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North Korea-USSR: Strengthening Political Ties But Limited Economic Payoff



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A Research Paper

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July 1986*

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North Korea-USSR: Strengthening Political Ties But Limited Economic Payoff

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A Research Paper

This paper was prepared by [Redacted] Office of
East Asian Analysis. Comments and queries are
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**North Korea-USSR:
Strengthening Political Ties
But Limited Economic Payoff**

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Summary

*Information available
as of 1 July 1986
was used in this report.*

The past two years have seen renewed Soviet deliveries of major weapon systems to North Korea and a strengthening of political ties between the two countries. The North's strapped economy could benefit if this trend carried over into the economic relationship, and, as P'yongyang prepares for its next long-term economic plan, it is looking to Moscow for increased supplies of raw materials—especially oil—technology, and equipment.

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The USSR has taken a tightfisted approach to North Korea in the past, however, and we expect it will continue to do so. The volume of the North's nonmilitary imports from the USSR has essentially stagnated since 1977, as the Soviets have insisted on balanced trade and repayments of P'yongyang's \$640 million debt. Reporting from open sources indicates the Soviets are holding back on new economic commitments to the North. Moscow certainly recognizes that P'yongyang cannot afford every item Kim Il-song requested during a 1984 visit to the USSR and probably is unwilling to commit itself to a large financial assistance package. As it has with its East European allies, we expect Moscow will demand cash for most of its deliveries to North Korea. Because it is unlikely that North Korea can increase its real exports at a much faster rate than the 4 percent a year achieved since the mid-1970s, trade between the two countries probably will fall far short of the 17-percent annual growth target in the 1986-90 bilateral trade agreement signed in February.

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Nor is it likely that North Korea will obtain much economic relief from other sources. The Chinese probably will at best provide minimal credits, and P'yongyang is meeting with little success in persuading Western creditors—to whom the North is deeply in debt—to provide additional financing.

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Moscow could come through with more support if North Korea faced shortages severe enough to affect political stability or if a North Korean leadership transition led to a more flexible pro-Soviet attitude in P'yongyang. In either case, however, we do not foresee a sustained increase in Soviet economic support. Nonetheless, although North Korea may be dissatisfied with its economic relationship with Moscow, continued military deliveries would probably encourage P'yongyang to limit its complaints.

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North Korea-USSR: Strengthening Political Ties But Limited Economic Payoff



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Setting the Scene

The warming in North Korean-Soviet political relations and renewed deliveries of major Soviet weapons appear to mark a departure in the four-decade-old alliance between P'yongyang and Moscow, raising the question of whether the economic relationship will improve as well. North Korea has been hustling its Communist, as well as Western, trading partners as it gears up for its next long-term economic plan, and a Soviet contribution undoubtedly tops the North's wish list. At the January 1984 meeting of the Supreme People's Assembly of North Korea, this priority was underscored by P'yongyang's establishment of the impressive—but unrealistic—goal of a tenfold increase in trade with the Soviet Union and other Communist countries over the next four to five years. Even a doubling of exports by 1990 would require a 15-percent-a-year increase—compared to 1985—in exports to Communist countries, which grew no faster than 4 percent a year in real terms during 1975-85.

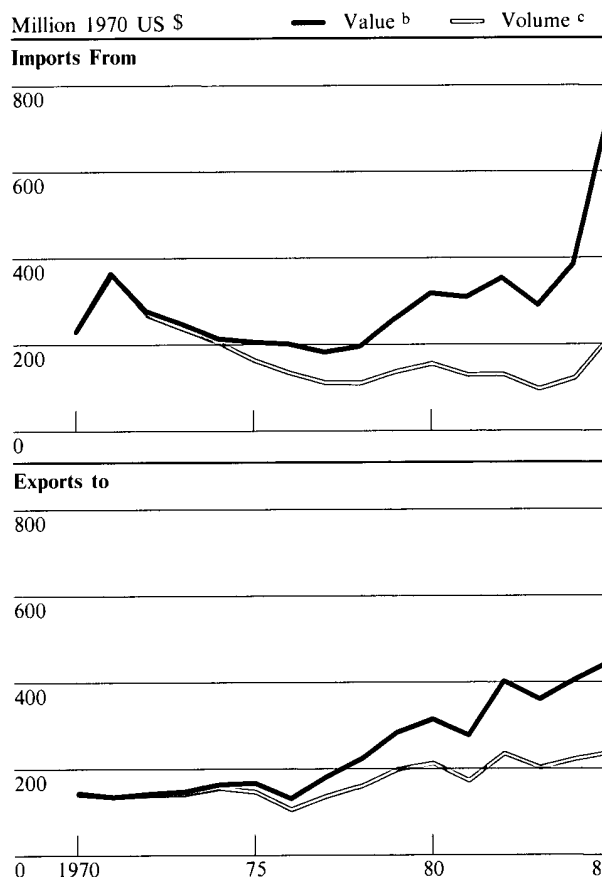


As in the past, P'yongyang appears to be leaning toward Moscow for critical goods, largely because the Soviet Union is better positioned than other Communist countries to provide equipment—both civilian and military—as well as technological assistance. In addition, in the energy sector North Korea requires light Soviet or OPEC crude oils to fuel the Sungni Chemical Plant, one of its two refineries.¹

We do not know whether P'yongyang believes the Soviets will supply all its wants, but from our vantage point the North has little reason to be optimistic. Although the North Koreans have received Soviet aid, much of it has been as credits on which Moscow has increasingly demanded repayment. Moreover, since the post-Korean war reconstruction, P'yongyang has

¹ The Chinese have abundant oil, but it is a heavy crude suitable only for North Korea's other refinery, located in northwestern Korea.

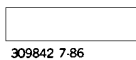
Figure 1
North Korea: Value and Volume Trends in Imports From and Exports to the USSR, 1970-85^a



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^a Including imports of military goods.
^b From Soviet foreign trade statistics. Adjusted for fluctuations in exchange rates.
^c Adjusted for estimated changes in commodity prices as well as for fluctuations in exchange rates.



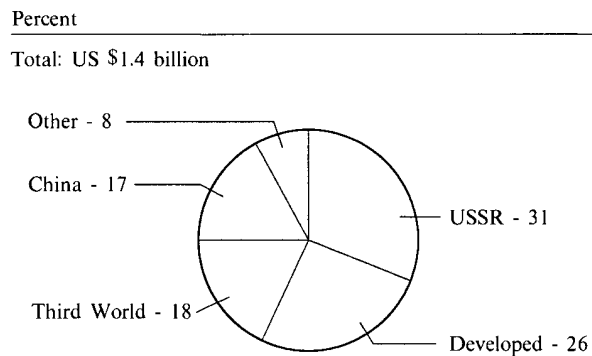
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Figure 2
North Korea: Imports by Geographic Area, 1984



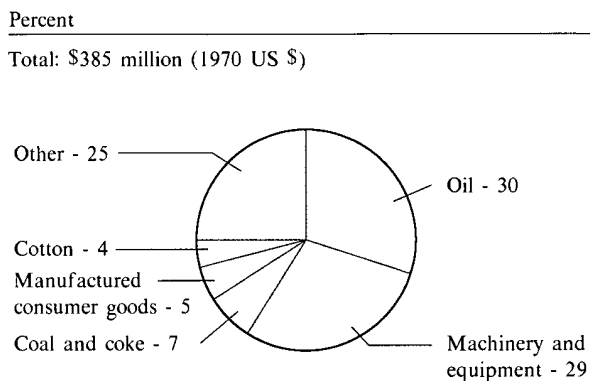
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been required to use its exports to pay for the majority of Soviet equipment and industrial materials or to do without.

In short, all available evidence suggests the Soviets have been tightfisted, approaching their economic relationship with P'yongyang as a "problem" account, as have North Korea's Western creditors. Essentially, Moscow's unwillingness to provide financing to offset the North's poor export performance has kept North Korean-Soviet economic ties static:

- As figure 1 shows, after discounting the effects of changes in prices and relative exchange rates, the balance sheet on North Korea's total imports—both military and nonmilitary goods—from the Soviet Union shows a peak in 1971, a fall through 1978, and relatively stagnant trade since then. Although imports rose in 1984 because of increased Soviet deliveries of trucks and of equipment for ongoing projects, they were still no higher than in 1980.
- Deliveries of nonmilitary goods declined by a total of some 20 percent in 1971-73 and fell another 40 percent in 1974-77, as the Soviets increasingly insisted on balanced trade. The imports most affected were oil, machinery, and equipment.

Figure 3
North Korea: Imports From the USSR, by Commodity, 1984 ^a



^a From Soviet foreign trade statistics. Adjusted for fluctuations in exchange rates.

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- The rise in imports last year results only from Soviet deliveries of 26 MIG-23s and of SA-3 missiles, rather than to a larger Soviet hand in the civilian sector. Moreover, most—if not all—of the 45-percent increase in imports in the first quarter of 1986 compared to the same period in 1985 probably was also due to Soviet military deliveries.

Dependence on Imports

North Korea's record of imports from the Soviet Union clearly demonstrates the dilemma P'yongyang faces in its economic relations with Moscow. Although the North has been unable to pay for as many imports as it would like from its huge trading partner, it remains heavily dependent on the USSR. Purchases from the Soviet Union account for about one-third of North Korea's total imports, as shown in figure 2. Although these imports probably represent less than 2 percent of North Korean GNP, they have been essential to P'yongyang's investment program—both civilian and military—and in providing key raw materials, notably oil, coke, coking coal, and cotton (see figure 3 and appendix A).

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Kim's wish list delivered to Moscow in 1984 demonstrates that the North sees a key role for Soviet imports in its development strategy—and a continued tightfisted Soviet response would clearly cause trouble. To be sure, Soviet plant and equipment as a share of total North Korean investment in equipment has declined sharply since the post-Korean war reconstruction period—and now accounts for only an estimated 1 to 2 percent of the total—but it is considerably more important in terms of its contribution to the North Korean economy.² Equipment and technology purchased from the USSR has not only provided the North Koreans with plants they could not have built themselves, but has also in many cases permitted the North Koreans to improve their use of domestically produced equipment. Plants constructed with Soviet assistance have been particularly important to the energy sector, which is vital to the whole economy, and to the steel industry, which is essential for the domestic production of machinery and equipment and provides a surplus for export. [redacted]

Soviet oil has also been integral to North Korean energy needs, as well as a major constraint when Moscow has decided to cut back. P'yongyang relies completely on imports for crude oil; its efforts to find onshore or offshore oil, as far as we know, have not yet been successful. Even if P'yongyang discovered sizable oil deposits, full exploitation would be many years off. Declines in Soviet oil deliveries since 1980- [redacted]

[redacted] have aggravated already existing shortages. This, in turn, has caused numerous disruptions in industrial and agricultural production, transportation, and fishing operations. [redacted]

Squeeze on Exports

The export side of the North Korean-Soviet trade picture is also a troubled one for P'yongyang. For many years, Moscow has pressured the North to step

² According to an article in the North Korean press, the country's dependence on domestically produced machinery and equipment has increased from about 75 percent of total investment in machinery and equipment in the 1950s to 99 percent today. Although this claim may be an exaggeration, what we know about production trends in North Korea leads us to believe that the share has increased substantially. [redacted]

up exports, and in fact Soviet trade data show that since 1977 the North Koreans have run surpluses with the Soviet Union. But the rising value of P'yongyang's exports does not amount to the kind of substantial improvement in North Korean economic performance that the numbers would suggest:

- Most important, the North Koreans have gotten "less for more" from the Soviet Union since the 1970s. Because for many years prices on imports from the USSR rose faster than those of exports, North Korea's sales to the Soviets actually yielded less return to the North's economy. [redacted]

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- The Soviets are demanding exports as payment for principal and interest on past debt. [redacted]

[redacted]

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- Moscow has refused to take more of North Korea's generally poor-quality manufactures as compensation for Soviet goods. This has intensified pressure on the materials sectors—such as magnesium clinker and zinc—to come up with exports. [redacted]

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Moreover, we have seen many indications that the growth of North Korean exports to the Soviet Union has been realized partly at the expense of meeting domestic requirements for industrial inputs and personal consumption. In some cases that export growth has also been at the expense of sales to the West, which would have allowed the North Koreans to make additional hard currency purchases. Thus, once again, the hardline Soviet approach to trade with North Korea has aggravated P'yongyang's domestic shortages (see appendix B). [redacted]

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Soviet Assistance—Truly Aid?

Moscow's hardline attitude has extended to aid, and P'yongyang has never been able to obtain the assistance from Moscow it has hoped for. The USSR has not been noted for generosity to any of its Communist allies except in times of reconstruction or crises, such

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Table 1
North Korea: Estimated Economic and
Military Assistance From the USSR ^a

Million 1970 US \$
 (except where noted)

	1954-60	1961-65	1966-70	1971-76	1977-80	1981-84	1985
Grants	325	NA	NA	300	0	0	300
Economic	325	0	0	0	0	0	0
Military ^b	NA	NA	NA	300 ^c	0	0	300
Net drawings on credits ^d	0	40	200	250	40	50	25
Price subsidy on oil ^e	0	0	0	50	250	160	0

^a Adjusted for fluctuations in the ruble/dollar exchange rate but not for changes in commodity prices.

^b For imports of major weapon systems. Excluded are grants and credits for such military items as trucks, jeeps, and Soviet equipment for and advisers involved in construction of North Korean plants for military production. We cannot break out these purchases from imports of civilian equipment.

^c Some of these imports may have been delivered under medium- or long-term credits rather than a grant. If so, North Korea's debt of about \$640 million would be higher than we have estimated.

^d Drawings on credits less repayments of principal and interest.

^e This presumably is not the only price subsidy the Soviets have provided, but it is the only one that can be calculated reasonably well. Nor have we been able to calculate North Korean price subsidies on exports to the USSR; we believe, however, that such subsidies probably have been considerably less than those granted by the USSR.

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as domestic unrest (Poland) or the destabilizing oil-price shocks of the mid-to-late 1970s. Even then, it has not been overly generous in the amount of its assistance. [redacted]

North Korea's debt to the USSR at yearend 1984 stood at about \$640 million.³ This compares with a debt to North Korea's other major benefactor, China, of roughly \$500 million and to all Western countries of about \$1.3 billion, of which \$240 million is owed to Japan. We believe P'yongyang wants to diversify its trade as much as possible, but this nearly even split between amounts owed to Communist and those to non-Communist nations is probably coincidental. According to our estimates, North Korea has repaid less than one-fourth of the credits (including accrued interest) from the USSR since the early 1960s. Moscow reportedly is displeased with P'yongyang's failure to make more payments [redacted]

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Except for after the Korean war during 1954-60, Soviet economic "assistance" (minus North Korean repayments) on average has covered less than one-fourth of its civilian exports to the North. The share rose from an estimated 15 percent in the 1960s to about 26 percent in the 1970s before falling to 15 percent in 1981-84. As table 1 shows, Soviet aid has consisted of grants, credits, and price subsidies. [redacted]

[redacted] We know even less about North Korea's record on repayments to China, but it appears that Beijing has been reluctant to extend new credits because of P'yongyang's poor record. [redacted]

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According to an article in the Soviet press, during the period immediately after the Korean war, North Korea received Soviet ruble grants—or "free aid," as the Communists call it—equaling \$325 million to rebuild its economy. In the 1960s, the Soviet Union—arguing that the North Korean economy had been refurbished—replaced economic grants with credits. As the inset shows, Soviet credits to North Korea have been on relatively favorable terms, but since the mid-1970s Moscow has increasingly insisted on being repaid. [redacted]

³ This debt is denominated in Soviet rubles, the unit of exchange used in North Korean-Soviet trade. [redacted]

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Selected Soviet Grants and Credits to North Korea

1949: The USSR agreed to provide aid to North Korea in the form of a \$40 million^a loan for the purchase of industrial equipment and raw materials and in technical assistance for industry and agriculture. The Soviets concluded a military treaty with P'yongyang wherein the USSR agreed to supply all the necessary equipment and know-how for the establishment of six infantry divisions, three mechanized divisions, and seven security force battalions; by 1950 the North Korean People's Army reportedly had been armed and equipped preponderantly with Soviet aid.

1954-56: North Korea received "free economic assistance" of \$890 million for rebuilding its economy, including \$325 million from the USSR, \$135 million from East Germany, and \$90 million from Poland.

1960: The Soviets signed an economic and technical assistance agreement to provide North Korea \$89 million during 1960-70.

1966: The Soviets extended \$180 million at 2 percent a year, to be repaid in equal installments over 10 years, beginning the year after the commissioning of a given enterprise, for construction—with Soviet help—of metallurgical, energy, oil, and chemical industry enterprises. Under this agreement, the USSR accepted postponement of all payments due in 1966-70 on long-term credits extended earlier.

^a All dollar figures are in 1970 dollars.


1976: Moscow extended the following credits for use in the 1978-84 Plan period:

- \$50 million for a period of eight years at 2-percent annual interest, for expansion of the Kimch'aek iron and steel works. To be repaid in equal annual deliveries of the plant's products one year after the commissioning of the mill.
- \$45 million at 2 percent a year, granted for 10 years, for construction of the Ch'ongjin thermal power station. Repayment in equal annual parts beginning one year after completion of equipment deliveries.
- \$13 million at 2 percent for eight years, for completion of construction of the converter and hot and cold rolling mills of the Kimch'aek iron and steel works.
- \$22 million at 2-percent annual interest for 10 years, for completion of construction of a ball bearing plant, an ammonia plant in Aoji-ri, and an aluminum factory in Pukch'ong. To be repaid in goods.
- \$445 million to cover repayments on earlier debt plus interest falling due in 1976-80. Repayment to be made by deliveries of North Korean products for 10 years in equal annual payments beginning in 1981, at 2 percent a year.



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Although not particularly generous with economic "assistance" in the form of grants and credits, Moscow has given P'yongyang a substantial break on oil shipped to North Korea. The discount apparently has been intended to cushion the impact of the world market price hikes that began in late 1973. The North Koreans—like the CEMA countries—have paid in each year an oil price based on the average world market price of the previous five years. The savings to the North Koreans soared to \$140 million in 1980

before dropping to less than \$5 million by 1984 as falling world market prices took effect, and finally disappeared by 1986. 

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The cumulative savings from the North's oil-price subsidy during 1974-84 permitted P'yongyang to purchase an estimated \$460 million more in Soviet goods than it could have otherwise. We do not know how much this was offset by North Korean subsidies on

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exports to the USSR, but it probably was not substantial. Despite Moscow's unwillingness to lock itself into long-term compensation trade deals with P'yongyang, the North Koreans have realized considerable (although nonmeasurable) gains from the fact that they have been able to pay for many of their "hard goods" imports—such as oil and coking coal—with relatively soft goods, such as manufactured products that are not readily marketable in the West. [redacted]

[redacted] these include construction of a new thermal power plant and expansion of others, construction of a nuclear power plant(s), construction of a factory to produce railway freight cars, participation in offshore exploration and mining of oil and gas, cooperation in the production of ships, and construction of a textile factory. [redacted]

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P'yongyang Hoping for More

Kim Il-song's request for further economic support, as well as for military aid, in our view, almost certainly was central to his agenda in 1984, when he visited Moscow for the first time in more than a decade.

[redacted] Kim tabled an array of requests that included:

P'yongyang also is pressing Moscow to accept compensation trade arrangements that would allow the North to use the output of some of the projects as partial payment for Soviet credits. [redacted]

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- A postponement of North Korean debts.
- Completion by the target dates of nine plants now under construction [redacted]

[redacted]

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[redacted]

- Economic assistance for new development projects.
- Assured supplies of crude oil, coke, and other raw materials.
- Deliveries of advanced weapons [redacted]
- Employment of an unskilled North Korean labor force in construction work in the USSR. [redacted]

Despite recent Soviet attempts to give the bilateral economic relationship an upbeat tone, we have seen little to suggest the North Koreans will get better than the usual tough response from Moscow. The Soviets, who have long attempted to extract progressively more in return for goods sent to their East European allies and appear to be pressing even harder now, are unlikely, in our view, to take a different tack with P'yongyang. According to Moscow radio, the 1986-90 trade agreement, signed in February, calls for a doubling of trade turnover (exports plus imports) compared with the 1981-85 period—at first glance a goal that suggests a substantial improvement in economic relations is on the horizon. But the agreement does not provide separate targets for total imports or exports, and given the likelihood that Moscow will insist on the same real growth in exports as in imports—that is, about 17 percent a year—we believe North Korea will be unable to boost its exports enough to meet the export requirement and thus its import goals. [redacted]

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Kim's list, in our view, almost certainly is a preview of North Korea's priorities under its new, yet-to-be-announced economic plan.⁴ At present, the North appears to be looking for Soviet aid on some 20 projects. P'yongyang has been seeking help from the USSR for some of these projects for many years.

[redacted]

⁴ At last report, the North Koreans were expected to unveil their next long-term economic plan in 1987. [redacted]

Moreover, the radio accounts overstate the scope of the "new" agreement. Most of the projects mentioned

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that involve Soviet equipment have been under construction for years and are nearing completion. Only a few new projects are cited—most notably the Soviets have agreed to help build a 200,000-kilowatt thermal power plant in east P'yongyang and a nuclear power plant of unknown capacity. [redacted]

The lack of any mention of economic issues in the communique issued after Foreign Minister Shevardnadze's trip to P'yongyang in January 1986 also suggests Moscow is not being generous with new commitments to P'yongyang. [redacted]

[redacted] Moscow obviously recognizes the North Koreans cannot afford all of the projects they have requested, and the Soviets probably remain unwilling to offer a large financial assistance package. Judging from past Soviet patterns, we would expect Moscow to offer project credits for the North's new long-term economic plan not much higher than the roughly \$150 million extended in the last program. Even with some increase, P'yongyang would be required to defer a major share of Kim's shopping list. [redacted]

The terms on any new credits also are apt to be tougher than in the past. [redacted]

[redacted] The Soviets could be somewhat more generous, depending on P'yongyang's needs and behavior. For example, it is possible—although unlikely—that, as it did in 1976, Moscow will allow North Korea to postpone part of the scheduled repayments. [redacted]

In our view, other factors also will limit the Soviets' generosity in deliveries of oil and raw materials. Moscow currently faces declining production at home and must make hard choices among using the oil domestically, selling it for hard currency, or letting it go for soft currency to other Communist countries. [redacted]

[redacted]

Military Imports: The Exception

Although civilian imports from the Soviet Union have not yet increased with the warming trend—and some, such as oil, have even declined—military deliveries appear to bear some relationship to the state of political ties. Moscow's perception of how best to foster its own strategic aims in the region has also clearly played a role in the level of military shipments. North Korean imports of military hardware were especially high in the 1950s, when the Soviets provided MIG-15s and MIG-17s, and in the late 1960s and early 1970s, with shipments of MIG-21s, SU-7s, SA-2s, and other major weapon systems. During 1971-73, these imports averaged an estimated \$100 million a year. [redacted]

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Between 1973 and 1984, the USSR provided no combat aircraft to North Korea, although it did continue to deliver communications equipment, some assistance in ground forces arms manufactures, and trucks. Imports from the USSR in the late 1960s and early 1970s had permitted the quality of the North Korean combat aircraft force to improve at nearly the same rate as that of the South. But when the Soviets stopped supplying fighters, P'yongyang fell behind as it received only technologically inferior aircraft from China. The recent warming trend in relations between P'yongyang and Moscow appears to be paying off once again in the military arena with the deliveries of 26 MIG-23s and of SA-3 SAMs last year. [redacted]

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The one area where for strategic reasons the Soviets might be more forthcoming is in the delivery of additional military hardware (see inset). Moscow permitted large North Korean trade deficits in 1971-73, when deliveries of major weapon systems averaged \$100 million a year, although since then the North's receipt of new military hardware has not compared in volume or sophistication with Moscow's deliveries to favored clients, such as India, Syria, and Iraq.

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Nonetheless, there is evidence that the military relationship is governed by other, noneconomic factors and constraints. P'yongyang now permits Soviet overflights to enable Moscow to increase its intelligence coverage of US, South Korean, and Chinese forces. We do not know how valuable these intelligence collection privileges are for the Soviets, but weapon deliveries may be part of a longer term bargain in exchange for continued permission for overflights. The Soviets may also believe that such deliveries eventually will lead to air and naval access to bases in North Korea, although P'yongyang has shown no inclination to permit this in the past and probably would resist making territorial agreements that would look like a concession of sovereignty to the USSR.

[redacted]

North Korea's Alternatives: Not Hopeful

We see little prospect that North Korea will obtain much economic relief by turning to other sources. The Chinese, like the Soviets, probably will continue to press for balanced trade and at best will provide only minimal credits for P'yongyang's next seven-year plan. Beijing's recent increased emphasis on earning hard currencies on the international market may make it reluctant to provide all of the oil P'yongyang wants for its west coast oil refinery and to continue to subsidize prices. In addition, China, at least for the time being, would find it difficult to provide the type of equipment available from the Soviet Union. Indeed, unless the Chinese are willing to provide P'yongyang with hard currency credits to cover purchases in the West, the amount of near-term help Beijing can provide is limited.

North Korea cannot hope for much economic support from the West. P'yongyang has failed to make much of a dent in its \$1.3 billion debt obligations—missing interest as well as principal payments—and as a result has met with little success in persuading Western creditors to provide additional financing. Nor can it divert many exports from the USSR to the West without suffering a decline in imports from the Soviet Union. Although Moscow might well be willing to see the North obtain capital equipment and industrial materials from the West to beef up its economy, it would be extremely vexed if this were at the expense of meeting its economic commitments to the USSR.

[redacted]

Little Prospect for Change

For the near term, at least, the North Koreans appear to be caught on a treadmill created by a faltering economy. The need to divert resources to pay for imported goods and materials will continue to reduce the stock of goods to be consumed or invested at home. This, in turn, will perpetuate shortages that further strap the economy.

We doubt P'yongyang will soon be able to reverse this situation, largely because of the priorities it has set for itself. The North's commitment to the defense sector—which accounts for 20 to 25 percent of its estimated \$24 billion GNP—has hindered development of a strong civilian industrial base. The burden has limited the capacity to export to pay for vital crude oil, other raw materials, technology, and equipment. Moreover, Kim Il-song has raised the centralized approach of the Stalinist command economy to new heights, making it even more ill suited to effective management. Abrupt changes in direction from the top, for example, have disrupted production and crippled long-range planning.

[redacted]

Although we do not believe the Soviets are willing to offer the North extensive help, there are situations under which that attitude could change. If Moscow believed, for example, that shortages in North Korea had become bad enough to affect political stability, we believe the Soviets could alter their approach. A North Korean leadership transition that promised to create a more flexible, pro-Soviet attitude in P'yongyang could have beneficial effects as well, although in either case we would not foresee Soviet generosity that extended beyond stopgap measures to steps that would provide real impetus to the economy.

It is difficult to imagine that the North Koreans are satisfied with the economic assistance they receive from the Soviet Union. But, among P'yongyang's policy priorities, we expect that security remains at the top, and overall we believe North Korea will mute its objections as long as the renewed military aid continues to flow.

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Appendix A

North Korea: The Role of Imports From the USSR⁵

Plant and Equipment

Imports of Soviet machinery and equipment since 1950 have played a major role in North Korea's efforts to develop its industrial capacity. We believe the following claims, which are mainly from the Soviet press, are fairly accurate, given what we know about the capacity of the plants built by the USSR, the North's own production capabilities, and imports from other countries:

- Key among the approximately 60 projects that the USSR has helped construct are the Kimch'aek steel complex, Sungni oil refinery, and Pukch'ang thermal power plant (see inset and figure 4).
- Projects built with Soviet assistance account for nearly two-thirds of North Korea's electric power output, half of its output of petroleum products and coal, more than two-fifths of its production of iron ore and organic fertilizers, one-third of its steel output, and one-fourth of its production of fabrics.
- Plants constructed with Soviet assistance in the 1970s reportedly ensured a 40-percent increase in electric power and rolled metal output, a 30-percent increase in the production of coal and steel, and a 25-percent increase in nitrogenous fertilizer output.

Work continues on several projects agreed on for the 1978-84 plan period. Soviet shipments of equipment began in 1984, for example, for the second stage of the Kimch'aek steel plant, which will help to double the plant's output.

In addition to equipment for plants, North Korea has depended on the USSR for imports of aerial communications facilities and transport equipment:

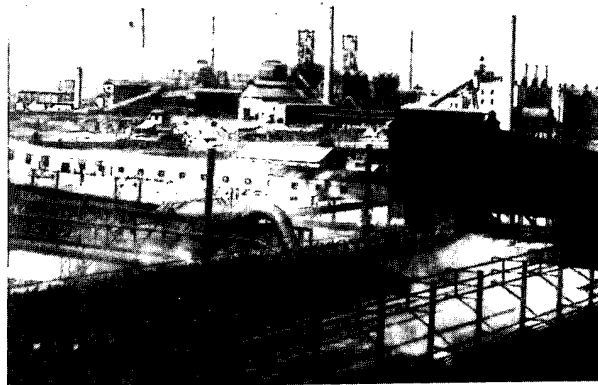


Figure 4. Kimch'aek Iron and Steel Complex, built with Soviet assistance

- The Soviet Union has provided all of North Korea's seven jet transports, with the most recent deliveries being a fourth TU-154 in 1983 and a TU-134 in 1984.
- Imports from the USSR account for a large share of North Korea's truck pool (civilian and military) and its passenger car inventory.

Petroleum

In 1984, the USSR provided about 30 percent of North Korea's oil imports, with China supplying about 40 percent, and Iran the remainder (see table 2). The case of the Sungni refinery, which requires the light oils Moscow exports, clearly illustrates the importance to North Korea of the USSR as an oil supplier. Although the North's demand for oil has risen, imports of Soviet crude oil and petroleum products fell from an annual average of 25,000 b/d in 1978-80 to 17,500 b/d in 1981-82 and to only 12,500 b/d in 1983-84. Imports from Iran have not completely covered the drop in Soviet deliveries, thus compounding already serious shortages of crude oil for the Sungni refinery, which in 1984 may have operated at little more than half its capacity.

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North Korea: Selected Soviet-Assisted Projects ^a

Pukch'ang Thermal Power Plant. By far the largest electric power plant in North Korea. Capacity reported to be 1.6 million kW, or about one-fourth of the country's total capacity. [redacted] operating for the first time in 1970. Six additional generators were installed between 1972 and 1975. By June 1985, 16 generators were operating. [redacted]

Ch'ongjin Thermal Power Plant. First generator went into operation in 1984. Construction of additional generators was continuing as of May 1985. Total capacity planned to be 300,000 kW. [redacted]

Sungni Petroleum Refinery (Sungni Chemical Plant). One of two North Korean oil refineries. Capacity is about 44,000 b/d. [redacted] Refinery appeared capable of operation in 1973. [redacted]

Kimch'ae Iron and Steel Plant. Annual capacity is 1.1 million metric tons of steel, or about one-fourth of North Korea's total output. Older section was rebuilt after the Korean war. Plant's newer section is believed to have been operational by 1976. Construction of a second rolling mill began in 1974 and was externally complete by 1978. Construction of a new electric steel building, which began in 1983, is designed to increase production to 2.4 million tons a year. [redacted]

Pukch'ang Aluminum Plant. North Korea's only aluminum plant. Annual capacity is 20,000 tons. Construction began in the mid-1970s and probably was completed by early 1985. [redacted]

Aoji-ri Ammonium Nitrate Plant. Annual capacity is 140,000 tons. Construction was not completed until 1979, more than four years behind schedule. [redacted]

^a The term "assistance" is used loosely here. Some of the Soviet projects listed may have been financed by an outright grant, but most were covered by credits (which P'yongyang is in the process of repaying) and by North Korean exports. [redacted]

Table 2 Thousand b/d
North Korea: Annual Average Estimated Oil Imports ^a

	USSR	China	Iran	Total
1970-73	13	2	0	15
1974-77	20	13	0	33
1978-80	25	18	0	43
1981-84 ^b	15	16	13	44
1980 ^b	27	16	5	48
1981 ^b	16	14	10	40
1982 ^b	19	17	15	51
1983 ^b	13	20	15	48
1984 ^b	12	15	12	39

^a Includes imports of petroleum products, which we estimate have averaged less than one-fifth of the total in the 1980s.
^b Estimates for China for 1980-84 represent a midpoint, with the assumption being that the Chinese discount their oil to North Korea by 20 to 40 percent of the world market price.

Other Materials

North Korea also depends on imports for all of its supplies of coking coal, with about one-fourth coming from the USSR, and of potassium fertilizer, with most coming from the USSR. In most years, North Korea has exchanged rice for Soviet wheat on a fairly balanced basis in value terms. North Korea also imports Soviet steel and steel pipe, chrome ore, timber, paper, and some consumer goods (see appendix C). [redacted]

Services

P'yongyang depends on Moscow for services as well as commodities. Over the years, Moscow has trained North Korean workers, provided Soviet specialists at construction sites, and provided rail transport services (for which the North Koreans reportedly have paid a substantial amount) for shipping North Korean goods to Europe across the USSR. The nature of these services leads us to believe that their value has outweighed that of North Korean services, which have included provision of forestry workers to Siberia and the use of the railhead at Najin for transshipments. In addition, P'yongyang has had to pay interest on the credits received from the USSR. [redacted]

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Appendix B

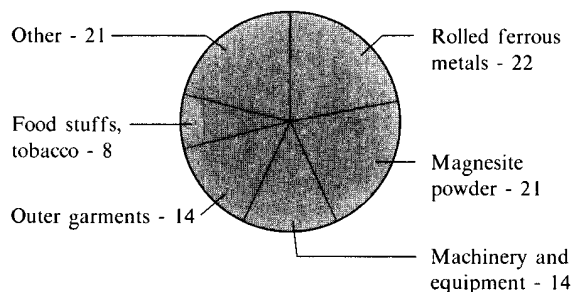
North Korea: Export Patterns

North Korea's exports to the Soviet Union consist mainly of raw and semimanufactured materials, with magnesium clinker and rolled ferrous metals accounting for more than two-fifths of total exports (see figure 5 and appendix C). Roughly half of North Korea's production of magnesium clinker, used in making furnace linings and other refractory products, is exported to the USSR. Other exports include steel, zinc, lead, cement, tobacco, and rice. Except for some machine tools, electric motors and batteries, cigarettes, and outer garments, North Korea has met with little success in selling its generally poor-quality manufactured goods in the USSR. Compensation arrangements with the Soviets probably account for no more than 5 percent of the North's total exports, but they have been important in some instances. According to an article in the Soviet press, four-fifths of the electric batteries, three-fifths of the electric motors, and half of the calcium carbide produced by specific North Korean enterprises were slated for export to the USSR in payment for the credit used to build those industrial factories.

Figure 5
North Korea: Exports to the USSR,
by Commodity, 1984 ^a

Percent

Total: \$406 million (1970 US \$)



^a From Soviet foreign trade statistics. Adjusted for fluctuations in exchange rates.

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Appendix C

**North Korea: Annual Average Trade
With the USSR, by Commodity, 1981-84^a**

Million 1984 US \$

Imports		Exports	
Total	370	Total	399
Machinery and equipment	94	Machinery and equipment	34
For construction projects	47	Metal cutting machine tools	15
Aerial communication facilities	13	Motor vehicle batteries	15
Motor vehicles and parts	6	Other	4
Other	28	Magnesite powder	89
Crude oil	110	Rolled ferrous metals	84
Coal, coke	28	Nonmetallic minerals	13
Ferrous alloys	4	Cement	7
Chrome ore	2	Pig iron	3
Rolled ferrous metals	2	Chemical products	4
Pipe	1	Rice	33
Potassium fertilizers	3	Tobacco	11
Chemical products	1	Fresh fruit	7
Paper	2	Starch	4
Cotton fiber	11	Beverages	7
Wheat	31	Cigarettes	4
Television sets	3	Overcoats and overcoat fabrics	50
Watches	4	Towels	3
Other	74	Sports shoes	4
		Other	42

^a Adjusted for fluctuations in the ruble/dollar exchange rate but not for changes in commodity prices.



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