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Recommended Citation

Kimberly Ann Elliott, "WILL ECONOMIC SANCTIONS WORK AGAINST NORTH KOREA?", Global Problem Solving, June 22, 1994, https://nautilus.org/global-problem-solving/will-economic-sanct-ons-work-against-north-korea/

WILL ECONOMIC SANCTIONS WORK AGAINST NORTH KOREA?

Kimberly Ann Elliott* June 22, 1994

INTRODUCTION

The debate over US policy toward North Korea boils down to one deceptively simple question: what does Kim Il-sung want? No one can be sure of the answer and different interpretations can have quite different policy implications. If the Great Leader views a nuclear weapons option as important to the survival of his regime, economic sanctions are unlikely to force him to give it up. But if he views the threat of developing nuclear weapons as a bargaining chip, some combination of carrots and sticks may induce him to trade it away. In fact, if the bsrgaining chip theory is correct, the threat of economic sanctions has been useful at various stages in signalling to the regime that it is getting too close to the edge of the cliff. For purposes of this analysis, I assume that the North Korean regime is susceptible to external pressure that is short of military compulsion. Given that assumption, I analyze the prospects for the effective use of economic sanctions in the current dispute with North Korea over its compliance with inspection obligations under the International Atomic Energy Agency (IAEA). Based on available data, I will identify potential vulnerabilities in

North Korea's economic structure, as well as key trading partners that would have to cooperate for a sanctions effort to have a reasonable chance of success. I then present a framework developed in Hufbauer, Schott, and Elliott (1) for evaluating the circumstances under which economic sanctions are most likely to achieve foreign policy goals. I conclude with an evaluation of the specific options facing the international community in deciding whether to impose sanctions, including what products or services might be the target of effective sanctions against North Korea, and whether sanctions would be more or less likely to achieve the desired outcome as a function of how they might be applied (for example, gradually or all at once).

THE NORTH KOREAN ECONOMY North Korea presents unusually difficult challenges for countries contemplating the use of economic sanctions. The Kim Il-sung regime has chosen to follow an economic development strategy that emphasizes self-reliance, and, with the recent opening of Albania, it is the most closed economy in the world. This choice derives in part from ideology and the political need to control information about the outside world. It is also a consequence of the US decision during the Korean war to try and isolate the North, reflected today in an embargo on virtually all trade and financial relations between the United States and North Korea, and multilateral controls on exports of dual-use and military-related technology. North Korea's external trade is also limited for commercial reasons relating to its inability to service its external debt. Whatever the reasons for North Korea's economic isolation, its effects are becoming increasingly serious, compounding the problems caused by an inefficient command and control economy and high military spending (perhaps as much as 25 percent of gross national product). The Bank of South Korea estimates that the economy contracted by an average of 5.5 percent annually in the period 1990-92. Sources also report that capacity utilization in manufacturing is probably no higher than 50 percent to 60 percent, and may be as low as 30 percent because of petroleum shortages and general inefficiency in the energy sector. (2) Even the government in Pyongyang has begun to admit that the economy is in serious trouble, calling the situation "grave" in a radio broadcast monitored in Tokyo in late 1993.(3) Kim Il-sung's philosophy of "juche" creates several dilemmas for the international community. Because North Korea's trade and financial relations with the rest of the world are already limited, the scope and volume of potential leverage is less than in many other cases. This limits the range of sanctions options available. Juche also means that North Korea imports only products that it must have to keep the economy functioning and that it cannot produce domestically; it must then export to earn hard currency to pay for the imports or to provide products for barter. This deepens the dilemma for the international community since sanctions would almost inevitably affect key sectors, including the military, and might then reverberate quickly throughout the economy. Substantial economic disruption could increase the risk of either a military response by North Korea or economic collapse, both of which the international community wants to avoid. Table 1 shows the distribution of North Korea's trade by partner country. Partial data for 1992 suggest that trade with Russia declined sharply again and that Russia is now North Korea's third largest trading partner, behind China and Japan. (4) Other data indicate that inter-Korean trade has grown so rapidly since it was first legally permitted in 1988 that South Korea may now be the North's fourth largest trading partner. South Korean government approvals for trade with the North through the first seven months of 1992 reportedly totalled $387 million, with perhaps $350 million being imports from the North. This would make South Korea another important source of foreign exchange for North Korea.

Table 1. North Korea's Foreign Trade by Source (million dollars)

	Exports(a)					Imports (a)				
	1989	1990	1991	1992	1993	1989	1990	1991	1992	1993
USSR/ FSU(b)	891	1047	563	n.a.	n.a.	1641	1668	858	n.a.	n.a.
China	167	142	85	154	297	399	403	524	541	600
Japan	268	271	284	n.a.	n.a.	216	194	223	n.a.	n.a.
A.Sub-total	1326	1460	932	n.a.	n.a.	2256	2265	1605	n.a.	n.a.
B.All sources	1686	1857	1240	916	1020	2905	2930	2280	1500	1620
A/B	78.6	78.6	75.2	n.a.	n.a.	77.7	77.4	0.4	n.a.	n.a.

a. The data for 1992 and 1993 are from a different source and thus may not be completely consistent with earlier years.

b. The collapse of the Soviet Union further complicates the problems in compiling consistent, reliable data on the North Korean economy. Among other things, the exchange rate of the ruble has depreciated significantly and some sources suggest that the drop-off in trade with Russia when valued in dollars was even greater than indicated in the table. An article by JETRO researcher Dr. Murooka Tetsuo presents data showing two-way trade between North Korea and Russia of only $1,142 million in 1990 and

$365 million in 1991 ("The Future of North Korea Trade in Agricultural Products," Vantage Point, vol. XVI, no. 3 (March): 1-20).

Sources: For 1989-91, JETRO and South Korean Ministry of Foreign Affairs, as reported in Economist Intelligence Unit, op. cit., p. 88; for 1992-93,the Central Bank of the Republic of Korea, as reported in The Journal of Commerce, June 20, 1994, 1A, 7A.

Oil, China, and Iran. Petroleum products supply only around 15 percent or so of energy consumption, but shortages would affect three key sectors in particular: the military, transportation, and food production (petroleum is used in fertilizer production and to run food processing machinery). Transportation bottlenecks also affect other sectors, including the ability to get food from the countryside to urban areas. Reuters reported in the Fall of 1993 that urban workers were going into the countryside to barter "toothpaste, soap" and other items for food, with Hamhung reportedly not having received rice rations for two or three months because of transportation difficulties. (5)

Until the collapse of the Soviet Union, that country was a major source of concessional oil supplies for North Korea; since then, Russia has put trade on a hard currency or barter basis and oil exports to North Korea reportedly have slowed to a trickle. China has surpassed the former Soviet Union (FSU) as North Korea's largest trading partner and emerged in 1991 and 1992 as a major supplier of oil, by one estimate accounting for 40 percent of total North Korean oil imports in 1992, possibly rising to 75 percent in 1993. (6) Although no data is available, Iran reportedly concluded a deal to barter oil for SCUD missiles and related technology that may have been worth several hundred million dollars. (7) North Korea also apparently has some capacity to produce oil from coal, but it is not clear how much room there is for expansion, over what period of time, and at what cost in terms of diverting coal from other uses.

Food. In recent years North Korea's grain output reportedly has been declining and has not been sufficient to meet basic needs, even without the difficulties in transporting food from rural to urban areas described above. Although the data, as usual, is sketchy and of unknown reliability, some sources put grain output in recent years at less than 5 million tons per year versus estimated demand of 6.6 million tons. (8) In 1991, North Korea reportedly concluded a barter deal with Thailand for 1 million tons of rice over two to three years in exchange for coal, cement, and marine products. Also in 1991, China reportedly agreed to provide some $150 million in food aid over five years, while South Korea may also be providing covert financing for food (for example, paying for a shipment of rice from Vietnam), as well as providing small amounts of rice directly. (9)

Coking coal. North Korea has large deposits of anthracite coal, which supply about 70 percent of its total energy consumption. But it has almost no deposits of coking-grade coal, which is essential in steelmaking, and must import it. As with oil, China reportedly has replaced Russia as North Korea's primary source for coking coal, accounting for nearly 90 percent of imports in 1993.(10) Output of steel reportedly dropped by half in 1992. Shortages of coking coal could further squeeze steel supplies and have serious follow-on effects for the rest of economy, including in areas such as transportation that would also be hit by an oil embargo. Construction, which accounts for a significant portion of economic activity in North Korea, would also be hard-hit.

Technology. North Korea turned to Western technology in the early 1970s when it attempted to build a light industry, export sector with machinery imports from the West. Its timing was poor, however, and it was hammered by the 1973-74 oil crisis and global economic recession. It eventually defaulted on the loans used to make the purchases and has been largely shut off from Western credit and technology since. (11)

Hard currency. North Korea exports mainly minerals and metals, such as iron and steel, and cement; agricultural products, including fish and other marine products; and a small amount of precious metals, such as gold and silver. Exports have not been sufficient to pay for needed imports, however, and North Korea runs persistent trade deficits. Russia, responding to its own problems and to North Korea's rising debts, put most trade on a hard currency basis in 1991.

China has repeatedly threatened to put trade on a hard currency basis, but apparently has allowed trade to continue, in part through barter.

South Korea may now be the North's fourth largest trading partner and will be an important source of foreign exchange as long as it allows the North to run large surpluses. It is also an important potential source of trade and investment if the nuclear and other bilateral issues are resolved. The largest single source of hard currency apparently is the pro-North Korean community in Japan, which sends anywhere from $600 million to $2 billion per year in cash to Pyongyang. Much of the cash reportedly is carried in suitcases and plastic bags on the twice-a-month ferry from Niigata by Japanese North Koreans going to visit family members in North Korea. (12)

A FRAMEWORK FOR ANALYZING ECONOMIC SANCTIONS In Hufbauer, Schott, and Elliott, we examined 115 cases of economic sanctions beginning with World War I. Most of the episodes studied occurred after the Second World War, and most were unilaterally imposed by the United States (77 of the 115) with only minor or no cooperation from its allies. The United Nations was constrained for much of the post-war period by Cold War politics and, prior to the 1990 embargo of Iraq (in response to its invasion of Kuwait), had imposed mandatory sanctions only twice: comprehensive sanctions against Rhodesia from 1966 to 1979, and an arms embargo of South Africa from 1977 to 1994. Since 1990, the United Nations has imposed comprehensive sanctions against Iraq, Serbia, and Haiti, and arms embargoes against a number of countries suffering from civil unrest, including Somalia, Sudan, Liberia, and Rwanda, and the UNITA rebels in Angola. The goals of economic sanctions have ranged from the relatively modest, such as the United States seeking to settle expropriation disputes with developing countries, to the highly ambitious, such as ending apartheid in South Africa.

My colleagues and I made judgments about the outcome in each case--the extent to which stated foreign policy goals were achieved--and the contribution made to that outcome by sanctions. We then developed a set of six political and five economic variables that might be expected to affect the effectiveness of sanctions. These eleven variables are summarized in table 2. By comparing outcomes across cases with the values for the economic and politcal variables, we were able to draw conclusions about some of the factors that appear to influence the effectiveness of economic sanctions in achieving foreign policy goals.

Table 2. Summary of Variables Analyzed

Variables having a positive relationship with success	Variables having a negative relationship with success	Variables with no clear relationship with effectiveness
Percentage of the target's total trade conducted with the sanctioner	Difficulty of the objective sought	Type of sanction imposed
Warmth of prior relations between the sanctioner and target	Extent of inter'l cooperation sought (correlated with difficulty of goal)	The ratio of the sanctioner's GNP to that of the target (most sanctioners in the

sample are much larger than

their targets)

Cost to the target   Cost the sanc-
Use by the sanctioner of
as a percentage of   tioner imposes on
accompanying policies
its GNP   itself
(covert, quasi-military,

or regular military)

Offsetting assistance received by the target from a third party

Economic health and political stability of the target

As noted above, the data set is dominated by unilateral US sanction cases, which suggests several caveats in interpreting the observed negative correlation between the probability of a sanctions success and the extent of international cooperation. First, in a great number of cases, international cooperation played no role in the outcome because the United States did not seek it. Second, cooperation was more extensive in cases involving more difficult goals, though the data suggests that it was a necessary but not sufficient condition for success in such cases. Finally, the results suggest that international cooperation has become more important over time as US economic and political hegemony has declined and the global economy has become more interdependent.

Overall, we found that economic sanctions had contributed to at least partially successful outcomes in 34 percent of the 115 cases studied. The success rate for cases involving what were defined as "major" goals--such as impairing the military potential of an adversary or forcing the surrender of territory--was lower, just 23 percent. We concluded that sanctions are most likely to be effective when: (1) the goal is relatively modest, thus lessening the importance of multilateral cooperation, which often is difficult to obtain, and reducing the chances a rival power will bother to step in with offsetting assistance; (2) the target is economically weak and politically unstable even before sanctions are imposed; (3) the sanctioner and its target are friendly toward one another and conduct substantial trade (the sanctioner accounted for 28 percent of the average target's trade in all success cases but only 19 percent in failures; in cases involving "major" goals, the ratios were 36 percent and 16 percent, respectively); (4) the sanctions are imposed quickly and decisively to maximize impact (the average cost to the target as a percentage of GNP in all success cases was 2.4 percent and 1 percent in failures, in cases involving "major" goals, the figures were 4.5 percent and 0.5 percent, respectively); (5) the sanctioner avoids high costs to itself.

In sum, economic sanctions succeed when the economic and political costs of the sanctions to the target outweigh the costs it expects to incur from complying. Multilateral sanctions under the auspices of the United Nations typically involve ambitious objectives, which runs counter to the first finding that sanctions are a limited instrument that work best to achieve relatively modest, clearly defined goals. However, international cooperation is also likely to be more extensive under a UN mandate than otherwise, which may allow more ambitious objectives to be achieved. Thus, UN sanctions are likely to involve both higher costs of compliance, because the objective will be ambitious, and higher costs of defiance, because the sanctions are likely to be more comprehensive in scope.

A key problem in evaluating the prospects for success in a given case is that, while the costs of defiance--the likely economic impact of the sanctions--can be measured with some confidence, the costs of compliance cannot be measured in any precise way. A second problem is that the same cost, measured as a percentage of GNP, may be valued differently by different types of regimes. For example, an authoritarian government may be less responsive to the pain inflicted by economic sanctions than a democratic government whose survival depends on the support of a majority of its citizens. The normal problems associated with predicting the response of a targeted government are compounded when the regime is as secretive as that of Kim Il-sung.

THE FRAMEWORK APPLIED TO NORTH KOREA This section takes each of the five major conclusions outlined above in turn and applies them to the North Korean case. (1) Goals, cooperation, and offsetting assistance. Inducing North Korea to abandon its suspected nuclear weapons program is a high profile, ambitious objective. A secondary, but important, goal is preserving the integrity of the international nonproliferation regime. Thus, international cooperation is important. From the US perspective, cooperation is essential because the United States already has banned virtually all trade and financial relations with North Korea since 1950 and, thus, has very little negative economic leverage available to it. (13)

Fears of unintended consequences, however, complicate the decision to impose economic sanctions for North Korea's immediate neighbors. South Korea and Japan do not want to provoke Kim Il-sung into a rash military response, and no one, but especially South Korea, wants to risk an economic collapse that could make eventual reunification even more costly for the South, in relative terms, than German reunification was for the Federal Republic of Germany. In addition to these concerns, China may also be reluctant to acquiesce in UN sanctions to enforce anti-proliferation objectives, an ongoing sore spot in its own bilateral relations with the United States. In addition to Chinese approval or abstention, multilateral UN sanctions would also require approval or acquiescence from Russia, which has a UN Security Council veto, and which has expressed displeasure at not being consulted by the United States on this issue. Even if comprehensive UN sanctions are eventually imposed, however, Iran and Libya could provide significant offsetting assistance through continued oil shipments. (2) Economic health and political stability. North Korea's economy appears to be under severe stress, but that has not yet translated into clear signs of political instability. Visitors to Pyongyang in the Spring of 1993 reported visible signs of an energy crisis--little traffic on the streets and numerous blackouts. There were also reports of food riots in the summer of 1992 and again in the spring of 1993. (14) Upon returning from Pyongyang in June 1994, former President Jimmy Carter reported that the streets of the capital were "bustling and neon-lit", but diplomats questioned that description. (15) (3) Diplomatic and trade relations prior to sanctions. The volume of potential economic leverage is limited because of North Korea's self-imposed isolation, which has been involuntarily deepened as a result of the regime's inability to generate the hard currency needed to pay for imports, and the unwillingness of China and Russia to continue providing goods on concessional terms. Still, if China, Japan, and Russia cooperate, the sanctions would cover probably 70 percent of North Korea's reported trade flows, well above the average in past successful cases (36 percent in difficult cases). (4) Potential economic costs of sanctions for the target. If North Korea's foreign trade accounts for 10 to 15 percent of GNP, comprehensive UN sanctions could easily impose an economic cost on North Korea at least equal to the average for past successful cases with ambitious objectives (4.5 percent of GNP), even allowing for extensive evasion and smuggling.16 (5) Economic costs to the sanctioner. The obverse of North Korea's relative autarky is that its trade is not large enough to be of much economic importance to its partners. But the potential costs if sanctions provoke a military response from North Korea or an economic and political collapse could be quite high. Concerns about these potential costs have have been a major factor dictating the cautious strategy followed to date.

SANCTIONS ALTERNATIVES WITH RESPECT TO NORTH KOREA The Hufbauer, Schott, and Elliott analysis revealed a strong correlation between the estimated economic costs to the target of sanctions and the probability of success. We concluded that a gradual, "turning the screws" strategy is less likely to be successful than quick, comprehensive-- decisive--imposition of economic sanctions because, "Time affords the target the opportunity to adjust: to find alternative suppliers, to build new alliances, and to mobilize domestic opinion in support of its policies." And, to reiterate, raising the costs of defiance may be particularly important when the price the target must pay for complying with sanctioners' demands is perceived to be high.

In contrast, the sanctions strategy outlined in early June by the Clinton administration begins with modest, primarily symbolic sanctions, which would be ratcheted up if necessary.

This cautious gradualism has been dictated by the concerns of North Korea's neighbors, who would be primarily responsible for enforcing the sanctions and who do not want to provoke either a military backlash or a destabilizing and costly economic collapse. North Korea has threatened to treat the imposition of sanctions as an act of war and explicitly threatened Japan with "deserving punishment" if it cooperated with US proposals to cut off the flow of funds from the Korean community in Japan. (17) Given concerns in the region about possible North Korean responses, the recent opening for continued negotiation spawned by former President Carter's trip to Pyongyang was a welcome excuse for suspending moves toward sanctions.

If the renewed talks do not produce the desired results, however, economic sanctions will quickly return to the agenda. The first phase of the proposed Clinton sanctions would involve boycotting North Korean arms exports, which would cost the regime an estimated $50 million to $100 million a year. Other sanctions in the initial phase would include suspending the remainder of a $15 million UN Development Program project, as well as plans for the much larger Tumen River project. Cultural, scientific, and educational exchanges would also be cut off. (18) The second phase of sanctions in the Clinton administration plan would ban all financial transactions, including North Korea's single largest source of foreign exchange, the remittances from Koreans in Japan. A ban on financial transactions would inhibit the regime's ability to import oil, food, and other products even without imposing sanctions directly on exports to North Korea. This measure was deferred to the second phase because of Japanese reluctance to be out front on sanctions because of a possible backlash among the Korean community there or even the possibility of terrorist acts fomented by North Korea. Japanese officials have said Japan would "carry out its responsibility" even without a UN resolution, if China continues to oppose the imposition of sanctions, but Japan clearly would prefer the political and diplomatic cover of a UN mandate. (19)

The Clinton plan did not explicitly mention moving to a full trade embargo in a potential stage three, apparently to placate China. While China might ultimately acquiesce in the phase one and two sanctions, by abstaining on a Security Council vote, a trade embargo would directly involve China in enforcement. One way for China to finesse this problem would be to refuse to continue barter trade if phase two sanctions are imposed and to insist on hard currency, which North Korea would be hard-pressed to produce if the ban on financial transactions is effective.

Virtually all of the proposed sanctions pose significant enforcement challenges. The major markets for North Korea's arms exports, primarily missiles, are Iran and Syria. Iran, in particular, would have little incentive to cooperate in the sanctions effort. Iran might also be willing to ignore broader trade sanctions and take China's place as North Korea's major supplier of oil. While the administration has called for a cargo flight ban to enforce the arms boycott, it apparently believes that naval interdiction would be too provocative a step, which means Iran potentially could poke large holes in any sanctions package. Even with naval interdiction, and assuming China formally acquiesced in a trade embargo, controlling trade across the Chinese border could be difficult given the sometimes tenous control of Beijing over its farflung regions. Finally, money is a fungible commodity and efforts to halt the cash flow from Japan to North Korea will require extensive global cooperation, as well as limits on the movement of people from Japan to North Korea.

A final question is whether to include food in any sanctions package, which would have an immediate impact, exacerbating shortages already plaguing the economy. Food, however, along with medicines and other medical supplies, is typically exempted from sanctions outside of wartime for humanitarian reasons. Moreover, the moral dilemmas raised by including food in an embargo are amplified when the targeted regime is an authoritarian one in which the people have no voice.

SUMMARY AND CONCLUSIONS Despite its relative autarky, what North Korea does import affects key linkages in its economy and economic sanctions, reasonably enforced, could have significant economic impact. Modest sanctions, such as those proposed in phase one of the Clinton plan, might be effective in sending a signal of seriousness to North Korea if talks bog down again in July, but only if the threat to increase the pressure as necessary is believed in Pyongyang. In this, China is the key. Russia also has a veto in the UN Security Council and would need to be consulted on appropriate steps if it becomes necessary to move to economic sanctions, but China is the vital link if sanctions are to be imposed.

If China were to veto a sanctions resolution in the Security

Council, it could strengthen North Korea's resolve to stand fast, while weakening Japan and South Korea's resolve to cooperate with the United States in a sanctions effort without a UN mandate. If China were to abstain on, or even better approve, a sanctions resolution vote incorporating phases one and two as outlined above, it would bolster any sanctions effort. China could further enhance the impact of phase two financial sanctions by requiring hard currency for sales of oil, without being directly involved in imposing trade sanctions.

It could be argued that the combination of an ideological straitjacket, relatively large military expenditures, and economic mismanagement have resulted in self-imposed sanctions against the North Korean economy. Because of the economy's inability to produce goods that the rest of the world is interested in buying, it is increasingly unable to buy on world markets other goods that it needs and cannot produce itself. Combined with international political changes that have reduced the willingness of its major allies to continue subsidizing it, North Korea is increasingly suffering from a self-induced economic squeeze. Under these circumstances, and given the likely problems in enforcing economic sanctions, carrots would appear to offer greater leverage in this case than sticks--unless the regime views the carrots on offer as "poisoned carrots" that threaten the Kims' hold on power. (20)

Which brings us back to the original question: what does Kim Il-sung want? If he views improvement in North Korea's economic situation as critical to maintenance of the regime, a combination of carrots and sticks likely will be effective in resolving the current crisis. If, however, Kim views the opening to the outside world that would accompany improved economic relations as a threat to his control, and if he believes nuclear weapons are essential in protecting North Korea's security, neither carrots or sticks will be effective. In that situation, sanctions would likely be necessary to protect the integrity of the international proliferation regime, but policymakers would need to be prepared to deal with the potential consequences, including a possible military response in the short run and likely collapse of the regime in the longer run.

Notes 1. Hufbauer, Gary Clyde, Jeffrey J. Schott, and Kimberly Ann Elliott, Economic Sanctions Reconsidered, 2nd ed., rvd., Washington, Institute for International Economics, 1990.

2. Oxford Analytica Daily Brief, January 25, 1993; Park Young-ho, "Will North Korea Survive the Current Crisis? A Political Economy Perspective," The Korean Journal of National Unification, vol. 2, 1993, p. 113-115; Journal of Commerce, June 20, 1994, 7A; Australian National Korean Studies Centre, Korea to the Year 2000: Implications for Australia, East Asia Analytical Unit,

Department of Foreign Affairs and Trade, Commonwealth of Australia, 1992, 50; Wall Street Journal, March 13, 1993.

3. Washington Post, December 9, 1993; Financial Times, December 10, 1993.

4. Oxford Analytica Daily Brief, January 25, 1993.

5. Journal of Commerce, November 16, 1993; Economist Intelligence Unit, China, North Korea Country Profile, 1992-93, p. 80; Peter Hayes, "Should the United States Supply Light Water Reactors to Pyongyang?" Paper presented to a Carnegie Endowment for International Peace Symposium, November 16, 1993, p. 22.

6. Wall Street Journal, April 2, 1993; Journal of Commerce, June 20, 1994, 7A; Washington Post, June 17, 1994, A20.

7. Economist Intelligence Unit, op. cit., p. 87.

8. Park, op. cit., 108; Oxford Analytica Daily Brief, January 25, 1993.

9. Far Eastern Economic Review, May 30, 1991, 38-39; Journal of Commerce, June 20, 1994, 7A.

10. Hayes, op. cit., p. 22; Journal of Commerce, June 20, 1994, 7A.

11. Economist Intelligence Unit, op. cit., p. 86.

12. New York Times, November 1, 1993; Journal of Commerce, June 20, 1994, 7A.

13. When the United States imposed the original trade embargo of North Korea at the beginning of the Korean War in 1950, it was comprehensive. In April 1989, the United States modified the embargo to allow "commercially-supplied goods intended to meet basic human needs," subject to case-by-case approval. Congressional Research Service, "Economic Sanctions Imposed by the United States Against Specific Countries: 1979 through 1992," CRS Report for Congress 92-631 F, Foreign Affairs and National Defense Division, August 10, 1992, Washington.

14. Oxford Analytica Daily Brief, January 25, 1993.

15. Washington Post, June 21, 1994, A1.

16. The methodology used in our analysis to estimate the costs to the target of economic sanctions involved, first, estimating the value of the trade or financial flow initially affected by the sanction, and, then, multiplying that figure by a fraction based

on the availability of alternative sources or markets. The multiplier used in cases involving partial sanctions was typically .3 or .4; in cases of extreme dependence or tight enforcement, multipliers of .75 to .9 were used. For example, a multiplier of .9 was used for the boycott of Iraqi oil exports because Iraq's limited outlets facilitated enforcement, but a lower value of .5 was used for exports because Iraq's long land borders allowed for some smuggling. In the North Korean case, a multiplier of .5 applied to total trade flows (assuming comprehensive sanctions) would give a cost of 5 to 7.5 percent of GNP. Since many of the commodities North Korea imports tend to affect key sectors of the economy, a higher multiplier might be appropriate, which might raise the cost to as high as 10 percent of GNP.

17. New York Times, June 10, 1994, A11.

18. Washington Post, June 16, 1994, A1; Wall Street Journal, June 16, 1994, A12.

19. New York Times, November 1, 1993.

20. United States Institute of Peace, "North Korea's Nuclear Program: Challenge and Opportunity for American Policy," Special Working Group Report, Washington, 1994; Andrew Mack, "North Korea's Nuclear Program: the Options are Shrinking," The Research School of Pacific Studies, The Australian National University, Canberra, 1994.

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