976. A part of the change in our estimate is due to reassigning some of the costs of nuclear materials to command and support. This is consistent with our understanding of the Soviet treatment of such materials, which are centrally controlled by a Main Directorate of the Ministry of Defense. Most of the change results from new estimates of Soviet missile costs. The change does not reflect a decrease in the estimates of the number of missiles produced and deployed. It does indicate that these weapons are somewhat less costly than estimated last year.

Forces' spending increased thereafter, their share of total expenditures did not. In 1976 their share was some one-fifth lower than in 1970. The decline in the early 1970s resulted from reductions in the rate of procurement of the SA-2 and SA-5 surface-to-air missile systems and of Fiddler and Flagon aircraft. The rise in the absolute level of spending after 1972 was due to increased procurement of interceptor aircraft—first the Foxbat and then the Flogger.

Air Forces

The Soviet Air Forces include three components—Long Range Aviation, Frontal (Tactical) Aviation, and Military Transport Aviation. Expenditures for the Air Forces averaged about 20 percent of total investment and operating spending during the 1970-76 period and—like those for the SRF—moved in cyclical fashion. Between 1970 and 1973, spending for the Air Forces increased absolutely and relatively. Thereafter it decreased as a share of total forces spending, but its absolute level fluctuated slightly from year to year. Over half of this spending went to Frontal Aviation. The second largest share—a little more than 30 percent—went to Military Transport Aviation, and Long Range Aviation got the smallest portion.

Navy

Investment and operating expenditures for the Soviet Navy consumed a fairly constant 20 percent of such spending for the military services during the period. The primary items driving the growth of naval spending were ballistic missile and attack submarines. There was also a trend toward the procurement of ships such as the Kiev-class ASW carrier and Kara-class cruiser which are larger, more capable, and more expensive than the major surface ships of the 1960s, but which are produced in smaller numbers. In the later years of the period, spending for naval aircraft—particularly the Backfire bomber—was also an important factor in the growth of the Navy's spending.

Ground Forces

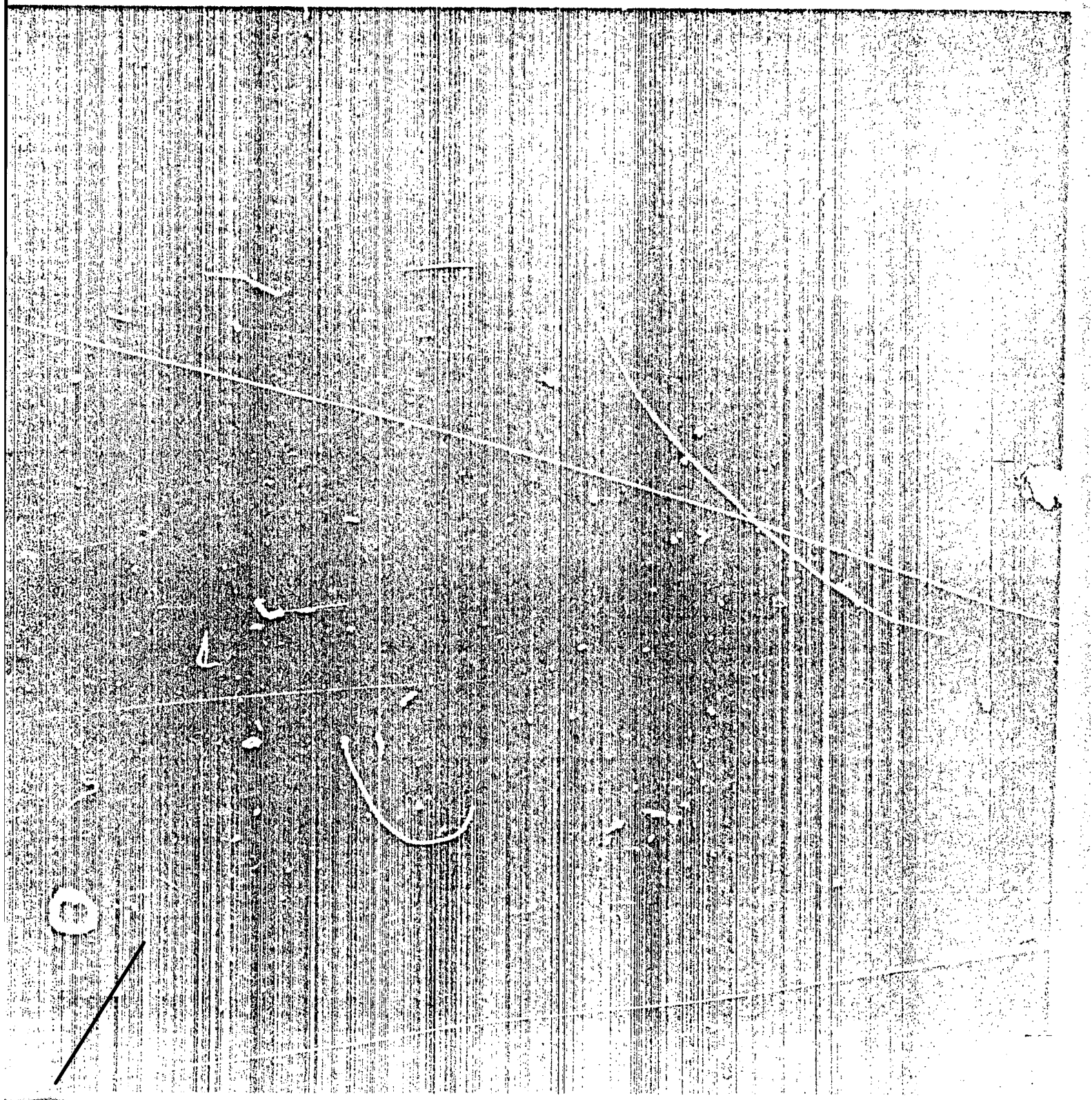
Unlike the other combat branches, the Ground Forces took a larger share of total operating expenditures than of total investment spending. Personnel costs were especially important, increasing in absolute terms and consistently accounting for about one-third of total spending for the Ground Forces. (The increase in personnel spending resulted from an increase in manpower rather than in pay rates.) As for all the combat branches, however, investment spending for the Ground Forces was larger than their operating expenditures. During the period, investment expenditures grew each year. Major procurement items for the Ground Forces were self-propelled artillery, mobile tactical SAMs, and tanks and armored vehicles.

Command and Support

Some costs are not allocated to a specific combat branch because they relate to general support provided by the Ministry of Defense apparatus. Other costs cannot be allocated to the combat branches because of lack of information. We assign both types of expenditures—which include rear services, salaries of Ministry of Defense employees, space operations of a specifically military nature, and retirement pay—to a category called command and support. During the period, the command and support share of spending for the forces was constant at slightly over 20 percent. Within this category, expenditures for personnel and operation and maintenance were about twice as large as those for investment.

The author of this paper is [redacted]
[redacted] Office of
Strategic Research. Comments and queries are
welcome [redacted]
[redacted]

~~Secret~~



~~0~~