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Determining the Cost and the Burden

Analyzing Soviet Defense Programs, 1951-1990 (U)

From the early days of the Cold War, the economic potential of the Soviet Union was a prime intelligence question. In 1951, Max Millikan, the first director of the Office of Research and Reports (ORR) in CIA, identified five objectives for foreign economic intelligence in support of US national security:

- Estimating the magnitude of potential military threats to the United States and its allies by calculating the level of military operations a potential enemy's economy could sustain.
- Estimating the character and location of future military threats by examining how the potential enemy is allocating its resources.
- Assisting in judging the intentions of a potential enemy by monitoring changes in its economic policies.
- Helping policymakers to reduce possible military threats by telling them how economic measures could impair a potential enemy's economic capabilities.
- Assisting in the estimation of probable development of the relative strength of the East and West blocs in the near term, assuming hostilities are avoided.¹

When Millikan formulated these objectives, the Korean war was on, and the possibility of conflict with the USSR was real. At the same time, knowledge of the Soviet economy was sketchy. As Millikan put it, his office in the first half of 1951 "was engaged in taking an inventory of its ignorance concerning the economy of the Soviet Bloc."² Soviet economic statistics were of little help. Publication of detailed statistics had ceased for all practical purposes after World War II. Data on national aggregates such as national income or industrial production greatly exaggerated real growth, while information on defense outlays was limited to a single line of uncertain coverage in the state budget.

Within a few years, dozens of analysts were focused on putting together a picture of the Soviet economy industry by industry. The military economics branch in ORR tried to estimate Soviet defense spending. Another branch began reconstructing Soviet national accounts and compiling independent estimates of real growth in the components of GNP--industrial and agricultural production, consumption, and investment.

Building-Block Measures

Such was the beginning of CIA's building-block measures of Soviet national output and defense expenditures. Essentially, this approach meant compiling estimates from the ground up by filling in the empty boxes in accounting frameworks encompassing Soviet defense-related economic activity and total economic activity. The work on Soviet GNP was able to borrow heavily from the pioneering work carried out at Columbia, the RAND Corporation, and Harvard by a group of specialists on the Soviet

economy. The effort to cost Soviet defense programs, on the other hand, had to start essentially from scratch by assembling information on all the physical measures of defense activity and multiplying them by the estimated costs of these activities.

These costs were then aggregated by military service; resource category (procurement, construction, personnel, operations and maintenance, and R&D); and military mission (strategic offense and defense, general purpose forces, and command and general support). Thus, the Agency came to grips with Millikan's second objective for foreign economic intelligence--information on how a potential enemy was allocating its resources. Soviet GNP and defense programs were valued in rubles to assess Soviet decisions on the allocation of resources and to measure real growth in defense and in dollars to permit comparisons with the GNP and defense programs of the United States and other countries.

Building an Evidentiary Base

The evidentiary base for the defense and GNP estimates at first varied greatly but improved considerably over time. After the mid-1950s, a great deal of information relevant to the GNP calculations became available. By the mid-1960s, the methodology and the data were available to estimate GNP by sector of origin and end use in 1955 ruble prices and in current prices and to compare US and Soviet GNP in both ruble and dollar prices. From then until the breakup of the Soviet Union, the estimates were almost continuously reviewed and improved, but these were variations on a theme and not radical new departures. Throughout their history, the estimates of real growth in GNP rested on the premise that while Soviet value statistics--that is, the ruble value of industrial output were badly flawed, statistics on physical output--tons of steel, square meters of cotton fabric--were sufficiently reliable to support the building-block approach.

The evidence for the defense estimates was quite different. National intelligence collection provided the information on Soviet defense production and procurement and order of battle, and this information became increasingly accurate after the early 1960s with each enhancement in US overhead reconnaissance capabilities. But operating rates, maintenance practices, and the like had to be estimated by a variety of methods, and the acquisition of several Soviet maintenance manuals helped. Identifying the resources committed to military R&D, however, was a problem until almost the end of CIA's costing effort. For most of the period, military R&D had to be inferred from a small sample of Soviet statistics on the financing of science. In the 1980s, an effort to build an R&D estimate from the bottom up by collecting intelligence on more than a thousand Soviet R&D establishments finally succeeded--and reduced the previous estimate of its growth of military R&D markedly.

Finding prices to attach to the estimates of military activity was another problem. Prices were generally available for military pay and allowances and other personnel costs. Defector reports supplied the information on military pay in rubles, and US dollar pay rates for equivalent ranks or occupational specialties were obtained from the Pentagon. Ruble and dollar prices for much of operations and maintenance (O&M) and construction could be found in Soviet publications and in CIA research on the relative ruble and dollar costs of the different kinds of construction work and some of O&M. During the 1970s and early 1980s, a large number of contracts with US defense firms provided estimates of the dollar cost of manufacturing most of the more expensive items in the Soviet procurement and spare parts accounts. Intelligence on ruble prices was scarce, however. Not until the 1980s had enough ruble prices been collected to firm up the ruble estimates of Soviet military procurement and the maintenance part of O&M.

The question of what to include in the definition of defense outlays was an issue from the beginning. For comparisons with US programs, the Soviet activities were selected to match as well as possible US spending on Department of Defense (DoD) national security programs, defense-related nuclear activities of the Coast Guard, and the present value costs of retirement, disability, and survivors' benefits for active-duty military personnel. When estimating the cost of Soviet military programs, a broader definition was used, one that included civil defense troops, railroad troops, construction troops, MVD troops, and civilian space outlays.

Figure 1. Soviet GNP and defense outlays, 1950-90 (1982 rubles). (U)**What the Estimates Showed**

It is instructive to review what CIA's defense spending and GNP estimates, as they matured in the late 1980s, suggest about the relation between defense and the economy in the postwar USSR. The first thing to look at are the estimates of Soviet defense spending and GNP in 1982 rubles (Figure 1). If prices of an earlier year are used, the rates of growth of both defense and GNP would be marginally lower and the ratio of defense to GNP a bit higher, but the overall picture would be much the same. In constant 1982 prices, the share of defense in GNP declines from 24 percent in 1951 to 14 percent in 1959. It then varies only within the range of 14 to 16 percent between 1960 and 1990. This calculation provoked a good deal of controversy over the years as it was taken to represent the burden of defense on the Soviet economy.

One can isolate different stages in the growth of Soviet defense spending and relate them to developments in the economy generally. The building-block estimates set out in considerable detail the changes in the composition of GNP or defense spending. This detail permitted analysis of changes in the USSR's economic policy--the third of Max Millikan's objectives for US foreign economic intelligence. The average annual rates of growth shown for defense in Figure 1 certainly do not reflect the monotonic rapid growth that is perhaps the prevailing public perception. Meanwhile, the continuous decline in the rate of growth of GNP suggests the underlying forces that led Soviet leaders to constrain defense spending and finally caused Gorbachev to introduce his ill-fated reforms.

The immediate explanation of the changes in the growth of defense spending are complicated, but a few of the prime movers can be identified. In the 1950s, Khrushchev's demobilization was the major factor. In the 1960s, defense spending grew rapidly, propelled by growth in procurement of missiles, ships and submarines, space vehicles, and aircraft as well as the post-Khrushchev buildup in general purpose forces. Thereafter, the growth of defense subsided as procurement increased less rapidly in 1970-74 and then leveled off in 1975-84. Outlays for O&M and R&D continued to rise, although at a slower pace than formerly. After Gorbachev came to power, there was a three-year acceleration in defense spending marked by a spurt in outlays for aircraft and missiles, and then a sharp decline in defense, spurred by a downturn in outlays for aircraft, land arms, and space-related equipment.

Figure 2. Dollar cost of US and Soviet military programs, 1951-64 (1972 dollars). (U)

At minimum, the trends described in Soviet defense spending suggest some questions for historical research on Soviet military policy during the Cold War. For example:

- Was the slower growth in real defense spending after 1975--and the plateau in procurement--the result of conscious policy decisions? If so, what was the cause?
- What role did the US defense buildup beginning in the late 1970s play in the spurt in Soviet defense spending in 1985-87?

Interest in CIA's estimates of Soviet defense outlays and GNP within the US Government and in Congress, however, centered more on the dollar comparisons than the ruble measures. Unfortunately, the records necessary to put the defense comparisons on a single-dollar price base are no longer available. Figure 2 shows the comparison of the dollar cost of Soviet and US defense programs from 1951-64 expressed in 1972 dollar prices, and Figure 3 covers the period 1965-89 in 1988 dollars. According to these comparisons, the cost of US defense programs exceeded the dollar equivalent of Soviet programs by roughly one-fifth in the earlier period, while the dollar equivalent of Soviet military spending in 1965-89 was slightly greater than US spending.

In the 1980s, some variants of these comparisons were constructed--one to take in a broader definition of national security outlays and another to construct a NATO-Warsaw Pact comparison. The comparison expanded to include the so-called cost of empire, civil defense, and the like pushed up Soviet spending relative to US outlays by a couple of percentage points in the 1980s, but the NATO-Warsaw Pact

comparisons showed the dollar-equivalent cost of NATO defense programs 15 percent larger than Warsaw Pact programs over the period 1976-86.

Figure 3. Dollar cost of US and Soviet military programs, 1965-89 (1988 dollars). (U)

Comparisons of Soviet and US GNP first presented by CIA in the 1950s had a receptive audience, given the concern then that the Soviet Union was on its way to overtaking the United States in the economic realm. When DCI Allen Dulles testified before Congress in 1959, he projected Soviet GNP growth through 1965 at 6 percent per year and industrial growth at 8 to 9 percent per year. These rates, he said, would raise Soviet GNP to about 55 percent of the US level by 1970 and Soviet industrial production to perhaps 60 percent of the US level. Dulles concluded by saying:

*The Communists are not about to inherit the world economically. But while we debunk the distortions of their propaganda, we should frankly face up to the very sobering implications of the Soviets' economic program and the striking progress they made over the last decade.*³

The most recent CIA estimates of Soviet and US GNP show Soviet GNP rising from a little more than a third of US GNP in 1950 to a little less than half in 1965 to 60 percent in 1975 before falling to less than half in 1990. These calculations, which represent the geometric average of comparisons made alternatively in ruble and dollar prices, have been criticized as being overly generous to the Soviets, but subsequent research by Russian statisticians suggests that they are not badly out of line. The point is that, by the mid-1970s, it was clear from the Agency's publications that the fears of the USSR's becoming the foremost world economic power were unfounded. The dollar comparisons of Soviet and US GNP--and later of NATO and Warsaw Pact GNP--proved to be invaluable in forecasting the relative strengths of the East and West blocs--Millikan's fifth objective for the US Government's foreign economic intelligence.⁴

How the CIA Estimates Were Used

Analysis of Soviet economic prospects provided the framework for analysis of the Soviet economy both in the US Government and in the academic community after the original partners--Harvard and the RAND Corporation--left the field. In the early 1960s, the Agency's estimates disclosed a sharp slump in Soviet economic growth to a skeptical world. In December 1963, DCI John McCone told President Johnson and the NSC about the Agency's most recent assessment of the Soviet economy: economic growth had slowed drastically, and the USSR's grain and gold reserves were lower than previously estimated, accounting for Soviet attempts to find long-term credits in the West.

Gradually, the CIA estimates of slumping Soviet growth and then stagnation gained general acceptance. Between the early 1960s and the early 1980s, the few critics of the GNP estimates thought they understated Soviet achievements. Only recently have revisionist claims been heard that the CIA estimates overstated the rate of increase in Soviet GNP.

The Defense Spending Estimates

The focus of interest in CIA's estimates of Soviet defense spending shifted over time. During the 1950s, when the USSR's economy was on a roll and the Soviet armed forces were in the midst of a partial demobilization, Max Millikan's first objective of foreign economic intelligence had been met. The estimates of the cost of defense programs and the size of the Soviet economy demonstrated that the economy could continue to support the then existing level of defense effort and more.

Then, in the Kennedy administration, the Pentagon pressed hard for finer breakdowns of Soviet defense spending as an aid in defense planning. This was the era of cost effectiveness calculation in the DoD. Fred Kaplan, in his book *The Wizards of Armageddon*, describes the use of CIA's dollar estimates in Pentagon deliberations over a damage-limiting strategy to employ against Soviet strategic forces.⁵ The calculations indicated that any combination of civil defense, an ABM system, and antibomber defense

system was a losing proposition. As Kaplan put it, the studies showed:

For each extra dollar that the Soviets added to the attack forces, the US would have to spend \$3 to protect 70 percent of its industry, \$2 to save 60 percent ...and the same \$1 to defend a mere 40 percent.

Until the end of the Cold War, the DoD continued to be an eager customer for the estimates of the dollar equivalent of Soviet military programs. In 1977, Secretary of Defense Harold Brown, in a memorandum to the DCI, declared that the reports and analysis being produced on military economics were "the basis of the comparative economic analysis employed by Defense." He added, "The dollar estimates provide the best, single aggregated measure of US and Soviet defense efforts."⁶ In 1991, when CIA announced its intention to discontinue the dollar estimates, Andrew Marshall, Director of Net Assessment in the Office of the Secretary of Defense, wrote Deputy Director for Intelligence (DDI) John Helgerson "to urge that CIA continue its work on dollar cost estimates of Soviet defense programs."⁷ Marshall supported his request by stating:

Dollar cost data has [sic] been the major foundation for my office's work on a military investment balance report that top defense officials have found very useful in characterizing broad trends in our security situation. For all its limitations as an indicator of the military balance, dollar costing allows dissimilar systems and activities to be aggregated so that broad trends in national military capabilities can be depicted. Moreover, some activities not ordinarily compared in "bean counts" can be measured in dollars, for example hardening and sheltering programs, or command, control, and communications activities. Even intangible factors such as training and readiness can be valued at the dollar cost of the activities that foster them.

CIA analysts used the ruble estimates to help determine whether certain large Soviet military programs would be undertaken, and, if so, what the likely schedule would be. For example, an air defense analyst decided cost constraints would prevent the USSR from deploying more than 600 AMB launchers instead of the 6,000 sites then proposed by many in the Intelligence Community (IC).⁸ CIA projections of certain large aircraft programs were also cost constrained.

As CIA's Office of Strategic Research (OSR) proceeded with its research on Soviet military spending, it found that, in the process of filling all the boxes in its accounting framework, it was uncovering information--as Marshall noted--on Soviet defense activities that had been neglected in intelligence analysis. It learned about operating rates and maintenance practices, which shed considerable light on Soviet military readiness. By contracting with US defense firms to provide dollar costs of Soviet weapons, OSR also learned a good bit about Soviet manufacturing technology and capabilities.

Perhaps the most visible contribution of the defense spending estimates, however, was to the debates over US defense budgets. The US-Soviet comparisons figured heavily in the presentations that successive presidential administrations made to Congress and the country. While Secretary of Defense, James Schlesinger at the beginning of his 1975 annual report said that, "The Soviets now devote more resources than the United States in most of the significant categories of defense" and showed a chart comparing US and Soviet defense spending.⁹ He emphasized even more strongly the adverse trends embodied in the spending estimates by telling the armed services committees, "If they continue to grow at 5 percent or 7 percent per annum, and we continue to shrink, then it is plain that sooner or later the divergence will become so great that we will be in very substantial trouble."¹⁰

Under Democratic administrations, the pitch was much the same. William Kaufman, a consultant to DoD through most of the 1970s, said that, beginning in 1973 and 1974, he "turned very strongly to the CIA estimates as a basis for indicating why the US defense budget ought to be increased."¹¹

Thus, the US-Soviet defense comparisons were featured in DoD Congressional testimony, Defense posture statements, and in the DoD publication *Soviet Military Power*. The comparisons, however, lost their popularity when the dollar-equivalent cost of Soviet defense programs began to fall below the cost of US programs in the 1980s. Robert Gates, as DDI and later as Deputy Director of CIA, had long been

skeptical of the dollar estimates and tried to abolish them in the early 1980s; pressure from consumers in the Pentagon and Congress, however, forced a resumption of the dollar costing. When Soviet military spending moved downward in the late 1980s, consumer demand for the dollar estimates weakened, and Agency managers decided the time was right to drop them.

Connection Between Defense Spending and the Economy

With the slowdown in Soviet economic growth, Max Millikan's first objective for foreign economic intelligence again came to the forefront--the calculation of how much military spending a potential enemy's economy could sustain. Generally, the Agency's economic and military analyses of the Soviet Union were imperfectly integrated. Even when they were, and when they highlighted economic pressures on Soviet military programs, there was great skepticism in the IC.

In 1964, 1976, and the early 1980s, the IC did focus on the question of economic constraints on Soviet defense spending. A Special National Intelligence Estimate (SNIE) was commissioned in 1964 following the turnaround in the analysis of Soviet economic prospects. After reviewing the deteriorating economic situation, it said there had been a "continuing struggle between those who believe that the national interest requires greater attention to an invigorated agriculture and those who oppose any weakening of the priority accorded the development of heavy industry and a preeminent defense establishment."¹² Khrushchev's plans for boosting the production of chemicals and consumer goods and an announced 4-percent reduction in its official defense budget convinced the US Intelligence Board that the USSR "would make every effort" to hold down outlays on defense and space. The estimate declared that, while defense outlays might decline, it was more likely that they would grow at a slower pace.¹³ In any case, Khrushchev was ousted within the year, and the decade of the 1960s produced the highest average annual growth in real Soviet defense expenditures in the postwar period.

In 1965, another NIE on Soviet defense policy argued that, even if defense outlays increased by 20 percent in the new five-year plan period (1966-70), the Soviet economy could shoulder the burden and at the same time gradually modernize Soviet industry and raise the population's standard of living.¹⁴ It added, however, that defense programs would be "increasingly subjected" to reviews of their cost and effectiveness.

When Soviet economic growth slowed still more in the 1970s and CIA published an extremely pessimistic appraisal of Soviet economic prospects, the view that military programs were not threatened remained entrenched in CIA publications. Thus, a memorandum to holders of NIE 11-4-78 provided a grim description of the USSR's economic situation, including a "growing possibility of social instability," and reported that "if military spending continues to grow at 4 percent per year, the increment in national output going to defense could rise from 1/5 to as much as 3/4," severely limiting the leadership's scope for maneuver. Still, the "projection of Soviet military spending most consistent with available evidence suggests that pressures in favor of continuing the existing arms buildup are likely to offset any inclination toward change that might arise from the leadership's growing economic concerns." If necessary, "appeals to a more extreme patriotism" and "repressive measures" would be used to increase production and maintain domestic control in face of mounting military budgets.¹⁵

How tenuous the connection was between defense burden measures and CIA's projections of Soviet defense programs was apparent in the Agency's reaction to the abrupt increase in the estimate of Soviet defense outlays in 1976. Asked by Senator Charles Percy of the Joint Economic Committee of the US Congress how defense was impinging on the civilian economy and what effect growing consumer demands would have on an economy still spending so much on defense, the Agency replied:

The new CIA estimates of Soviet defense spending--50 to 55 billion rubles in 1975--have altered significantly our perceptions of the economic costs of the Soviet defense effort. Analysis of the complex issues of economic burden and resource allocations is still in its preliminary stage. However, it is clear that the Soviets are far more willing than we thought to forego growth in the civilian sector (and consumer satisfaction) in favor of expanding military capabilities.

The response went on to say that "there are no indications that the leadership has seriously considered diverting resources from military use in response to consumer demands." It asserted that the Soviet population had "traditionally" recognized that programs to boost industrial production and defend the country justified "a slow growth in living standards." ¹⁶

Developments in the Soviet Union in the 1980s and the process of the IC's coming to terms with the deceleration in the estimated growth of Soviet defense spending restored the defense burden as a factor in projecting Soviet defense programs. In 1983-84, the discussion of the origins of the slowdown unearthed an array of possible causes, but they centered first on adaptations to current difficulties in the economy while playing down the possibility that a strategic decision had been made to limit the growth in the defense budget.

The debate over Soviet defense policy heated up when Gorbachev became General Secretary in 1985. CIA analysts thought that his ambitious investment program in support of his goal of modernizing the USSR's production base would "leave little or no room for increasing defense spending procurement above its recent rates." ¹⁷ In fact, according to CIA's estimates, Soviet defense spending accelerated in the first year of the 1986-90 plan, and Gorbachev later said that this growth had been planned. Gorbachev probably believed his focus on labor discipline and a shakeup of the party and managerial ranks would result in productivity gains that would permit substantial growth in both defense procurement and the production of equipment for investment.

CIA's analytic line at the time was that the capacity to produce the strategic weapons coming on line was already in place, suggesting "that Gorbachev can handle the defense/growth tradeoff for the time being." The real test for Gorbachev would be when demands to expand and renovate defense industries are renewed. "If the modernization program is not going well, Gorbachev will have to deal with military leaders asking for more defense-related investment and advocates of devoting even more resources to modernization--here the plan begins to unravel and choices have to be made." ¹⁸ The reforms in the economy introduced in mid-1987 proved to be disruptive rather than corrective. According to Marshall Sergey Akhromeyev, a decision to plan a cutback in defense was taken in mid-1988. ¹⁹ At this point at least, the connection among developments in the economy, the defense burden, and decisions on defense spending was clear enough.

So, in every case, the IC concluded that Soviet economic difficulties would impinge only marginally, if at all, on Soviet defense plans. What mattered was the technological competition. How would lagging technology limit improvements in Soviet military capabilities? In general, the IC reasoned that in the Soviet Union defense had such an overwhelming priority that economic problems would not constrain growth in the allocation of resources to military programs. Only when Gorbachev's perestroika was foundering did the idea of economic constraints on the defense budget gain a foothold in the national estimates arena, and even then the majority opinion rejected the notion that the USSR would unilaterally reduce its defense spending as it did in 1989.

Erosion in the Credibility of the Estimates

Why the concept of economic constraints on the USSR's defense budget was not taken more seriously, especially after the mid-1970s, is still unclear. Before 1976, one main reason surely was the woefully incorrect CIA estimate of the level of Soviet defense spending. A joint analysis of the Soviet defense burden in 1975 by the Office of Economic Research and OSR reported that the Soviet defense effort took less than 8 percent of GNP and only 10 to 15 percent of industrial production. Moreover, even though defense expenditures had been growing by 3 percent per year, GNP had been increasing faster. The paper's key judgments were:

The Soviet leaders have not acted as though costs have been a major factor in their military decisions. Defense programs have been well funded, even during periods of lagging economic growth, and the followthrough on new programs has been strong.

*Defense costs are unlikely to constrain the Soviets unduly in the future. Political priorities favor continued emphasis on defense, and expected economic growth should permit continued increases in defense spending.*²⁰

The sharp upward revision in the ruble defense spending estimates in 1976 changed the estimate of the defense burden radically. Instead of 6 to 8 percent of GNP, defense spending was now 12 to 14 percent, more than twice the share of defense in US GNP. Moreover, analysts were forced to revise their description of Soviet defense industry as impressively efficient, and able to turn out hardware at relatively low cost. By the time the paper was being written, new information on Soviet prices for military hardware indicated that the ruble prices being used in the CIA estimates were much too low. Then a Soviet emigre provided a figure for procurement that was much higher than the current CIA estimate. A standdown in the spending estimates was ordered while the new intelligence was digested. When new estimates were produced in the fall of 1976-77, procurement in rubles was higher by two-thirds in the 1971-75 period, and total defense spending had increased by 55 percent.

The abruptness of the change in the defense spending estimates compiled in rubles badly eroded their credibility among policymakers and in Congress. One Senate Armed Services Committee staff member told an outside panel reviewing CIA's defense spending estimates that "there are a number of people who believe this analysis is intentionally misleading, that it somehow comes out to exactly what it is that the administration would like to argue on Capitol Hill. I mean they totally reject it."²¹ President Nixon complained that American presidents were being supplied by CIA with figures on Russian defense spending that were "only half of what the Agency later decided they had been." He added, "Thanks to this intelligence blunder, we will find ourselves looking down the nuclear barrel in the 1980s."²²

Policymakers were also confused by the Agency's delayed call on a slowdown in the growth of real defense spending after 1975. At the annual convention of the American Newspaper Publishers' Association in 1979, President Carter insisted that at that time neither the United States nor the USSR had the upper hand in the strategic competition, but he then said, "What causes us concern is not the current balance but the momentum of the Soviet strategic buildup. During the past decade, the Soviets have steadily increased their real defense spending, year by year, while our own defense spending over that decade has had a net decrease."²³ In January 1979, Carter had defended his decision to push higher US defense budgets by saying, "In the last 10, 15 years, the Soviets every year have had above and beyond inflationary costs a 4- or 5-percent increase in allocation of funds for defense purposes."²⁴

The Agency's Soviet defense spending estimates continued to be used in support of rising US defense budgets in the first Reagan administration. Then, in February 1983, CIA published a dollar comparison paper that said, "This year's review shows a period of almost no growth in the dollar costs for Soviet procurement from 1976 to 1981." It said that new evidence on major procurement items that "became available in 1982" led to a changed assessment. The result was a "procurement plateau" that had lasted longer than previous pauses in procurement and one that "may signal a secular change in the pace or composition of procurement."²⁵ Moreover, largely because of the lower estimates for procurement, the new Agency estimate showed substantially slower growth in total defense spending after 1976.

Before it was published, the paper was briefed to the National Intelligence Council (NIC) and to Secretary of Defense Casper Weinberger. DCI Casey brought the news to President Reagan, saying in effect, "We have a problem,"²⁶ at a time when the Secretary of Defense was testifying before Congress on the need for increased spending for defense. The draft encountered strong resistance in the NIC, while the Secretary of Defense reportedly "went nuts."²⁷ So the controversy continued through most of 1983, although the focus shifted to the reasons for and likely duration of the slowdown rather than its existence--at least through 1982.²⁸

Meanwhile, critics of administration foreign policy seized on the estimates as evidence that the policy was wrong. Raymond Garthoff wrote that talk of a "relentless Soviet buildup" was mistaken and that the "spending gap" was no more solid than other gaps (bombers, missiles, ABM civil defense) that had

been headline news.²⁹ In a later analysis of Soviet foreign policy, Garthoff emphasized that President Reagan's spending gap was "deflated by its own intelligence estimates."³⁰

At the same time, there were alternative estimates of Soviet defense spending. The Stockholm International Peace Research Institute presented a series that replicated the Soviet official defense budget for almost every year from 1955 to 1988. London's International Institute for Strategic Studies took the official defense budget from 1955 to 1974 as a base and added some rubles for military RDT&E and military security forces.

On the other hand, some other estimates had Soviet defense spending increasing much more rapidly and to much higher levels than CIA's estimates.³¹ These more threatening estimates were seized on by those advocating larger defense budgets because they buttressed the position of those who believed Soviet defense spending had been rising rapidly ever since the early 1960s and supposedly demonstrated that mounting economic difficulties had not influenced defense policy.³²

The organizations that identified themselves with the alternative estimates--most prominently the Committee on the Present Danger--were led by influential people in the foreign policy field--for example, Paul Nitze, Eugene Rostow, and David Packard. According to Fred Kaplan's count, 32 members of the Committee on the Present Danger joined the new Reagan administration in 1981 (including the President himself).³³ Their presence could not help but further weaken the authority of CIA's defense spending estimates in policymaking circles.

How Good Were the Estimates?

Now the estimates of Soviet defense spending and GNP are history and potentially useful only for historical research--depending on how reliable they are. In this context, the revisions in GNP and defense spending estimates that Soviet or Russian statistical agencies have made over the last decade, the judgments of external review panels and Western experts, and some alternative estimates of Soviet and Russian leaders and scholars are of interest.

Official and semiofficial revisions. Little has been done by Russian or other Confederation of Independent States (CIS) statistical agencies to remove the distortions in Soviet-era statistics on GNP or production generally. The statistical agencies of the CIS states have other fish to fry.³⁴ The problem is not with the official data on GNP in current prices, incomplete as they are. They agree quite well with the Agency's estimates. But Western and Russian observers reject the price indexes that have been used to convert GNP in current prices to GNP in constant prices. International agencies have been working with CIS statistical authorities to improve the price indexes in the post-Soviet era. There seems to be little hope, however, that these authorities will go back in time and redo the indexes of the Soviet period.

The official statistics on defense spending are even worse. Not until 1989 did the Soviets abandon the transparently false figures that had been reported as allocations to defense in successive state budgets. The new figures given for 1988 and 1989 are more than three times higher than the old budget entries, but still much less than the CIA's estimates. Part of the difference is because some security-related outlays are reported elsewhere in the state budget (KGB border guards, militarized internal security troops, and the like), but the revised defense budget has not been generally accepted in the West or by many Russian officials and academics.³⁵

Moreover, this dispute concerns Soviet defense spending in current prices. Neither the Soviets nor the Russians have reported a series representing the growth of defense spending in constant prices. If they had, it would have been suspect for the same reason as the official estimates of growth of GNP, national income, or industrial production in constant prices--the lack of reliable price indexes to convert defense outlays in current prices to a constant-price basis.

External reviews and assessments. The CIA estimates of both Soviet GNP and Soviet defense have been repeatedly examined and assessed by outside experts. The methodology underlying the GNP estimates

was set out in a series of unclassified publications³⁶ and reviewed at three conferences of academic experts.³⁷ In addition, four independent external review panels examined and assessed CIA's research on Soviet GNP.³⁸

In broad terms, the review panels (except for the GAO report) found little to quarrel with the estimates of GNP in rubles but thought the estimates of Soviet GNP in dollars were probably overstated due to the failure to account fully for the qualitative superiority of US goods and services as compared with the Soviet counterparts (Figure 4). As two of the panels reported, the GNP measures have stood the test of the time and the marketplace. Two major groups investigating the economic history of the Soviet Union are using the Agency's GNP estimates.³⁹

From the early 1970s, the defense spending estimates came under the scrutiny of a panel of outside experts established by DCI Richard Helms. The DCI's Military-Economic Advisory Panel, meeting twice a year, reviewed the methodology underlying the estimates and recommended improvements. In 1982, DDI Robert Gates commissioned a special panel of outside experts (the Working Group on Soviet Military-Economic Analysis) to revisit the question of the quality and the utility of the defense spending estimates. Two reports were given to the DDI in July 1983.⁴⁰ The Working Group said, "Overall, and in spite of the range of deficiencies that we will delineate...the CIA does an excellent job of estimating Soviet military expenditures."⁴¹ The panel established at the request of the House Permanent Select Subcommittee on Intelligence (HPSCI) came to a quite different conclusion. It thought the available information "insufficient to support any reliable estimate of Soviet defense spending by any known method of estimation."⁴²

Soviet and Russian statements. During the past several years, a number of prominent Soviets have given figures for Soviet defense spending--usually given as a share of Marxist-style national income or GNP. Former Soviet leaders President Gorbachev, Foreign Minister Shevardnadze, Politburo member Ligachev, and Minister of Defense Yazov put Soviet defense spending at or near the lower range of CIA estimates of Soviet military spending in current rubles (Figure 5). Their pronouncements in turn imply defense spending substantially higher than the new official defense budget announced in 1989. Some other--mainly nonofficial--Soviets believed the defense burden to be much greater than that suggested by Gorbachev, Shevardnadze, and Ligachev--as high as 200 billion rubles.

Figure 4

PFIAB Panel Report*
(July 1983)

- "CIA's quantitative estimates of past Soviet output levels and rates of growth are the best available." (p. 3)
--"Have stood the test of the marketplace." (p. 3)
--"None of the alternative measures have been proven to be superior to those of the CIA." (p. 4)
- The estimates have greater margin of error than those for Western economics, but in Panel's judgment, "Error is not likely to be so large that its elimination would change one's assessment of the strengths and weakness of the Soviet economy."
*President's Foreign Intelligence Advisory Board Panel, "An Evaluation of CIA Work on Soviet Economic Capabilities, Problems, and Prospects," 7 July 1983.

Rowen Panel Report*

(May 1985)

- SWG concludes that there are reasons to believe CIA has overestimated Soviet economic growth. (p. 12)
- "In any case, several members of the group doubt that the cumulative distortion between reported

Soviet performance and reality could be more than 10 to 15 percentage points, in the aggregate over the past decade." (pp. 17-18)

*Rowen Panel, Report of the Soviet Working Group, May 1985.

HPSCI Panel*

(1991)

- "The main findings (re GNP growth) have stood the test of time well." (p. 37)
 - "Our most significant critical conclusion is that certain CIA products during the 1970s and 80s may indeed have tended to overstate the size of the Soviet economy relative to the United States. . ." (p. 47)
- *Daniel M. Berkowitz, Joseph S. Berliner, Paul R. Gregory, Susan J. Linz, and James R. Millar. "An Evaluation of the CIA's Analysis of Soviet Economic Performance, 1970-90." *Comparative Economic Studies*, 35, 2:33-38, summer 1993.

GAO Report*

(September 1991)

- CIA used "generally reliable methodologies" in measuring GNP but had to employ a "considerable degree of judgment."
- --"As a result, these methods are unlikely to produce accurate estimates of Soviet GNP in rubles." (p. 25)
- "CIA has probably overestimated the relative size of Soviet GNP as compared with US GNP, although any failure to capture a significant portion of the second economy in its estimates could offset the amount of overestimation."
- *United States GAO, Soviet Economy: Assessment of How Well the CIA Has Estimated the Size of the Economy, GAO/NSIAD-91-274, September 1991.

Figure 5. Soviet defense expenditures selected Soviet statements and CIA's estimate. (U)

Three observations seem warranted regarding the conflicting Soviet declarations concerning the size of the USSR's defense budget. First, there are enough statements by top Soviet leaders to indicate that they believed the new official defense budget understated the real amount by one-third to two-fifths. Second, the various references to the defense burden are sufficiently vague and different to indicate that even the Politburo was relying on incomplete and unverified evidence. Third, if the leadership was uncertain about the level of Soviet defense spending after having ordered the Ministry of Defense to develop an honest total, little credence should be given to the back-of-the-envelope calculations of academics and journalists who had no access to the accounts of the Ministry of Defense, the security organs, or the defense-industrial ministries.

Net Assessment

Whether efforts to reconstruct Soviet defense spending will ever succeed is questionable. The impediments include the elusive subsidies granted to defense production, the possible off-budget financing of defense programs, and the difficulty of estimating the cost of services provided free or at large discounts to the military by local governments and nondefense ministries.⁴³

What can be said of CIA's building-block estimates is that they reflected the best intelligence available on the physical elements of Soviet military programs and forces. It was these quantities that determined the trends in CIA's spending estimates. When 1970 ruble prices were substituted for 1955 ruble prices, the level of defense spending in CIA estimates shifted upward, but the rate of growth was little affected.

Similarly, when 1982 ruble prices were substituted for 1970 prices, the level of spending jumped by more than two-thirds, but the rate of growth of defense outlays in 1956-75 increased from only 3.5 to 3.6 percent per year. Even a much more radical shift in relative price weights (from 1982 ruble prices to 1989 dollar prices) makes little difference in the estimated rate of growth: defense outlays in 1966-88 rise by 2.8 percent per year in rubles and by 2.0 percent per year in dollars.

The controversy over the levels and rates of growth of Soviet defense spending probably will never be settled to everyone's satisfaction. The statistical authorities of the CIS states show no inclination or capacity to revisit this problem. The building-block approach, however, avoided most of the dead ends that alternative approaches based on Soviet aggregative statistics encountered. The building-block estimates also are consistent with revelations by Soviet leaders in a position to have informed judgments about the size of the USSR's defense budget and the volume of production of military hardware. If these estimates are to be challenged--especially with respect to trend--the underlying estimates of force levels, operating practices, and production must be overturned.

The post-1985 discussion of Soviet military budgets, however, does suggest that one of the virtues claimed for the ruble estimates--that they were what the Soviet leaders were looking at in making their decisions--may lack substance. It seems clear that the leadership thought there was little inflation so that the distinction between spending in current as opposed to constant or "comparable" prices was of small importance. But the weight of the evidence seems to point to the leadership's not knowing what the all-inclusive defense budgets were. Thus, the principal usefulness of the Western estimates probably was to give the West a sense of the trends in real Soviet defense outlays and the role they played in the growth of national output and in the decades-long economic slowdown in the Soviet Union.

Notes

³ Statement by Dulles to the Subcommittee on Economic Statistics of the Joint Economic Committee of the Congress of the United States, 13 November 1959, in Washington, DC, pp. 20-25.

⁵ Fred Kaplan, *The Wizards of Armageddon*, New York: Touchstone, 1983; pp. 321-327.

⁶ *Ibid.*, p. 10.

⁷ 20 May 1977.

⁹ Interview with Rae Huffstutler, former chief of CIA's Office of Strategic Research and of the Office of Soviet Analysis, 3 June 1994. In the event, only 60 were deployed.

¹⁰ Report of Schlesinger to the Congress on the FY 1976 and Transition Budgets, FY 1977 Authorization Request and FY 1976-1980 Defense Programs, 5 February 1975, pp. 1-7 ff.

11 Interview with Schlesinger, 9 March 1995.

12 Testimony before the Selin Panel of the Working Group on Soviet Military Economics, 24 March 1983.

13 SNIE 11-5-64, Soviet Economic Problems and Outlook, 8 January 1964, pp. 5-6.

14 Ibid., p. 7.

15 NIE 11-4-65, Main Trends in Soviet Military Policy, 14 April 1965, p. 10.

16 NIE 11-4-78, Soviet Goals and Expectations in the Global Power Arena, 7 July 1981, pp. 17-18.

18 Douglas MacEachin, "Gorbachev's Economic Strategy and Soviet Defense Spending," 13 December 1985.

20 "Topical Interview with Marshal Sergey Fedorovich Akhromeyev," Moscow television service in Russian, 1700 GMT, 9 October 1989.

23 Richard Nixon, *The Real World*, New York: Random House, 1980; p. 26. The "nuclear barrel" reference was a gross non sequitur. To the extent that US defense budgets were influenced by the Agency's estimates, it was the dollar estimates that were in play, and these changed little when the ruble estimates were revised.

24 *Public Papers of the Presidents, Jimmy Carter*, 1979, p. 695. Washington, DC: US Government Printing Office, 1980.

25 Ibid., p. 176.

27 Interview with Rae Huffstutler, 3 June 1984. Huffstutler was then Director of the Office of Soviet Analysis in CIA.

28 Interview with Robert Gates, 12 May 1994.

³⁰ Raymond L. Garthoff, *Detente and Confrontation*. Washington, DC: The Brookings Institution, 1985; p. 596.

³¹ --, *The Great Transition*, Washington, DC: The Brookings Institution, 1994; p. 41.

³² See, e.g., William T. Lee, *CIA Estimates of Soviet Military Expenditures: Errors and Waste*. Washington, DC: The American Enterprise Institute, 1995; pp. 119-153 and Steven Rosefield, *False Science*. New Brunswick and London: Transaction Books, 1982; pp. 178-196.

³³ In this connection, the National Strategy Information Center published one of Lee's monographs in 1977 as well as Rosenfield's 1982 book.

³⁴ Fred Kaplan, *The Wizards of Armageddon*. New York: Touchstone, 1984; p. 386.

³⁵ The Chairman of the Russian State Statistical Committee suggested in 1992 that this was a task best left to academics (P. Guzhvin, "Doveriya k Statistike Trust in Statistics," *Vestnik Statistiki*, 9: 16 September 1992).

³⁶ See James H. Noren, "The Controversy Over Western Measures of Soviet Defense Expenditures," *Post-Soviet Affairs*, 11, 3:328-296, 1995, for a discussion of the circumstances under which the revised defense budget was compiled and the doubts that knowledgeable Soviets/Russians had about its accuracy.

³⁹ *An Evaluation of CIA Work on Soviet Economic Capabilities, Problems, and Prospects*. A report commissioned by the President's Foreign Intelligence Advisory Board, 7 July 1983. Report of the Soviet Working Group, a report of a panel chaired by Henry Rowen at the request of Robert Gates, Deputy Director of CIA, May 1985; United States General Accounting Office, *Soviet Economy - Assessment of How Well the CIA Has Estimated the Size of the Economy*, report to the Honorable Daniel P. Moynihan, US Senate, GAO/NSIAD-91-274, September 1991; and the HPSCI report (cited in reference 42).

⁴⁰ Thus, the International Comparison of Productivity (ICOP) Project in the Netherlands uses the CIA estimates. ("In my view the RAND-CIA material in the growth of Soviet output by industry of origin for the period 1928-90 is as good as we are likely to get...", Angus Maddison, "Economic Performances of the Former USSR, a Quantitative Evaluation").

⁴² Working Group on Soviet Military Economic Analysis, Report of the Working Group on Soviet Military Economic Analysis, p.8. The report was reproduced in Berkowitz, Daniel M. Joseph S. Berliner, Paul R. Gregory, Susan J. Linz, and James R. Millar, "An Evaluation of the CIA's Analysis of Soviet Economic Performance, 1970-90, Comparative Economic Studies, 35, 2:33-58, summer 1993.

⁴³ The subsidies issue is particularly troubling. As noted earlier, Soviet civilian and military leaders argued that a true defense budget could not be compiled until a price reform had been completed. According to Vadim Kuznetsov of the Foreign Ministry's USA desk, it would take several years (the early 1990s) to introduce a new system of accounting in which defense industries have to pay their own way rather than live on state subsidies (Washington Times, 1 August 1998). He explained, "Under the old system, a truck could cost many times less for the military than for a collective farm."

_____ served in the Directorate of Intelligence.

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