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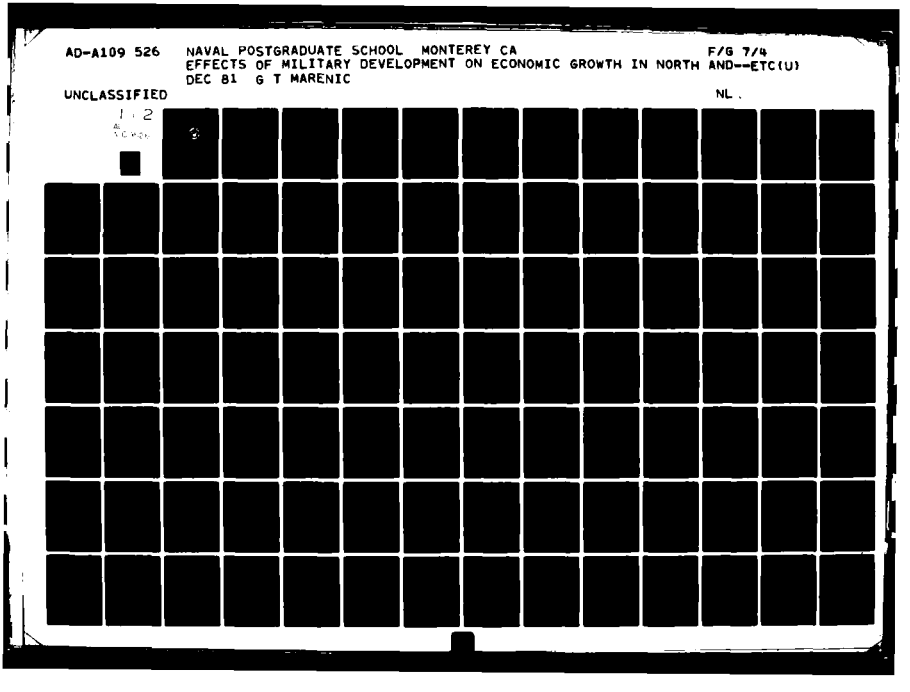

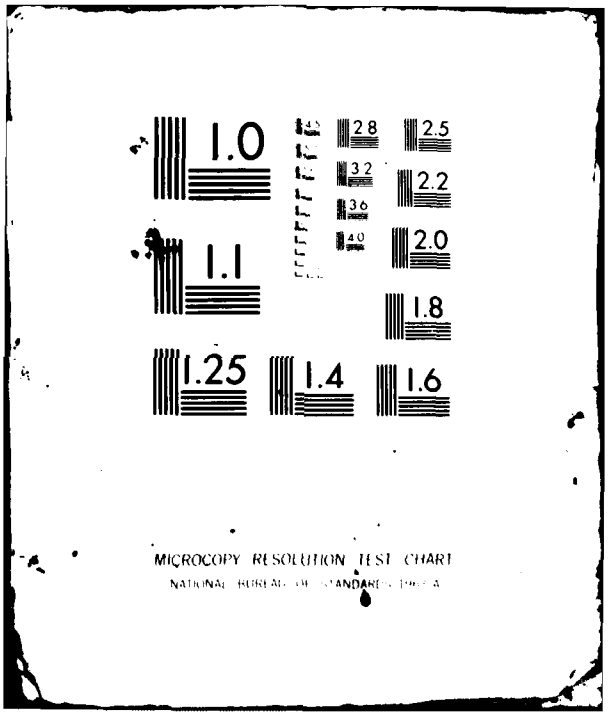
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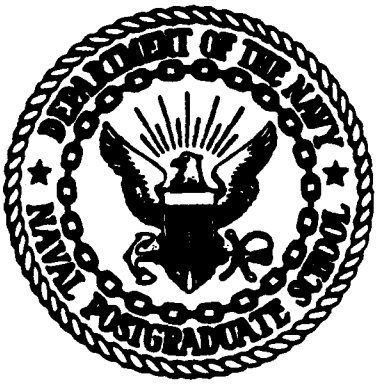

THESIS

EFFECTS OF MILITARY DEVELOPMENT ON ECONOMIC GROWTH IN NORTH AND SOUTH KOREA, 1945-1980

by

George T. Marenic

December 1981

Thesis Advisor: Edward A. Olsen

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Since the end of the Korean War, both Koreas have maintained their military forces in a high state of readiness. Until recently, the strategic environment on the Korean Peninsula was largely determined by the quantity and quality of arms supplied by major allies. Since the late 1960's, however, both North and South Korea have pursued policies to develop their own indigenous arms industries, expanded their defense budgets, and implemented military modernization programs. → next page

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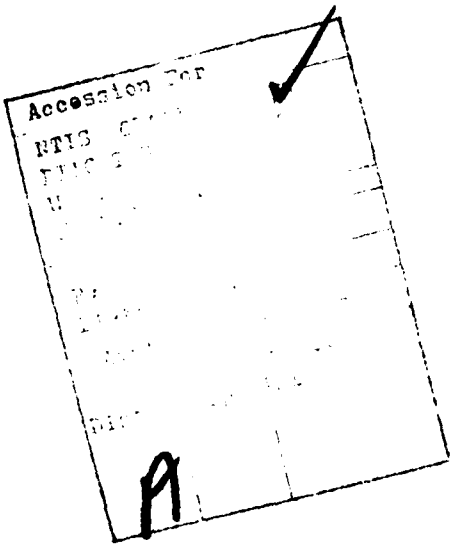

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Effects of Military Development on Economic Growth in North and South Korea, 1945-1980

by

George T. Marenic
Captain, United States Air Force
B.S., Baptist College at Charleston, 1974

Submitted in partial fulfillment of the
requirements for the degree of

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Author: _____

Approved by: _____
Thesis Advisor

_____
Co-Advisor

_____
Co-Advisor

_____
Chairman, Department of National Security Affairs

_____
Dean of Information and Policy Sciences

ABSTRACT

Since the end of the Korean War, both Koreas have maintained their military forces in a high state of readiness. Until recently, the strategic environment on the Korean Peninsula was largely determined by the quantity and quality of arms supplied by major allies. Since the late 1960's, however, both North and South Korea have pursued policies to develop their own indigenous arms industries, expanded their defense budgets, and implemented military modernization programs.

It is the hypothesis of this thesis that North Korea is more adversely affected by defense spending than South Korea. Although North and South Korea have structurally different economic systems, the same set of financial constraints apply for each. By paralleling military development and economic growth patterns for both North and South Korea, evidence of different effects of defense spending on economic growth of the two countries can be determined. These findings will then be used to project the prospects for peace and stability in the Korean Peninsula in the 1980's.

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I. INTRODUCTION

A. PREPARATORY REMARKS AND METHODOLOGY

Since the end of the Korean War in 1953, both Koreas have maintained their military forces in a high state of readiness. The inherent dangers of maintaining a prolonged high state of readiness are obvious--full scale war could erupt in a matter of hours. The dangers of a war on the Korean Peninsula extend beyond the two Korean states to tneir major allies who would undoubtedly become involved in a major Korean conflict. Thus, stability in this strategic area has been a key element in determining policy for the major powers as well as the two Koreas.

Although there has been relative stability on the Korean Peninsula since the end of the Korean War, the strategic environment has been in a perpetual state of change. Until recently the strategic environment was largely determined by the quantity and quality of arms supplied to North and South Korea by major allies. However, since the late 1960's, both North and South Korea have pursued policies to develop their own indigenous arms industries, expanded their defense budgets, and implemented modernization programs for their militaries. A consequence of these developments has been a reduction in the ability of the major power allies to influence the actions of the Koreans.

The purpose of this thesis is to analyze the military and economic forces acting upon the Korean Peninsula to determine the effects of

military development on economic growth. This will require analysis of arms transfers, the development of indigenous arms capabilities, and actual military force development. The effects of military spending on economic growth will then be analyzed and used to determine if efforts to achieve economic goals for the 1980's will lessen military competition between the two Koreas.

Chapter I will establish the background from which the military competition grew. Major events from the Cairo Conference of 1943 to the outbreak of the Korean War will be examined. Special considerations will be given to the conditions that allowed North Korea to develop sufficient military strength to invade the South in 1950.

Chapter II examines the effect that arms transfers have had on the strategic environment of Korea from 1945-1979. Arms transfers to both North and South Korea will be analyzed in a chronological order by year groupings: the pre-Korean War years (1945-1950), the War years (1950-1953), the first decade (1953-1960), the second decade (1960-1970), and the third decade (1970-1980).

Chapter III will discuss the development of indigenous arms production in both Koreas, and the ramifications of autonomous defense industries on regional and international stability. It will present the motives for developing arms industries, actual arms productions in North and South Korea, and a comparison of the stage of development attained by each.

Chapter IV provides an in-depth study of the military establishments of both North and South Korea. This chapter examines the military objectives of both countries, the patterns of military development, and the current military situation of both countries.

Chapter V examines the effect of defense spending on economic growth. In this chapter, the economic growth pattern of both Koreas (from 1945-1979), and the effects of defense spending on economic growth will be determined. A financial constraint model, developed by Professors Looney and Fredricksen, will be used to explain why defense spending has different impacts on economic growth in North and South Korea.

Chapter VI presents projections of the military and economic situation on the Korean Peninsula in the 1980's. Using the findings from the previous chapters, the prospect for peace and stability will be explored.

B. BACKGROUND

At the 1943 Cairo Conference, a joint statement was made by Franklin D. Roosevelt, Chiang Kai-shek, and Winston Churchill declaring that after the surrender of Japan, Korea would become free and independent--in due course. This was reconfirmed by the 1945 Potsdam Declaration, and subsequently by the Soviet Union, which declared war on Japan. However, the fate of Korea changed overnight; at the 1945 Yalta Conference, the leaders of the United States, Great Britain,

and the Soviet Union reached a secret agreement which included dividing the Korean Peninsula at the 38th parallel to facilitate in disarming Japanese forces.[1]

In accordance with the Yalta agreement, the Soviet Union promptly dispatched forces to the area north of the 38th parallel and established a military government which eventually helped to solidify the North Korean Communist regime. The United States forces moved into South Korea and established another military government. However, the United States still claimed that the 38th parallel was not a political demarcation, but a temporary expedient to facilitate military operations. When the initial efforts to reunite Korea failed, a conference of foreign ministers convened to settle the matter.[2]

An agreement was reached stating that Korea would become independent after five years under the joint trusteeship of the United States, Great Britain, the Soviet Union, and China. Under the auspices of this agreement, a joint commission of the United States and the Soviet Union was convened in Seoul in March 1946 to assist in establishing a unified government for Korea. When these efforts failed, the United States decided to take the matter to the United Nations.

The United Nations adopted a resolution on 14 November 1947 which called for general elections under the supervision of a United Nations commission. Elections were held on 10 May 1948 in South Korea only, because the Soviet military commander refused the U.N. Commission access to North Korea. On 15 August 1948, the Government of the

Republic of Korea was inaugurated with Syngman Rhee as its first President.[3]

North Korea countered with its own elections on 9 September 1948, establishing the Government of the Democratic People's Republic of Korea.[4]

C. MILITARY COMPETITION

The quest for military superiority began early between the Koreas. North Korea had established a full-fledged army, with 200,000 regular soldiers, by February 1948. Conversely, South Korea had about 50,500 soldiers when it was inaugurated in August 1948.[5]

1. North Korea

One of the first acts of the newly-formed North Korean Government was to create a large standing army. Under Soviet guidance, conscription was introduced, military training schools established, and training of cadets and officers begun. The first units were activated in February 1946. By 1947, force levels rose to 150,000, and to 200,000 by 1948. Formal establishment of the Korean People's Army was announced in February 1948--seven months prior to the establishment of the Democratic Republic.[6]

The Soviet Union was the sole supplier of military equipment to North Korea between 1945 and 1950. During this time, economic and military aid supplied to the North was estimated to value $56 million dollars.[7] Arms provided to North Korea included 242 Soviet-built T-34 tanks which were considered the best tanks in the world at that time. Their ground forces were supplied with advanced artillery and mortars

of Soviet design. The Soviets also had put over 200 planes in North Korea, including the Yak-9P fighters, and Il-10 bombs.[8]

2. South Korea

The buildup of forces in North Korea went almost undetected by the United States which was preoccupied with the containment of communism in Europe. Thus, when Soviet and American troops were withdrawn from Korea in 1948, a large military imbalance existed.[9]

South Korea's military was totally inadequate to defend itself against the North Korean invasion in 1950. Although South Korean forces had been provided with some weapons and training, a precaution had been taken by the American Occupation Army to arm South Korean forces with only light defensive weapons.[10]

Although part of the blame for South Korea's inadequate defense capability can be placed on the U.S., most of the blame must go to the ROK President, Rhee. Former Ambassador John S. Muccio explained the American position:

> President Rhee had a very unrealistic attitude toward that whole issue. He thought that the people of the North were waiting for him to arrive on a white charger, that they would all get up and acclaim him, and that Korea would be unified. And . . . as many incursions took place north of the 38th parallel, as well as south of it, that tied our hands, there was a danger that aggression would occur from the South.[11]

Therefore, when the Korean War began in 1950, South Korea's military possessed no tanks, no medium nor heavy artillery, and no combat aircraft.

II. ARMS TRANSFERS TO THE KOREAS

Arms transfers to both North and South Korea played a significant role in the development of their military forces. Until they were able to establish their own indigenous arms industries, both were totally dependent on arms imports to equip their forces. Therefore, in a study of Korean military development, there is no better place to begin than with arms transfers.

This chapter will present a chronological study of arms transfers beginning with the prewar period, 1945-1950, followed by an examination of arms transfers during the Korean War, 1950-53. The study will then shift to an examination of arms transfers by decades. This will allow for better trend analysis. Transfers to North Korea will be discussed first, followed by transfers to South Korea, with a comparison of trends in arms transfers during that decade.

A. PREWAR, 1945-1950

The prewar timeframe is important because of the events that transpired in arms transfers during this period which influenced the course of the war. The development of the armed forces in both Koreas were discussed in the previous chapter. However, a little more information needs to be added to update arms transfers during this period.

1. North Korea

The Soviet Union entirely dominated North Korea during this period. They were the sole supplier of arms, ammunition, gasoline, vehicles, and other military items. Soviet aid, both economic and military, is estimated to have been $56 million between 1945 and 1950.[1] After the Soviets withdrew their troops in 1949, the North Koreans were provided with large deliveries of tanks, trucks, artillery, and war planes. Included in the 242 Soviet tanks furnished under this aid program were the T-34's, which were believed to be the best tank in the world at that time. Also, the 150 war planes supplied to North Korea included modern Il-10 bombers, and Yak-9P fighter planes.[2]

The Communist victory in the Chinese Civil War led to a change of Chinese support from South Korea to North Korea. Prior to their 1949 expulsion, the ruling Chinese Government, the Koumintang (KMT) had supported South Korea. However, due to the Civil War, the KMT was in no position to provide aid to South Korea. Likewise, the poor state of China following the Civil War left the Chinese Communists unable to support the North Koreans. Thus, China played no significant role in arms transfers to either North or South Korea during this period.

2. South Korea

South Korea found itself part of the United States "forward defense areas" following World War II. These areas were designed to contain communism, and were mostly comprised of countries contiguous

to Russia and China. The magnitude of military aid and arms supplied to these countries varied proportionately to the United States' perceived threat in the area, and the U.S. willingness to commit troops to that area.[3]

The U.S. approach to South Korea before the outbreak of the Korean War could best be described as ambivalent. Due to the action of the Rhee Government, the U.S. Occupation Army had equipped South Korea only with light arms and mortars, and provided some technical training, but the U.S. had taken "the precaution to arm the South Korean Army only with light defensive weapons to preclude any temptation to invade North Korea."[4]

B. THE KOREAN WAR, 1950-1953

The Korean War began June 25, 1950, when the North Koreans invaded the South. This shifted the U.S. military assistance program for South Korea from limited assistance to direct intervention and massive aid. In turn, North Korea received comparable aid from the Soviet Union, as well as direct Chinese intervention.

The Korean War was the first example of supplier/recipient interdependence in a limited war due to a polarized world environment.[5] Although the conflict was initially only between the two Koreas, it became increasingly a superpower competition. This was reflected by the interdependence of suppliers and receivers. A paradox of arms transfers in a polarized international situation emerged; opposing suppliers became increasingly involved in the conflict despite earnest

efforts to remain detached. By furnishing weapons, both the Soviet Union and the United States were supporting their respective allies. Neither superpower could allow their ally to be defeated, because a defeat of the recipient would be considered a defeat of the supplier.

The paradox of the Korean conflict culminated in direct intervention by armed forces of the suppliers. The U.S. intervened to keep South Korea from being defeated, thus shifting the military advantage to the South Koreans. This required the opposing side to intervene to restore the balance. Although the Soviets did not directly intervene, their ally China supplied 2.5 million Chinese volunteers.[6]

Another aspect of supplier/recipient interdependence in this polarized conflict is the inability of the suppliers to withdraw support. Again, the perception of supplier/recipient defeat was the underlying factor. This perception caused the Soviets to pressure North Korea and China to accept an "in place" armistice in 1953. The pressure increased as the Soviets became more apprehensive of becoming physically involved.[7]

1. North Korea

During the Korean War, military aid to North Korea consisted mainly of aircraft, tanks, and artillery. (See Appendix A, Table 15.) Included in the equipment supplied to North Korea were 200 jet fighter aircraft, and 450 T-34 tanks.

Although North Korea received massive Soviet and Chinese support, their armed forces were decimated by the war. Their Army

suffered enormous casualties and equipment losses. Similarly, the Korean People's Armed Forces Air Corps had to completely regroup and retrain due to the enormous losses suffered in the early stages of the war.[8]

2. South Korea

Like its enemy, South Korea received a tremendous amount of military equipment during the Korean War. (See Appendix A, Table 16.) Included in this aid were over 800 tanks, mostly M-47's or M-48's, and Sherman-types. Unlike North Korea, they did not receive any jet aircraft; they relied totally on U.S. air cover. The bulk of the military aid consisted of infantry weaponry commensurate with South Korean capabilities.[9]

The South Korean forces emerged from the war in a little better condition than did those of the North. Although their Army was intact, it relied heavily on the United States for support. The Republic of Korea Air Force (ROKAF) consisted only of limited numbers of older propeller-type aircraft with few supplies. The Navy emerged from the war a little better equipped, but it presented no real threat to North Korea.

The enormous cost of the Korean War fell mainly on the United States and the Soviet Union. Between 1950 and 1953, almost three-fourths of all global major arms transfers were to the Koreas. Both the U.S. and the U.S.S.R. experienced the dangers of supplier/recipient interdependence in a polarized world during a conflict. The

experiences of the Korean War led to restraint in arms transfers to the Korean Peninsula by both suppliers. This condition still exists today.[10]

C. THE FIRST DECADE, 1953-1960

The armistice agreement ending the Korean War prohibited the introduction of new weapons to the Peninsula, and froze combat aircraft at the existing level. This agreement was short-lived. (See Appendix A, Table 15.)

By 1955, the Soviets had increased the number of bombers supplied to North Korea, and by 1956 they had introduced a new aircraft weapon system, the MIG-17 fighters. The agreement stood until 1958, at which time it was voided by the United Nations Command for "alleged North Korean nonadherence."[11]

1. North Korea

The period following the Korean War was used by Kim Il-sung to reconsolidate his political power. Any lesser leader could not have survived the resentment generated by the failure to win the war. The North Koreans channeled most of their resentment toward the Soviets, because of their initiation of the armistice process. Many North Korean leaders directly blamed the Soviets for their failure, and felt that the enormous loss of Korean lives had been in vain.

Kim voiced his Soviet disapproval by embarking on an independent path of reconstruction without prior U.S.S.R. approval. These

efforts were greatly aided by the Chinese military presence in North Korea until 1958. Despite this antagonism, the Soviets remained the sole supplier of major weapons, and they retained the primacy of influence through the summer of 1958.[12] They supplied the North Koreans with weapons, and trained their armed forces with modern Soviet equipment between 1955 and 1957. This training program included Il-28 and MIG-17 aircraft. Once trained, North Korean forces received 20 Il-28's in 1955, and 100 MIG-17's from 1956 to 1958 to supplement their ageing MIG-15's.

As pressure increased between the Chinese and the Soviets, Kim Il-sung embarked on an independent course. Prior to 1957, he had no choice but to remain aligned with the Soviets because the Chinese were unable to supply needed economic aid and military equipment.[14] After 1957 Kim had to walk a tightrope to receive needed aid from both suppliers without becoming a pawn of either.

Kim's concern over Khruschev's de-Stalinization campaign and peaceful coexistence policy, coupled with China's increasing economic and military strength, influenced North Korea to tilt toward the Chinese sphere. In 1959, China supplied North Korea with 80 MIG-15's, and began delivery of Il-28's Chinese support continued in 1958-59 with the transfer of 44 Il-28's, 20 Yak-18's, and 300 Shenyang F-4 aircraft. China also introduced the first supersonic aircraft, the MIG-19, into North Korea in 1959. Between 1957 and 1960, China increased the North Korean naval capability with the transfer of 24 minesweepers.[15]

Aid to North Korea between 1953 and 1960 shifted from complete Soviet dependence toward an independent course leaning toward Chinese influence. The change largely was due to increased Chinese arms production capability, shifts in Soviet ideology, and resentment over Soviet pressure to accept the cease-fire. These events placed Kim in an unenviable position of subservience to both Moscow and Peking in return for economic and military aid, without leaning too far toward either, in fear of losing aid from the other.

2. South Korea

Following the Korean War, the American policy was to provide nuclear deterrence, but to shift the burden of meeting limited conventional deterrence to local forces. This led to greater emphasis on military assistance. Military aid to South Korea rose steadily throughout the 1950's, peaking between 1958 and 1960.[16] This support served two purposes: it enabled the South Koreans to meet the threat from the North, and made the U.S./South Korean Mutual Defense Treaty more meaningful.

Actual arms transfers to South Korea during the fifties were mostly World War II surplus items which were obsolete in U.S. inventories. Additionally, these arms were single weapons (as opposed to weapons systems) which required only minimal maintenance and limited complex spare parts. Although these weapons were outdated in the U.S. inventory, they filled the needs of the Republic of Korea's Army (ROKA), and were commensurate with their maintenance capabilities.[17]

Air assets were an exception in arms transfers. Here the South Koreans received 110 F-86 fighter-bombers, and nine T-33's. These aircraft matched the quality, but not the quantity supplied to North Korea during this same time period.

The ties between South Korea and the United states were strengthened during the period 1950-1960. This was due to mutual objectives based on a democratic political system.

D. THE SECOND DECADE, 1960-1970

Arms transfers to the Korean Peninsula during the decade of the sixties can be divided roughly into two equal periods: 1960-65, and 1965-1970. The first period was characterized in North Korea by stronger ties to China, and in the later half, by a shift toward the Soviet camp. Similarly, for the South this decade can be divided into two equal periods: Pre-Vietnam (1960-65), and the Vietnam War era (1965-1970).

1. North Korea

The period 1960-1965 marked a low point in Soviet-North Korean relations. Khruschev's de-Stalinization policy was considered an attack against any personality cult--which put Kim and Mao under attack. Kim Il-sung's refusal to accept de-Stalinization, and his pursuit of an independent political course severely strained Soviet-North Korean relations.

North Korea concluded a Mutual Defense Treaty with the Soviets in 1961, in spite of growing differences. This was not an acceptance

Soviet dominance, however, for in this same year, Kim introduced his Seven-Year Economic Development Plan, defying a Soviet attempt to coordinate and direct all socialist planning efforts. The combination of defiance in economic planning, and the refusal to accept Soviet military command dominance, resulted in the cancellation of all Soviet aid.[18]

Although the North Koreans lost their Soviet support, they found wholehearted Chinese support in the early 1960's. Peking's hard-line attitude toward the U.S., and their endorsement of Kim's political and territorial ambitions, further bound the China-North Korean relationship. Although China was unable to match Soviet aid, the commonality of attitudes moved North Korea and China much closer in the early 60's.

China increased its supply of jet fuel and spare aircraft parts to North Korea in the early 1960's, even though they were badly needed in China. North Korea reciprocated by reorganizing its Air Force along Chinese lines. By 1963, the North Koreans had received 400 Chinese built aircraft, including Shenyang 4 (MIG-17), MIG-15's, and Il-28's. Acording to the Stockholm International Peace Research Institute (SIPRI), North Korea's Air Force had expanded to 465 combat aircraft by 1964. During the early sixties, the North Korean military strength exceeded South Korea's by 200-400 percent.[19]

Beginning in 1965, relations between North Korea and the Soviet Union began to improve. This change can be attributed to both internal and external events in North Korea with major allies. Internally,

North Korea's industrialization and economic progress was lagging behind their planned goals and seemed destined to fail without Soviet aid.[20] Externally, China had been involved in an embarrassing Indonesian coup, and also was experiencing internal turmoil that led to the Cultural Revolution.[21]

Conversely, the Soviets had ousted Khurschev, and in February 1965 Premier Kosygin visited North Korea enroute to North Vietnam to begin negotiations for renewed military aid. Increased aid did result from this meeting, but the terms of the agreement were kept secret. However, modern equipment soon was being shipped to North Korea. Included were late model jet fighter aircraft (MIG-21's) and advanced surface-to-air missiles (SA-2's). Heavy equipment, including heavy field artillery, was provided for the North Korean ground forces to offset modernizations in the ROKA.[22]

As a result of substantial Soviet military aid, the North Korean military forces profited greatly in 1967-68. By 1967, the North Korean Air Force had over 500 combat aircraft, including 21 MIG-21's, 350 MIG-17's, 80 MIG-15's, and 80 Il-28 bombers (over half of which were provided by Moscow). Also provided were 10 Air-Defense Complexes, including 500 SA-2 missiles.[23] Almost all of North Korea's heavy army equipment was Soviet supplied.[24]

While relations with Moscow improved, relations with Peking deteriorated between 1965-68. These were the peak years of the Chinese Cultural Revolution. Although Kim continued a policy of

neutrality, his improved relations with Moscow were viewed by China as siding with the Soviets in the widening Sino-Soviet dispute. During this period, no new Chinese aid was promised, and even previously promised aid was withheld.[25]

Not until the Cultural Revolution began to wind down did relations between China and North Korea begin to improve. Chou En-lai's visit to North Korea in 1970 brought the promise of renewed military and economic aid. Military aid was in the form of ships, fuel, and technical assistance. This aid was provided to regain lost influence in North Korea, and to determine where North Korea actually stood in the Sino-Soviet dispute.[26]

The Soviet rapproachement in the mid-sixties, and the Chinese counter-rapproachement in 1968, did not result in a major swing in North Korean policy toward either orbit. Instead, it served to retrench their policy of self-reliance. The media stressed the need for North Korea to retain its economic, cultural, and ideological independence. A major development of the self-reliance movement in North Korea was the initiation of construction in an indigenous arms production industry. This independent policy resulted in the development of a self-sufficient small arms industry. By the end of the sixties, North Korea indigenously produced all of their small arms, including rifles, machineguns, mortars, as well as the ammunition for each item.

2. South Korea

The decade of the sixties also can be divided into two periods for South Korea: Pre-Vietnam (1960-65), and the Vietnam War era. This was basically a period of transformation in American threat perceptions in Asia. First, President Kennedy shifted away from the concept of massive retaliation to a doctrine of flexible response. Secondly, threat perception shifted from external intervention toward internal disruption by guerrilla activities. The shift to flexible response, and the refocus of threat perception resulted in a reappraisal of the U.S. military aid program to Asia.

The decision that the internal threat within Southeast Asia (particularly in Laos, Thailand, Cambodia, and Vietnam) was more vital to U.S. interests than the external threat in Korea led to a shift in U.S. military aid. This aid would be concentrated on training and equipping indigenous forces to counter internal threats. This decision caused significant fluctuations in military aid to South Korea. U.S. aid to South Korea peaked in 1961, and not until 1968 did aid again reach the 1961 level. Despite a decrease in aid, considerable amounts of conventional arms shipments flowed to South Korea.[27]

Arms transfers to South Korea during the sixties included advanced weapons systems. In 1961, the Nike Hercules, Honest John, and Hawk missiles were first delivered to ROK forces. Sixty F-86 fighter aircraft were also delivered, including approximately 700 advanced Sidewinder air-to-air missiles. Although conventional armament

continued to flow, and some new systems were introduced, the share of U.S. aid for new procurement fell during this period. By 1964-65, almost 80 percent of military aid grants was for ammunition, parts, food, and training.[28]

The increased involvement of the U.S. in Vietnam in 1965 resulted in a decrease in military aid given to other forward defense nations. However, South Korea was an exception. Military aid remained at a stable level from 1965 through 1967, and increased annually thereafter. These levels were supplied to South Korea from 1965 as a quid pro quo for the use of Korean troops in Vietnam. An increased level of violent activity by North Korea was a second reason why the United States increased arms transfers to South Korea. North Korea had instigated incidents along the DMZ, and in South Korea. Increased attacks on U.S. forces (the Pueblo incident, and the shooting down of an EC-121 reconaissance plane) influenced U.S. willingness to increase arms supplies to South Korea.

Beginning in 1965, partially as part of the quid pro quo, the U.S. started updating the South Korean forces. In 1965, F-5 Freedom Fighters were delivered to supplement and replace ageing F-86's. Additionally, the U.S. promised to fully equip three of South Korea's ten reserve divisions, and to expedite the modernization of all of South Korea's front-line forces. Subsequently, between 1966-1974, South Korea received large numbers of tanks, artillery, small arms, patrol craft, and other military material.[29]

Aid for operations and maintenance increased significantly in 1969-1970. In 1969, $100 million was requested over and above the approved appropriations to update anti-aircraft systems, patrol boats, and radar. This also authorized a squadron of F-4-E Phantoms, which South Korea had requested earlier.[30]

The decade of the sixties ended with still another shift in U.S. policy. In 1969, President Nixon announced a new policy with regard to Asia (the Guam, or Nixon doctrine) stating that the U.S. would not automatically become involved in new Asian wars. President Nixon stated: "We shall look to the nation directly threatened to assume the primary responsibility for providing the manpower for its own defense."[31] Essentially, this advocated arms transfers instead of involvement of U.S. troops in another unpopular Asian war.

E. THE THIRD DECADE, 1970-1980

Little change could be noted as the seventies arrived. North Korea still was essentially reliant on the Soviet Union for military and economic aid. Since 1969, relations between North Korea and China have remained good, but China has been unable to deliver much aid to North Korea. Although promises flowed freely between Peking and Pyongyang, material did not. South Korea and U.S. relations remained strong in the early 1970's, but became strained in the mid-seventies. Changes in the relationships between the suppliers was an important factor.

Perhaps the most important event of the early seventies was the 1972 resumption of unification talks between the two Koreas. These were culminated by the Joint Communique of 4 July 1972. Although the joint talks looked promising, they were virtually doomed from the start.

President Park declared a state of emergency on 6 December 1971. This was "necessitated by the need to cope with changes in the international situation,and to meet North Korea's aggressive design."[32] Between the emergency declaration and the imposition of martial law in October 1972, Park repeatedly called on North Korea to halt its aggression. North Korea's Premier Kim Il-sung responded in April 1972 with a peace overture completely contrary to previous statements:

> "It is my assertion that we should attempt direct North-South talks right away. The withdrawal of American troops is <u>not</u> a precondition for political talks."[33]

Park's hard line approach, and the use of unification talks to curtail political liberties just prior to the December election, caused serious questions about his motives. Although talks were begun in 1972, little progress was registered.

1. <u>North Korea</u>

North Korea's relations with the Soviet Union remained critically important during the early and mid-seventies. The Soviets were still North Korea's major source of arms, and its major trading partner. However, Soviet arms transfers and military assistance brought little increased influence. North Korea, although dependent

on Soviet arms and aid, refused to move from their position of neutrality in the Sino-Soviet dispute. Soviet-North Korean relations, although cool and formal, were still firm, as was emphasized by the renewal of their Mutual Defense Treaty in 1976. Underlying Soviet aid to North Korea was the concern that renewed violence by Kim would undermine the SALT I agreement and the new-found detente with the United States.[34]

China remained important to North Korea during the seventies as a counterbalance to Soviet domination. Numerous visits were made between Peking and Pyongyang. During the mid-seventies, China promised military aid in the form of tanks, torpedo boats, destroyers, submarines, and fighter planes. Chinese aid promises coincided with the North Vietnamese victory. Encouraged by these events, Kim apparently requested support from the Chinese to renew his war against the South.[35] However, the Chinese only supported peaceful reunification.

It should be noted that little of the promised aid was delivered to North Korea. The Chinese, like the Soviets, were interested in maintaining relations with the U.S. Thus, the Chinese response of peaceful reunification to Kim's request for support met with polite silence.

Actual arms transfers to North Korea during the seventies did little to improve their offensive capabilities. They received 28 SU-7 fighter-bomber aircraft in 1971, and two squadrons of MIG-21's between 1974 and 1978. Only the SU-7 could be considered as improvement,

since the MIG-21's were simply replacements for ageing aircraft; they added little to the offensive capability. The ground forces were supplied with 50 T-62 tanks in 1975,[36] however as is shown by Appendix A, Table 15) little was added to North Korea's offensive capabilities by arms transfers during the seventies.

Defensively, North Korea faired better during this timeframe. Their naval capability was increased drastically with the introduction of the SS-N-2 Styx missile for their patrol boats. Likewise, tne increase in numbers of patrol boats and submarines gave them a better capability to defend the coast. In 1972, 200 SA-7 surface-to-air missiles were supplied to the Democratic People's Republic of Korea's Army (DPRKA) thereby adding to its defensive capability. The two squadrons of MIG-21's, although not adding much to their offensive capability, added significantly to their defensive posture.

Overall, during the seventies, arms transfers to North Korea reflected the mood of the times. Both the Soviet Union and China were willing to support North Korea, but not to an extent that would allow Kim to invade the South. Thus, there was a shift toward defensive oriented weapons.

2. South Korea

Relations between South Korea and the United States entered the seventies on a cautious note. Events in the Park Government, beginning in late 1971 and lasting until 1974, caused grave concern in the U.S. On December 23, 1972, Park was reelected to a fourth

term by a vote of 2,357 to 0. However Park's martial law restrictions imposed in October did not allow for opposition in the election. This, coupled with events of Park's "coup in office" of 1971, precipitated an adverse reaction in the United States. Placing political critics on trial and the kidnapping of Kim Dae Jung in 1973 led to renewed U.S. protest.

The South Korean political system had deteriorated to a point where Congress threatened to cut military aid. Congress held true to its threat by approving only $146 million in military grants in 1975. An additional $20 million was withheld until the President was satisfied that political rights were restored.[37] This $20 million was never allocated. The 1975 allocations reflected a $23.8 million dollar reduction from 1974.

Events that transpired in 1975 and early 1976 made U.S. restriction short-lived. A second tunnel was discovered under the DMZ in 1975. The pivotal event however was the August 18, 1976 axe-slaying of two U.S. Army personnel at Panmunjom. This brutal act triggered an immediate response from the U.S. including: the dispatch of a carrier task force, the placement of all U.S. troops in Korea on full alert, the deployment of an F-111 squadron to Korea, and the patrol of the DMZ with B-52 aircraft.[38] Additionally, U.S. military aid appropriations to South Korea jumped from $146 million in 1975, to over $230 million in 1976.

Under the Carter administration (1976-79), South Korea has received more military aid than under any previous administration

for a comparable period. Total appropriations for 1977-79 totaled over $435 million, with an estimated $278 million in 1979 alone. The 1979 allocation comprises over two-thirds of the U.S. aid to the Far East. This aid is largely due to Carter's decision to withdraw U.S. troops from Korea. The planned withdrawal was suspended because of a "new DIA intelligence analysis" which indicated increased North Korean total force levels and armor assets.[39] Although the troop withdrawal was halted, aid for improvement of ROK forces was not.

The improvement of ROK forces was initiated in 1976 with the Five-Year Force Improvement Plan (FIP). This plan was designed, at a program cost of $5.5 billion dollars, to reduce deficiencies and to modernize ROK forces. The South Korean Government levied a five-year defense tax to enlarge its domestic arms industry and to pay for the FIP. Additionally, $275 million in Foreign Military Sales (FMS) credits were provided by the U.S. in 1979, and like amounts can be expected for the next several years.[40]

Arms transfers to South Korea, like those to North Korea, were mostly defensive in nature during the 1970's. The only real air threat is posed by the 47 F-4-D/E aircraft provided to South Korea from 1971-77. The sale of 60 additional F-4's was approved in 1979, however, these aircraft are not yet delivered. Offensive capabilities for ROK ground forces have been improved by the transfer of over 500 M-48 tanks which South Korea converted to M-48 A-5's.

South Korea's defensive capability mushroomed during the seventies. With the addition of 150 F-5E fighter aircraft delivered in the seventies to their previously acquired aircraft which included F-4's, South Korea became quite capable of defending itself from an attack. Further reinforcing South Korea's defensive capabilities were over 1,500 AIM-9 and AIM-7 advanced air-to-air missiles, the Nike Hercules, and Hawk surface-to-air missiles, and the Vulcan 20mm anti-aircraft system added in the seventies.

South Korea's Navy has been updated with American and French ship-to-ship missiles. The extent to which South Korea's services were improved by arms transfers can be determined by examining Appendix A, Table 15.

III. INDIGENOUS PRODUCTION

The magnitude of problems caused by Korean arms production efforts are only beginning to become apparent. Although these industries may help preserve internal security and deter external threats, they also carry the potential to create regional and international instability. Many questions remain as to how serious a problem they will become, their effects on regional and international stability, and how much they will complicate great power efforts to manage regional conflicts. This chapter will examine the development and implications of arms production in North and South Korea, and their effects on stability.

A. DEVELOPMENT OF ARMS INDUSTRIES

Both Koreas have been driven by security, economic, and political motives to develop their own arms industries. These reasons also have pushed them to manufacture a growing variety of weapons, both for indigenous use and for export. To date, arms industries in both Koreas are dependent on foreign technology input; however, these inputs have developed an indigenous data base, and increased local manufacturing skills to a point where most systems can be manufactured without relying upon imported parts.

Motivation for arms development will be the first aspect examined, followed by actual production capability. Next, the stage of industrial development in arms industries in each country will be determined by using Micheal Moodie's model. Finally, a study of how arms

industries development in the two Koreas will affect regional stability, and how major power's ability to control military events on the Korean Peninsula will be addressed.

B. MOTIVATIONS FOR ARMS PRODUCTION

North and South Korea share the same basic reasons for developing their arms industries: national security, economic growth, and political stability. These motives are apparent in all Third World countries that seek to develop an indigenous arms production capability, despite the intent sometimes being disguised under different titles.[1]

1. National Security

The foremost reason for developing indigenous arms industries in both North and South Korea is for national security. Both countries have lived in fear since an uneasy peace was enforced by the armistiee agreement of 27 July 1953. The threat of renewed conflict has loomed ever-present, fired by opposing and antagonistic regimes, both claiming to be the sole government of Korea.

Dr. Donald Goldstein concluded in his article "Third World Arms Industries" that states whose independence had been threatened typically seek to develop local arms industries when alternative sources are not available, or when sources are believed to be unreliable.[2] The future of the Governments of both North and South Korea were seriously threatened during the Korean War (1951-53). Subsequently, both

North and South Korea have been threatened with the cut-off of military aid due to political differences with their suppliers.

a. North Korea

North Korea's major arms supplier, the Soviet Union, completely severed economic and military aid due to political issues stemming from the Sino-Soviet dispute. When this occurred in the early 1960's, North Korea was able to turn to China for help, China was unable to supply the quantity of military aid needed. Not until relations were restored with the Soviet Union in 1965 did North Korea's economy and military readiness begin to recover. This year also was important because it marked the beginning of the development of indigenous arms industries in North Korea. The development of North Korea's arms industry was in direct response to the unreliability of its arms supplier, the Soviet Union.[3]

b. South Korea

South Korea has experienced better military and economic support than has North Korea. However, their support was threatened in the early 1970's because of political differences with its supplier, the United States. In 1974, Congress commenced hearings on the "human rights situation in South Korea". They were on the verge of cutting aid to protest the political situation when an assassination attempt by a North Korean agent from Japan was made on President Park. Park escaped death, but his wife was killed.[4] This event stayed the U.S. Congress from severely cutting aid to South Korea.

President Nixon's proclamation of a new U.S. defense policy in 1969, and the subsequent withdrawal of the U.S. 7th Division from Korea, pushed South Korea toward local production of arms in the mid-seventies.[5]

President Carter's 1977 decision to withdraw all U.S. ground troops from South Korea, although later rescinded, increased South Korea's fears astronomically. This led to increased emphasis by South Korea on rapidly developing its arms production industries.[6]

Apprehensions about national security have spurred the creation of domestic arms industries in both Koreas. These domestic productions act as a kind of ultimate insurance for national independence. Indigenous arms production has allowed both countries to reduce their dependence on external suppliers, and to pursue a more independent course without the fear of loss of military efficiency due to an arms embargo. Thus, national security has been the driving force for the development of arms industries.

2. Economic Motivation

Secondly, there are economic motives for arms production. They reduce foreign exchange expenditures for imported arms, create employment, provide increased foreign exchange through export of weapons, and realize spinoff benefits in the industrialization process.[7]

The need for foreign exchange and reduced cash outflow has led both Koreas to export indigenously produced weapons. South

Korea entered the arms export business in 1976 with a meager $5 million dollars in exports. But, by 1977, their exports jumped to $111 million dollars.[8]

Exact statistics are not available for North Korean exports, however, SIPRI list them as the world's twenty-fourth largest arms exporter, and fifth largest Third World producer of major weapons systems. Recent news reports that North Korean weapons were being used by Iran in the Iran-Iraq War seem to support the belief that North Korea is independently expanding arms sales to gain foreign capital, as well as other economic benefits (i.e., secure future oil supplies).[9]

Both North and South Korea currently need foreign capital for economic development. Arms exports are a viable method of obtaining the needed capital.

The cash flow into the Koreas from the export of weapons is only one of many economic benefits from indigenous arms production. Employment also is increased, and spinoff benefits are provided in other sectors of the economy.[10]

a. North Korea

North Korea's economy is a high-pressure Communist economy which works on the concept of full employment. Although everyone in the market may be employed, many are underemployed. The development of local arms production makes better use of labor by shifting them from rural areas into manufacturing areas. Skills used in producing

armored personnel carriers also are needed to produce automobiles. This offers further independence of external sources.[11]

b. South Korea

South Korea's export-oriented economic system also has benefited from the development of an indigenous arms production industry. It has allowed the unemployment rate to be reduced, thereby cutting the need for social welfare and easing tension caused by unemployment.

The newly developed auto industry also has benefited from technological skills developed in the arms industry. Those skills developed in military radio production are directly transferable to the private production sector in TV and radio manufacture. Thus, South Korea has benefited by increased employment and spinoff technology transferable to the civil sector.

The development of indigenous arms production subsidizes industrialization as well as provides independence from importation of arms. The benefits and spinoffs are not without cost. Markets must be established before arms sales are made. Initial costs of establishing an industry and buying the technology are high. Finally, resources are diverted from other sectors of the economy where they might have been used more effectively.[12]

3. Political Motives

Political motives also are a factor in the development of indigenous arms production. Fraction within the Army is the only internal threat to the existing regimes in both North and South

Korea. If the government is unable to supply the army with needed material, they might attempt to overthrow that government and replace it. Relying on external suppliers requires a government to meet the demands of the supplier as well as those of their army.[13]

Often, suppliers are not willing to deliver weapons systems requested by a recipient's military force; thus, two-way pressure is placed on the government. By developing an indigenous arms production capability, local governments can supply their armies with needed weapons and reduce the dependence on external sources.

Locally produced arms also allows a government to meet external threats on more favorable terms. South Korea's dependency on imported arms placed them in a position of inferiority which led directly to the Korean War. Although North Korea was supplied with enough arms and supplies to defeat South Korean forces, they were not given enough arms and ammunition to defeat both South Korean and U.S. forces in the early days of the war when victory was within their grasp.[14]

Both Koreas have turned to indigenous production to meet external threats. South Korea has developed a massive supply system capable of sustaining a short war. North Korea has developed a supply system capable of supplying its forces for three months in an all-out war.[15]

Another political motive is prestige. Both Koreas have attempted to establish themselves as Third World leaders through political and economic maneuvering. North Korean claims of defending

itself against South Korean and U.S. troops by developing its indigenous arms industry has been very successful in gaining prestige. South Korea has used its economic growth and developing arms industry to offset North Korea's Third World influence. The ability to supply arms carries enormous clout in Third World countries. Both Koreas are making full use of their arms industries to establish their image.[16]

The development of indigenous arms industries in both Koreas has been driven by three motives: national security, economic growth, and politics. The full impact of their industrial development is not yet known. However, estimates can be made as to the stages of industrialization their arms industries have reached by using current production capabilities.

C. NORTH KOREAN INDIGENOUS ARMS PRODUCTION

North Korea has a large and well-developed arms production industry. Current production capabilities are shown below, by service. These tables are only a "best estimate" of current production capabilities. Actual production is a state secret; however, unclassified sources were combined to establish these figures. The tables also include equipment indigenously produced under license.[17]

1. Army

North Korea produces all equipment for its ground forces. They are believed to have the capability of manufacturing 20 T-62 tanks per month. South Korean sources say North Korea may have produced and deployed about 2,600 T-62 tanks. North Korea also produces their

own artillery and light infantry weapons, and the ammunition for each.[18] The production of APC's and amphibious fighting vehicles further adds to their military capability.

TABLE 1

NORTH KOREAN INDIGENOUS ARMS PRODUCTION-ARMY[19]

Artillery Towed	122mm 130mm 152mm
Self-Propelled	SU-76 SU-100
Tanks	T-62
APCs	BTR-40 -60 -152 K-61 Amphibious vehicle
Infantry Weapons	7.62 (AK-47) 7.62 Light Machinegun
Mortars	120mm 160mm 240mm
Recoilless Rifles	82mm 106mm
AAA	37mm 57mm 85mm
Plus ammunition for all basic weapons	

SOURCE: Multiple Sources

Most of the indigenously produced equipment in North Korea is of the older Soviet design. The simple design characteristics of this

equipment eliminates most of the technological problems involved in arms production. Being simple in design also allows for easy maintenance.

2. Navy

North Korea has developed a small navy, well-suited for its needs. In recent years, North Korea has been producing most of its naval vessels. Currently they produce gun and missile patrol boats which are ideal for coastal patrol.

TABLE 2

NORTH KOREAN INDIGENOUS ARMS PRODUCTION-NAVY[20]

Gun Boats	Chaho Class Chong Lin Class
Landing Craft	Nampo Class ICM type LCU type
Patrol Boats	Taechong Class
Frigate	Najin Class
Submarines	Midget Class Romeo Class

SOURCE: Multiple Sources

They also produce landing craft and submarines which could be used to land North Korean troops behind South Korea's forward defenses. In addition, they produce frigates, which combined with their submarine force, gives them a formidable mining capability. Although North Korea produces the basic vessels, they still are reliant on imported electronic equipment and missiles.[21]

3. Air Force

North Korea received permission to manufacture the MIG-21 under license in 1974. This production would be heavily dependent on Soviet equipment and electronics. The first aircraft were planned to be completed by 1978. To date, there is no indication that North Korea has been able to master aircraft production. However, lack of information prohibits final judgment on the progress made in this program.[22]

TABLE 3

NORTH KOREAN INDIGENOUS ARMS PRODUCTION-AIR FORCE

Fighter Aircraft	MIG-21 (?)

SOURCE: Multiple Sources

North Korea has an extensive arms production industry which was established in the mid-sixties when military support was cut by the Soviet Union. Their heavy industry base aided by an abundance of iron-ore and coal has allowed them to become self-sufficient in production of ground equipment and reduce their dependency on external naval support. More than any other factor, the development of indigenous arms production has allowed North Korea to pursue an independent course of military and political development.

D. SOUTH KOREAN INDIGENOUS ARMS PRODUCTION

Arms industries have been established much longer in North Korea than in South Korea. Until recently, the early development of North Korea's arms industry provided a significant advantage in weapons production.

South Korea did not enter the arms production industry until the mid-seventies; however, by 1977 they had over $110 million dollars worth of arms exports.[23] This was an increase of $100 million dollars plus over the previous year when arms sales were a meager $5 million dollars. This enormous growth in the arms industry was fueled by South Korea's highly skilled and educated populace, combined with massive U.S. support. It has allowed the South Koreans to become almost totally self-sufficient in weapons production. Thus, by the end of the 1970's, South Korea had countered much of North Korea's advantage in arms production.

1. Army

South Korea is almost totally self-sufficient in the production of equipment for their ground forces. They manufacture all of their light infantry weapons and towed 105mm and 155mm howitzers.[24] They have a massive tank reconstruction program converting M-47 and M-48 tanks into M-48 A-5's.[25] Recently they started production of the Fiat 6614 Oto Metara amphibious infantry fighting vehicle.[26] They also produce ammunition for all weaponry.

South Korea is still dependent on the United States for advanced infantry weapons such as the TOW anti-tank missile. They require U.S. technical support in the development of artillery production. With U.S. support, South Korea has steadily increased the quality and quantity of basic weapons production.[27]

TABLE 4

SOUTH KOREAN INDIGENOUS ARMS PRODUCTION-ARMY[28]

Artillery	105mm 155mm
Tanks	M-48-A5 Conversion Light Tank prototype
APCs	Fiat 6614
AAA	20mm Vulcan
Infantry Weapons	M-16
Mortar	60mm 81mm 4.1"
MRL	M-72
Recoilless Rifle	75mm 106mm 157mm
Plus ammunition for all basic weapons	

SOURCE: Multiple Sources

2. Navy

South Korea's naval production is one of the fastest growing industries in Korea. The recently completed Hyundoi Ship Works is the largest single shipbuilding facility in the world. This increased production capability will supplement the Tacoma Marine Industries, which currently produces the PSMM-5 class fast patrol boat. Although South Korea is using U.S. designs for their fast patrol boats, they have made extensive modifications avoiding U.S. restriction on sales.[29]

TABLE 5

SOUTH KOREAN INDIGENOUS ARMS PRODUCTION-NAVY[30]

Fast Patrol Boats	PSMM-5 Class
Submarines	Small Prototype

SOURCE: Multiple Sources

South Korea also has developed a small prototype submarine. This was produced despite U.S. claims that South Korea did not need a submarine force. Currently they lack the technical expertise to enter full-scale production of modern submarines, but the production of the prototype is a major technical breakthrough. Also, procuring the submarine production over U.S. objections shows a growing independence in the South Korean arms industry.[31]

3. Air Force

South Korea and the United States currently coproduce the Hughes 500-D in-country. They also produce most of the components of the 36 F-5 E/F aircraft indigenously. Only the F-5 engines, and a certain amount of airframe parts are fully coproduced. The U.S. has supplied South Korea with full logistical support packages, all production tooling, data, and training and technical assistance. This will greatly improve South Korea's aircraft technology program, and speed up their F-5 indigenous production development.[32]

TABLE 6

SOUTH KOREAN INDIGENOUS ARMS PRODUCTION-AIR FORCE[33]

Fighter Aircraft	F-5E/F
Helicopter	Hughes 500-D
Trainers	PL-2

SOURCE: Multiple Sources

4. Missiles

South Korea successfully tested its first surface-to-surface missile in September 1978. This was a missile entirely developed by Korean technology. The solid fuel missile has a range of 100 to 160 Km which would allow it to hit any target in North Korea.

A second surface-to-surface missile has been developed by South Korea which resembles a shortened version of the Honest John. Little is known about its capabilities. Both new missiles were publicly displayed in the 1979 military day parade.[34]

South Korea has rapidly developed its indigenous arms production industries. Although actual production did not begin until the mid-seventies, they have expanded so quickly that South Korea is almost self-sufficient in the production of ground weaponry and naval units. The quality and quantity of South Korean arms improved rapidly making them competitive in the arms market. Although South Korea is dependent on advanced weaponry from the U.S., they have quickly moved toward an independent arms industry.

E. ARMS PRODUCTION COMPARISON

A comparison of the stages of development attained by each of the Koreas can be made using their current arms production capabilities, and Micheal Moodie's "Third World Defense Industry Development Model." Moodie's model is used because it provides a logical comparative base that is easy to follow. Moodie states that there are seven steps through which a developing defense industry must progress:

> First, maintenance and overhaul facilities are established for repair and service of imported arms.
>
> Second, indigenous assembly of weapons systems or equipment under licenses with prefabricated kits assembled in domestic plants.
>
> Third, indigenous assembly continues, however, simple components are locally manufactured, under license, while more sophisticated components are imported.
>
> Fourth, domestic production capabilities are increased to allow complete systems production locally under license.
>
> Fifth, domestic arms producers obtain the ability to make modifications in systems produced under license. These modifications may be extensive enough to allow the licensee to claim that their modifications are sufficient enough to void the licensing agreement and its controls.
>
> Sixth, production of domestically designed and tested systems is undertaken using only imported components of more sophisticated technologies.
>
> Seventh, domestically designed systems using no imported components are produced.[35]

Using this model, a comparison can be made between North and South Korea as to their respective stages of development of arms production industries, and their progress toward complete arms independence.

1. North Korea

North Korea is in the late stage of development in middle and low technology items. They have the production capability to manufacture ground equipment without any imported parts; however, they do use Soviet designs. These systems are simple designs using outdated Soviet technology. Although their equipment is not really up to date, its simple maintenance and rugged design makes it better suited for Third World Armies than newer, more complicated equipment.

North Korea is behind in high technology industrial development. The problems of licensed production of the MIG-21's reflect these deficiencies. Although North Korea received a license to produce this aircraft in 1974, no indigenously produced aircraft have been identified as of this date.[36] Similarly, there are no known missile systems or electronic components produced in North Korea. From available data, North Korea is somewhere between the second and third levels on Moodie's model.

2. South Korea

South Korea has moved rapidly through the arms industry development process. Their large economic base has allowed them to reach the upper levels of industrialization in median and low technology weapons. Considering that South Korea produces all infantry weapons and ammunition, they could be considered to be in the late sixth or early seventh stage of arms industrialization. In low and median technology systems production, South Korea has made great

advances on closing the gap with North Korea. They actually have passed North Korea in industrial development by designing their own tanks and submarines, while North Korea still relies on Soviet designs.

South Korea's greatest arms production advantage lies in high technology production. By developing an export-oriented economy, South Korea developed a technically skilled labor force. Skills developed in producing TV's and radios were readily transferable to electronics used in military equipment. Similarly, skills developed in the emerging auto industry were used to produce the Fiat 6614 amphibious infantry fighting vehicle. South Korea's indigenous production of missiles, coproduction of aircraft, and development of electronic systems indicates that they are moving from the late middle stage of industrialization into the early final stage of high technology production.

Actual comparison of the two countries arms production capabilities shows that North Korea enjoys a slight lead in actual production of low and middle technology production, with South Korea quickly closing. However, South Korea has surpassed North Korea in industrial development by designing its own low and middle technology equipment. With South Korea's larger economic base and emerging steel industry, they should outdistance North Korea in low and middle technology arms production in the early 1980's.

South Korea enjoys a substantial lead in high technology systems production. This advantage was gained largely by the state organized

Fine Instrument Center which supports development of electronic, mechanical, and technical industries. This agency aids development and conducts research in high technology areas for military and civil industries. Although North Korea is advancing in the high technology areas, the gap will continue to widen favoring South Korea.

F. EFFECTS OF ARMS DEVELOPMENT

The full effects of the emerging arms industries in the two Koreas are only beginning to become apparent. Although both countries developed their arms industries to satisfy their own security needs, by developing these industries they removed one of the tightest constraints to conflict--their dependency on external sources for arms. Although the full effect of the development of arms industries in North and South Korea are not clear, it seems certain that the major powers have lost much of their ability to influence events in Korea.[37]

The ability of both Koreas to provide for their own defense requirements may not be as pessimistic as stated above. This will shift the burden of maintaining military balance to the countries directly involved. This will require both North and South Korea to carry a larger portion of their defense requirements and grant the superpowers more political and military options in Northeast Asia.

In this case, not only might pressure of regional conflict be lessened, but the need for outside great power intervention, either directly or through arms transfers, might be reduced. Although presently it may be expedient for both Koreas to provide for more

of their own security needs by developing their arms industries, leverage will be lost for present expediency.

Evidence of the loss of leverage by the major powers already has begun to appear in Korea. North Korea, for example, currently is supplying arms and ammunition to Iran allowing them to fight the Soviet supplied State of Iraq.

Donald Goldstein points out that great powers are more attuned to total world order considerations, and are more likely to weigh international security than Third World countries. The influx of Third World arms may lead to longer military actions of greater intensity than if both combatants were dependent on major powers for arms.[38]

Therefore, the net effect of the development of arms industries in both Koreas has been an increase in their political and military maneuverability. Both have increased their involvement in regional and international affairs through the transfer of indigenously produced arms. While increasing their freedom in the international arena, they have reduced the major powers freedom by supplying arms to states that formerly were dependent on major powers for arms transfers.[39]

If both Koreas become more independent, due in part to arms production, these trends should intensify. This probably will be more damaging to the Soviet Union than to the United States because of the more liberal arms transfer policy of the Soviet Union. Regardless of its effects on major powers, the trends toward more independence on the

part of both Koreas is likely because of their growing capability to provide for their own national security without depending on outside sources.

IV. KOREAN MILITARY FORCES

In the previous chapters, the elements of military development were studied. This established a base from which to examine the actual development of the military forces of North and South Korea. This chapter will show the patterns of force development that led to the current military situation in the Korean Peninsula.

To determine the significance of the current situation in Korea, a trend analysis will be conducted using the patterns of military development. Since a year-by-year analysis of both military forces would add little to the understanding of overall trends, this study will examine developments over five-year intervals (when applicable), and an overall trend when they provide more clear insights.

Charts showing the actual year-by-year changes are provided to aid this analysis. The combination of these two will allow for a complete trend analysis, and provide progress reports on the modernization efforts of both military forces.

This study will consist of an analysis of military development from 1965 to the present. The year 1965 was selected because that was when North Korea began their modernization efforts. This period also completely encompasses South Korea's modernization efforts which began some five years later. To insure that the trend of military development is perceived in the proper context, the mission of each military force must be known; therefore, before beginning the military analysis, the stated mission of both Koreas will be provided.

A. MILITARY OBJECTIVES

Military objectives, while rather vague, normally provide a good tool for studying developmental patterns. In the case of the two Koreas, external influences are very prevalent in the wording of their military objectives. The objectives are directly reflected in the mission statements of the respective Armies, since the Army is the dominant military unit in both countries.[1]

1. North Korea

The mission, or objective of the Korean People's Army was defined in Article 100 of their Constitution. Article 100 was taken almost verbatim from the Soviet Constitution and reads:

> "In order to defend the Democratic People's Republic of Korea, the People's Army shall be organized. The mission of the Korean People's Army shall be to defend the independence of the fatherland and the people's freedom."[2]

The special relationship of the Army to the Government, particularly the Party, was defined by amendments 66, 67, and 68 in 1961. These amendments established that:

> "The Korean People's Army is the armed force of the Korean Worker's Party; that the Army Party Committee shall be organized, and that it will belong directly to the Central Committee."[3]

It also develops links between the Party organization within the Army, and the local Party organizations, which again follows the Soviet example.

From these examples, a mission statement can be derived. The primary mission of the Korean People's Army is to defend the

Democratic People's Republic of Korea (DPRK), and the people's freedom. Furthermore, it can be ascertained that direct control of the Army lies in the hands of the highest political body, the Central Committee of the Korean Worker's Party.[4]

2. South Korea

The mission of the Republic of Korea's military was described by former President Park to be:

> "To ensure the success and realization in peace of the Revitalizing Reforms of the Nation [this is the program established by President Park's 1961 coup], to be the driving force for the advance of the Korean people, and the restraining force against the outbreak of another war and disorder. . . . In order to restrain and cope with any kind of enemy surprise invasion (and obtain the final victory if this occurs) immense combat strength should be maintained in accordance with the strength-against-strength principle."[5]

Thus the mission of the ROK Armed Forces is to be a deterrent against invasion, with a secondary role of aiding economic development during peacetime. Furthermore ROK Forces are to be sufficiently strong to obtain a victory if attacked. Like North Korea, effective control of the military is maintained at the highest levels of government.[6]

B. PATTERNS OF MILITARY DEVELOPMENT

In studying the patterns of military development, care must be taken to insure that undue emphasis is not given to numbers alone. Many times a number such as total force levels may show one side totally superior to the other, when in reality, both sides are equal. This was the case in 1965 when South Korea had almost a two-to-one advantage in total force strength.

In reality, both Koreas had 18 maneuver divisions of equal firepower. Likewise, other elements, both tangible and intangible, must be considered in force comparison: terrain, morale, leadership, firepower, training, and combat experience--just to name a few. So, in considering military advantage, all available facts must be weighed before ascertaining which side has the military advantage.[7]

This study of the patterns of military development will begin with a general study of total force levels from 1965 to the present. Then a more specific study of the development by individual services will be made. Again, caution should be used in making judgments about the military balance in Korea from trend analyses. Although trend analyses show the direction in which military capabilities are moving, they are by no means the final factor.

1. Total Force Comparisons

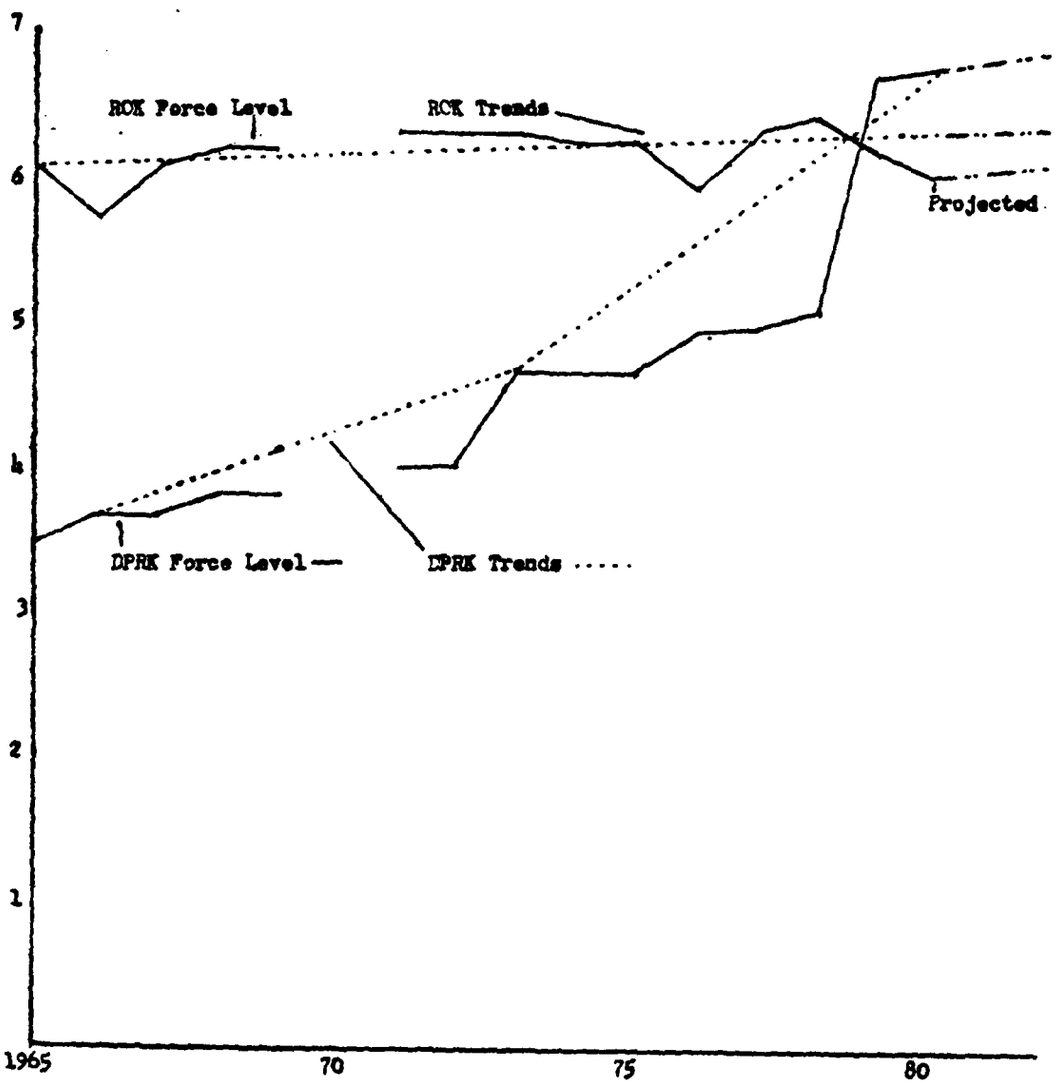
Using total forces as a measure of military strength, South Korea held a substantial lead until the late 1970's (as shown in Chart 1). South Korea had almost a two-to-one lead over North Korea in 1965. The trends since then have reflected the stated objectives of both countries. North Korea has been chipping away at South Korea's lead. South Korea has maintained a relatively constant, strong military force of over 600,000 men.[8]

a. North Korea

Analyzing the trends in total force levels (using four base years--1965, 1970, 1975, and 1980) the changing indication perceived of national security needs can be determined.

CHART 1

NORTH/SOUTH TOTAL FORCE LEVEL COMPARISON CHART, 1965-1980



SOURCE: The Military Balance, London: IISS, 1965-1980.

In 1965, North Korea had some 279,000 fewer men on active duty than did South Korea. This had been the trend since the end of the Korean War, because of the insecurity of both North and South Korea due to relations with major allies, and their proximity to their allies. However, the instability caused by differences with major allies, and the Sino-Soviet split, caused North Korea to pursue an independent course in the mid-sixties.

The increase in total forces shows North Korea's growing independence. By 1970, North Korea had reduced South Korea's advantage to 50,000 (to 226,000) men, and by 1975 by another 75,000 men (to 152,000). Continuing their drive for total force equality, and lowering their draft age to 16, by 1978 North Korea was able to overtake South Korea. Continued effort allowed North Korea to obtain a 75,000 man advantage in total force deployment by 1980.[9]

b. South Korea

The South Korean's need for security is reflected also by their force levels. Following the Korean War, South Korea maintained this high force level; the level can be related directly to insecurity following the Korean War.[10]

In the early 1960's, under the leadership of President Park, South Korea had begun a rapid economic development. This emerging economy (and strengthened military capabilities through massive U.S. arms transfers) gave South Korea the confidence to accept the increase in North Korea's total force strength without undue alarm.

Continued economic growth, increased capabilities of ROK units, and U.S. presence allowed South Korea to maintain relatively stable force levels in spite of enormous gains by North Korea.[11]

The current force levels in both North and South Korea allows both countries to meet their military objective of "defense of the homeland". Considering the force levels as a percentage of population (5% for South Korea, and 12% for North Korea), continued expansion is unlikely. In the past 20 years, South Korea has expanded its total forces by only 20,000 to 40,000 men, while their population has increased by 10 million. In the same period, North Korea has increased their force by 325,000 men while their population has expanded only five million.[12]

The trend of total military expansion shows that South Korea is unwilling to increase their force to the levels that would be needed to invade North Korea. North Korea's continued expansion efforts have allowed them to gain a slight advantage over South Korea in total forces deployed. However, since 1979, when updated figures indicated that North Korea held a military advantage, they have only slightly increased their force levels. It is unlikely that any drastic change in force levels will occur in the foreseeable future. North Korea is unable to mobilize the required forces to invade the south due to South Korea's population advantage. South Korea is unwilling to commit resources required to obtain military superiority needed to invade the North.

2. Ground Force Comparison

The Army is the largest and most important part of the armed forces in both Koreas. The amount of men and material allocated to the ground forces, as compared to the other services, indicates their relative importance.[13]

Using the four areas shown on Chart 2 (Army Strength, Number of Active Divisions, Number of Tanks, and the Number of Artillery), a comparative analysis can be made of the development process in the ground forces. The total active Army shows the potential numbers of men that either country could muster without mobilizing reserves or para-military units. The number of active divisions gives the best indication of actual military preparedness. The number of tanks gives a good indication of offensive capability, and the total artillery provides information about supporting fire and defensive capability.

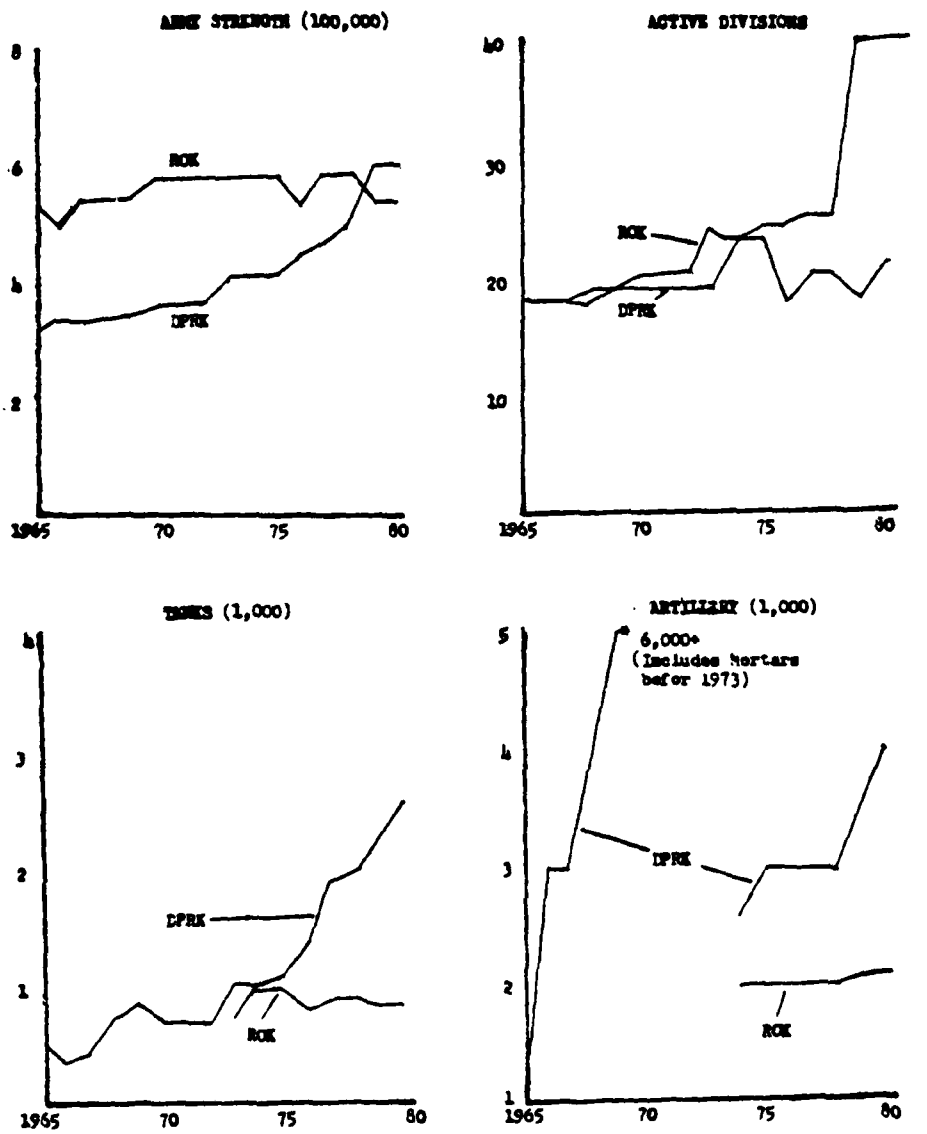
Again, as with total force levels, the information must be carefully scrutinized remembering that North Korea generally overstates their capabilities, and South Korea generally understates theirs.[14]

a. North Korean Ground Forces

North Korea's ground forces are designed along the Soviet model stressing shock and maneuver tactics for their armor and mechanized infantry, and designed along the Chinese model for light infantry.[15] Both the Soviet Union and China stress high firepower structure for their armies, with large numbers of artillery pieces and mortars.[16]

CHART 2

GROUND FORCE PERSONNEL AND EQUIPMENT COMPARISON, 1965-1980



SOURCE: The Military Balance

Their large number of maneuver battalions, and high unit firepower structure reflects the external influence on the Korean People's Army. Chart 2 shows the actual stress that North Korea places on shock, maneuverability, and firepower. A further breakdown by elements will show this even more clearly.

North Korea currently has 35 light infantry divisions. Each of these divisions are organized on the old style Soviet or Chinese models. They are composed of 9,000 men which comprises three infantry regiments of three battalions each, three artillery battalions (each with 18 tubes of 7.62mm field howitzers, 122mm medium guns, and 120mm mortars), an anti-tank battalion (with 24 37mm and four 14.5mm guns), an assault-gun battalion (with 18 100mm SPG's), an engineer battalion, a signal battalion, a reconnaissance company, and a chemical warfare company. Although the North Korean division has 2,000 men less than the South Korean division, their stress on high unit firepower allows each division to equal the firepower of a South Korean division.[17]

The development of large numbers of infantry divisions, tanks, artillery, and mortars reflects North Korea's concern about national security. Although the trends shown in Chart 2 indicate a development of an offensive thrust, closer analysis denies this concept. North Korea's 2,500 tanks are divided roughly into three equal components: first there are two armored divisions; then five armored regiments attached to corps echelons; and finally, there are

42 companies and battalions assigned to infantry and motorized divisions. The fact that North Korea has only about 600 tanks assigned to armored divisions indicates that they would not be used for offensive purposes. Likewise, many of North Korea's heavy artillery pieces are in fixed Y-shaped bunkers facing the DMZ.[18]

Thus, North Korean ground forces, although offensive by design, are deployed in a defensive mode, with their armor to the rear, and their artillery sights fixed. All indications regarding North Korea's expansion in ground forces point to an increased emphasis on self-reliance. With the growing belligerency between their major allies, North Korea seems to have developed a ground force capable of defending their homeland without external aid. If the trends of military expansion continue in North Korea, South Korea will counter with a massive military buildup.

Due to South Korea's population and GNP advantage, it would be unlikely that North Korea would pursue such a goal. The trend since the reevaluation in 1978 indicates that North Korea has halted their rapid expansion. The current ground level in North Korea insures they will not be invaded by the South, while posing only minimal threat to South Korean security.

b. South Korean Ground Forces

The Republic of Korea Army (ROKA) is organized along the old U.S. regimental model. This triangular structured army is well-suited for fixed-place, attrition-type warfare. In South Korea's

situation, this mode is well-suited for defense of the main attack corridors. The rough terrain along the DMZ further aids South Korea's defensive posture. The terrain denies the use of armor and mechanized units except in narrow corridors which have been heavily fortified. South Korea's Army structure is designed for the deterrent role it assumes.[19]

The ROKA infantry has adopted the U.S. Army's objectives of organizing the battlefield. This requires South Korean forces to contain and channel advancing forces into areas where they can be destroyed by concentrated artillery fire. South Korea has developed a massive defensive line of fortified strongholds and tank traps to accomplish their objective.[20]

Statistics on South Korea's Army development are very misleading since they generally understate actual strength. The large numbers of independent brigades and battalions allows much of their equipment to go undetected. Also, the change in reporting systems causes significant underestimation of actual strength during the period 1966-1976, and probably in 1979-1980.[21] (See Chart 2.)

The number of active divisions is also misleading. Although South Korea has shown 18 to 24 active divisions since the mid-sixties, they have had ten divisions in reserve. These reserve divisions are assigned to the Second Army, and maintain a full cadre at all times. The troops are reservists, however, they have frequent training which maintains their combat readiness.[22]

Questions also can arise about the number of tanks and artillery tubes in the South Korean inventory. The ROK Army received 421 M-48 tanks in 1978, and an undetermined number (over 200) in 1979 and 1980. However, the reported numbers are actually less than in 1977. Similarly, South Korea has been producing 155mm and 105mm howitzers since the mid-seventies, but their reported inventory has increased only slightly.[23]

A more realistic view of the trends would still show South Korean forces trailing the North in firepower, but not nearly as much as projected in the SIPRI reports used for this data. The IISS Military Balance shows the discrepancy and gives more details about the difficulties in analyzing South Korean ground forces (See Table 16).

Although South Korea's Army is presumably inferior to that of North Korea, it is quite capable of defending their country from invasion. Considering the advantage of defense and terrain, South Korea's ground forces have achieved their goal of defense of the homeland.

The trends of development of ground forces reflects both countries' preoccupation with security concepts and political motives. Both Koreas need strong armies to defend against invasion, and to insure internal stability. The rapid growth of North Korea's Army reflects its efforts to assume independence from China and Russia. Their current strength allows them to assume this role.

Conversely, South Korea has deemphasized military development, or at least reported developments, to insure that U.S. troops

are not withdrawn. This is not to say that South Korea has allowed the North to gain a significant military advantage, nor that South Korea has not provided their fair share of support. What it does mean is that South Korea believes that it is in their best interest to have American troops remain, and that a buildup comparable to that of North Korea might jeopardize U.S. assistance. Trends show that both Koreas have published the "facts" of the development of their ground forces in accordance with political as well as security objectives.

3. Naval Development

The Navy plays an important role in national defense for both North and South Korea. This is particularly true of South Korea whose lines of communication with major allies are via sea. The development of the Navy of both countries shows the growing importance of this military force, especially in the 1970's, for national security.

The naval forces of North and South Korea are structurally different due to their assigned missions. North Korea has developed a large fleet of torpedo boats and motor gun-boats to protect their coastline and to infiltrate insurgents into South Korea.

Conversely, South Korea has developed a heavier Navy with destroyers and frigates to protect their sea lines of communication. Lately, South Korea has shifted emphasis to coastal defense, while only slightly increasing their large ship force.[24]

a. North Korean Naval Development

North Korea has been very consistent in their naval development policy. They have emphasized small patrol boats and submarine development. In the late 1960's and early 1970's, North Korea greatly increased production of torpedo boats and motor gun-boats. This increased production allowed them to expand from 60 torpedo boats and 30 patrol boats in 1969, to 165 torpedo boats, 134 fast-attack gun-boats, and 70 coastal missile patrol craft in 1980. In addition, the North Korean Navy has expanded from three submarines in 1969, to 16 in 1980.[25]

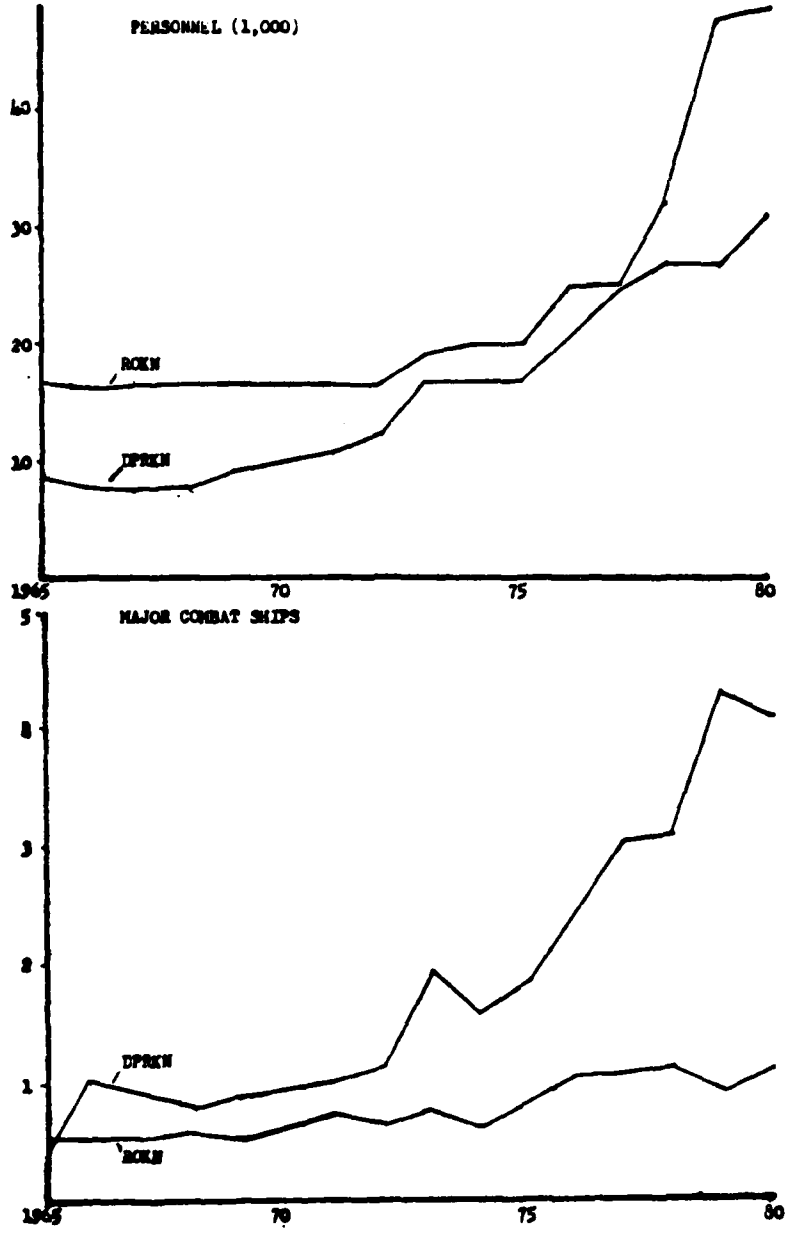
Corresponding with the increased systems capability is the North Korean increase in naval manpower. In 1965, the North Korean Navy consisted of 8,800 men. By 1975, this number had doubled to 17,000 men, and in the following five years, it almost doubled again--up to 31,000 men in 1980. Although the number of combat ships seem to have increased faster than the manpower, they actually are equal because of the small number of personnel required to man the fast patrol boats where the major North Korean vessel expansion has occured.[26]

b. South Korea's Naval Development

Although South Korea seemingly has fallen significantly behind the North in naval developments, these figures are deceiving. South Korea has emphasized large ship deployment increasing their number of destroyers from one in 1965, to seven in 1975, and 10 in 1980. Comparable expansion has occurred in corvettes and frigates.[27]

CHART 3

NAVAL FORCES PERSONNEL AND EQUIPMENT COMPARISON, 1965-1980



SOURCE: The Military Balance

With the expansion in large ships, there was a need to increase drastically the number of personnel in the Navy. This increase is shown in Chart 3.

Recently South Korea has initiated effort to improve their coastal defense forces. They currently are producing the PSSM-5 fast patrol boat which has significantly aided in this area.[28] Also, South Korea recently completed the world's largest shipworks which will undoubtedly speed South Korea's naval development.[29]

Trends in both navies, as shown in Chart 3, are toward strong self-sufficient forces. Both Koreas have highly developed ship production works which have aided in the development of these forces. The development of each Navy reflects concerted efforts to achieve goals set by their respective Governments. The naval trends clearly show that both Koreas are willing to place large amounts of resources into needed defense areas if their security is threatened.

4. Air Force Development

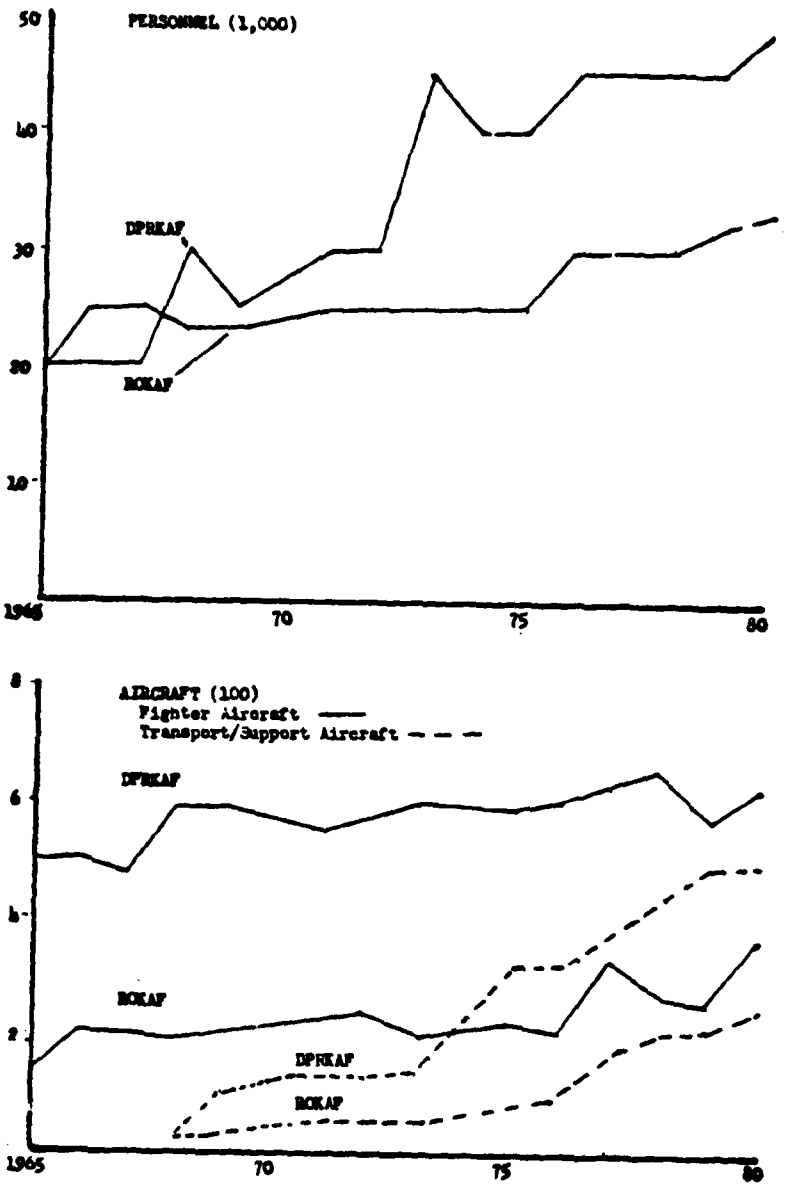
The Air Forces of both North and South Korea are designed to protect their homeland from attack, and to support their ground missions. Chart 4 shows the changes in Air Force personnel, fighter aircraft, and transport/trainer aircraft since 1965.

a. North Korea

North Korea has maintained a numerical superiority in aircraft since the end of the Korean War. However, this superiority is needed to offset the qualitative advantage of South Korea's Air Force.[30]

CHART 4

AIR FORCE PERSONNEL AND EQUIPMENT COMPARISON, 1965-1980



SOURCE: The Military Balance

The trends show North Korea expanding their Air Force personnel, and transport/trainer aircraft, while combat aircraft have remained relatively stable at 600.[31] What the trends fail to show is the quality of North Korea's air assets. In 1965, the North Korean Air Force was composed of 500 MIG-15's, MIG-17's, and Il-28 aircraft. By 1970, the MIG-21 had replaced the MIG-15's and MIG-17's as the first line interceptor. Since 1970, North Korea has increased the number of MIG-21's from 60 to 120, but it is still their most modern interceptor. The bulk of North Korea's combat aircraft is still MIG-15's, 17's, and 19's.[32]

The most drastic change in North Korea's Air Force has occurred in transport aircraft. The largest single change has been in the An-2 transport aircraft (40 in 1970 to 200 in 1980). Although this is an old design aircraft, it is well-suited for infiltrating troops into South Korea, and to resupply them. Due to the extremely small radar return of the An-2, and North Korea's large number of guerrilla warfare units, the An-2 is the most feared aircraft in the North Korean inventory.[33]

b. South Korean Air Force

South Korea's Air Force has improved both in quality and quantity in the past 15 years. In 1965 it was composed almost entirely of F-86 aircraft. Beginning in the early 1970's, the F-86 aircraft were being replaced by more modern F-5's. By 1975, the F-5 was the mainstay of South Korea's tactical airforce, and by 1978,

only 50 F-86's remained in active service. South Korea's qualitative edge was greatly enhanced in 1971 when the F-4 was added to their inventory.[34]

South Korea's efforts in developing their Air Force have been rewarded. With their current inventory of 60 F-4's, and 220 F-5 aircraft, their Air Force far outclasses that of the North. While they are numerically inferior, they have better air-to-ground delivery capability, better penetrating capability, large payloads, and far better air intercept capability.[35]

The Air Forces of both North and South Korea have accomplished their missions of protecting their homeland. While North Korea has enjoyed a numerical edge, the Air Force capability advantage has shifted to the South. Both Koreas have placed a lot of emphasis on developing an effective transport system (see Chart 4). With the exception of the An-2's in North Korea, and the F-4's in South Korea, there has been no threatening developments in either Air Force.[36]

C. CURRENT MILITARY SITUATION

Having examined the development of the military forces of both Koreas, we come to the all important question: What is the current military situation on the Korean Peninsula? An excellent source to ascertain the answer can be found in The Military Balance, published by the International Institute for Strategic Studies in London. Data from this source are presented in Table 7, "Comparison of Ground, Air, and Naval Forces, 1980."

TABLE 7

COMPARISON OF GROUND, AIR, AND NAVAL FORCES, 1980

Component	North Korea	South Korea
Active duty personnel	678,000	600,600
Active Army	600,000	520,000
Infantry Divisions	35	20
Motorized Infantry Divisions	3	1
Armor	2	(1)
Separate Infantry Brigades	4	2
Separate Armor Brigades	4	2
Light Infantry brigades	8	0
Paramilitary/Militia	2,500,000	2,800,000
Reserve Forces	338,000	1,240,000
Medium Tanks	2,500	860
Light/Amphibious Tanks	150	0
APC's	1,000	570
Field Artillery	4,000	2,000
MRL's	1,900	NA
Mortars	9,000	5,300
Anti-Tank Weapons	1,500	180 + TOW
AAA	5,000	106
SAM Sites	45	125
Naval Forces		
Personnel	31,000	48,000
Bases	18	8
Combat Ships	400-425	110
Patrol Boats		
Missile	18 (STYX)	8 Harpoon
Torpedo	165	5
Gun	134	10
Coastal	95	28
Submarines	16	0
Air Forces		
Personnel	47,000	32,600
Combat Aircraft	615	362
Fighter Aircraft, SU-7	20	F-4 60
MIG-21	120	F-5 220
MIG-15, 17, 19	390	F-86 50
Bombers	85	0
Transport	251	44
Trainers	200	103
Helicopters	40	61

SOURCE: The Military Balance

By comparing forces listed in Table 7, areas with major differences can be extracted:

TABLE 8

MAJOR DIFFERENCES IN GROUND, AIR, AND NAVAL FORCES, 1980

Component	North Korea	South Korea
Infantry Divisions	35	20
Reserve Forces	338,000	1,240,000
Tanks	2,500	860
Field Artillery	4,000	2,000
MRL's	1,900	N/A
Mortars	9,000	5,300
Combat Ships	400-425	110
Combat Aircraft	615	362

SOURCE: Extracted from Table 7

Since these are the areas having the greatest difference, by comparing and discussing these items an overall force comparison can be made. Although the differences in the numbers of active duty divisions strongly favors the North, it is largely offset by South Korea's reserve program. North Korea currently has 16 more active infantry divisions than does the South. However, South Korea has the cadre for eight divisions assigned to the Second Corps, and reserve personnel assigned to them for quick recall and mobilization. The remainder of North Korea's ground force personnel advantage is more than nullified by South Korea's 1,100,000 ready-reserve force compared to 260,000 for North Korea.[37]

North Korea has a large advantage in armor and armored personnel carriers. However, the usefullness of these weapons is severely

limited by Korea's rough terrain and the limited corridors of attack. Both North and South Korea have turned these attack corridors into "mini-Maginot Lines".[38] Prepared defensive systems are designed to halt armored advance, and channel them into areas where they can be destroyed by artillery and anti-tank fire. Thus, the armor advantage of North Korea adds little to their offensive threat, but greatly to their defensive capability. With the current positioning of armored units behind advanced infantry units, North Korea quickly can advance armored units to the point of attack if their advanced forces are attacked. Conversely, with their armor positioned behind their infantry units, they have limited offensive usefulness.[39]

The most critical imbalance between the Korean forces is in artillery (4,000 to 2,000). North Korea's artillery also is qualitatively superior because of range advantage over that of South Korea. The only long-range artillery in the South are the twelve self-propelled 175mm guns. Adding to North Korea's numerical and range superiority are highly protected firing emplacements excavated into the mountains facing the DMZ. Since both Koreas rely heavily on artillery, North Korean advantage here could be considered a grave threat to the South.[40]

In addition to superior artillery firepower, North Korea enjoys a definite advantage in mortars and multiple rocket launchers (9,000 to 5,300, and 1,900 to zero, respectively). These weapons are excellent against massed infantry and for area denial. Although North

Korea still has a marked superiority in these weapons, South Korea has cut this advantage by indigenously producing mortar and MRL's. South Korea defensive positioning negates much of the firepower advantage gain by the area weapons.[41]

The number and size of ships in each Navy reflect their mission. South Korea's Navy consists largely of destroyer-sized ships used for sea control, whereas the Navy of North Korea is mostly composed of coastal patrol boats and 15 submarines. Each Navy is capable of accomplishing its mission while posing little real threat to the other.[42]

The last major area to consider is the Air Force. The North Korean Air Force is composed of fighters, fighter-bombers, and bomber aircraft. The bulk of these consist of MIG-15, -17, and -19 aircraft which are obsolete in today's air combat environment. Only the 20 SU-7's, and the 120 MIG-21's can be considered modern aircraft. Although North Korea's Air Force is antiquated, it fills its mission of strategic and tactical defense very well.[43]

Although South Korea's Air Force is numerically inferior to that of the North, it is qualitatively superior. South Korea's 60 F-4 fighter-bombers are the most advanced aircraft in the two Koreas. Not only is it superior to any fighter aircraft in North Korea, but it has almost seven times the payload capability of the Il-28 bombers. Also, the 200 F-5 fighter aircraft are comparable or superior to North Korea's MIG-21's. North Korea's numerical advantage loses much of its sting when the actual capabilities are compared.[44]

Supplementing South Korea's Air Force are United States Air Forces in Korea (USAFK). Although the USAFK is not part of the ROK forces, it is perhaps the greatest deterrent to war in Korea. The USAFK are armed with F-4 aircraft capable of delivering nuclear weapons.[45] Thus, the USAFK is a vital part of South Korean deterrence.

If only the tangible assets of the Korean military forces are compared, North Korea would have a clear advantage. But, in considering true capabilities, some intangible factors must be considered. The South Korean population living standard has greatly improved over the past 20 years thereby making an insurgent movement impossible. South Korea's military leaders are highly trained, both in Korean academies and U.S. schools. The ROK forces are highly motivated and well-trained. They have combat experience from Vietnam. And, although there is no material value placed on national pride and defense of the homeland, they would weigh heavily if South Korea were to be attacked.[46]

D. CONCLUSIONS

Viewing the whole picture, the Korean Peninsula is probably the most mobilized area in the world. North Korea has the world's fifth largest Army, and South Korea's is the sixth. Both countries have large reserve forces and para-military forces further adding to the military preparedness of both states.

From the study of the military forces of both North and South Korea, I have determined that both are capable of defending their nations against attack by the other. Additionally, at the present time,

neither has the required strength to attack and defeat the other without outside help. To obtain this leverage, one side would have to pursue a massive and prolonged buildup without the other side taking action to correct the growing imbalance. This imbalance is not likely to take place, considering the leadership in both Koreas today.

V. ECONOMIC EFFECT OF DEFENSE SPENDING

In recent years, research concerning the effect of defense spending on economic growth has increased. These studies have arrived at somewhat mixed results. Until recently it was felt that the economic impact of defense spending should be negative because of the diversion of resources away from highly productive sectors of the economy. However, a new school of thought, originating with the Emile Benoit study showing that defense spending does not necessarily have a negative impact on economic growth in developing countries, has gone so far as to argue that defense expenditures might, in fact, stimulate growth.[1] In the last few years, however, a number of studies have arrived at somewhat mixed conclusions depending on the economy studied.[2]

In this chapter, an examination of the effects of military spending on economic growth in North and South Korea will be made. It draws on a model developed by Professors Looney and Frederiksen who hypothesized that developing countries facing financial constraints cannot simultaneously afford the levels of expenditures necessary for high growth and maintenance of high defense expenditures. Under these conditions, defense expenditures would most likely have a negative impact on economic growth. On the other hand, countries that have realtively abundant financial resources should experience a positive relationship between defense spending and economic growth.[3]

Although North and South Korea have structurally different economies there is no reason to believe that the same set of financial constraints do not apply for each. The model developed by Looney and Fredricksen primarily used studies of capitalist economies, however, Yugoslavia, a socialist state, fit in nicely. For this reason, the Looney and Fredricksen model will be used to determine the effect of defense expenditures on the economies of North and South Korea.

A. ECONOMIC PERFORMANCE

Both Koreas are currently pursuing programs of strong economic growth. Apparently these programs are a continuation of economic competition that started in 1945 when Korea was partitioned at the 38th parallel, and then intensified in the 50's and 60's.[4]

TABLE 9

DISTRIBUTION OF RESOURCES AT PARTITION, 1945

Sector	North Korea	South Korea
Heavy Industry	65%	35%
Light Industry	31	69
Agriculture	37	63
Commerce	18	82
Population	33	66

SOURCE: CIA, Korea: The Economic Race Between the North and the South, 1978.

North Korea gained the initial economic advantage by inheriting the bulk of the Peninsula's minerals, hydroelectric resources, and most of the heavy industrial base. North Korea also received a slightly larger land area, and only one-third of Korea's total

population. In the partition, South Korea received most of the Peninsula's limited agricultural resources, a large pool of unskilled labor, and the larger share of light industry. From this it is quite apparent that North Korea received the better economic situation in the division of the Korean Peninsula.[5]

1. North Korea

The North Korean economy is based on the Marxist-Leninist economic model. Since both North and South Korea have been developed as "showplaces" for the Communist system and the Capitalist system respectively, the success or failure of the North Korean economy will have obvious ideological implications.[6]

Being one of the most secretive nations in the world, very little is known about the North Korean economy. Economic statistics, particularly those that might embarrass the government, are prime objects for the secret stamp. Furthermore, the few statistics issued by North Korea appear to have been carefully selected for propaganda purposes, and are believed to present an exaggerated picture of economic performance. As a result, some general trends can be perceived, but it is impossible for one outside of the North Korean establishment to obtain a complete and detailed picture of the state of their economy.[7]

a. Reconstruction, War, and Reconstruction

Between 1945 and 1950, North Korea's GNP more than doubled from 546 million to 1145 million won. (See Table 10.)

TABLE 10

NORTH KOREAN ECONOMIC GROWTH, 1945-1960

	1946	1950	1953	1960
GNP (Million Won)	546	1145	760	3722
Per Capita GNP	59	119	93	345
GNP by Sector (%)				
Industry	16.8	32.8	27.5	53.4
Agriculture	63.5	44.4	48.7	27.0

SOURCE: Kim Youn-Soo, ed., The Economy of the Korean Democratic People's Republic, 1945-1977, Kiel, Germany: Korean Studies Group, 1979

This rapid growth was accomplished by significant Soviet aid to stimulate the North Korean economy. The Soviet Union granted North Korea $40 million in economic aid between 1949 and 1951.[8]

The Korean War interrupted North Korea's economic recovery program. When the tide of battle turned against North Korea, and their homeland was invaded, much of their economic infrastructure was destroyed.[9] The damage of the Korean War was estimated to be $3 billion to the North Korean economy. Gross Industrial Product was 36 percent lower after the war than in 1949. Other sectors of the economy--steel, chemical, coal, electric, and fisheries--suffered even worse losses which varied between 60 and 90 percent.[10] This left North Korea with the task of performing a total economic reconstruction program again.

North Korea's wartorn economy was aided greatly in postwar reconstruction by massive economic assistance from the Socialist bloc.

During the Three-Year Economic Plan (1953-1956), North Korea received over $900 million in grants and aid from the Soviet Union, China, and the East European countries.[11] North Korea made significant economic progress in these years, laying the foundation for future economic development. They claimed recovery efforts had been so successful that their goals for the Three-Year Plan were fulfilled in two years and eight months.[12]

Pyongyang launched its first Five-Year Plan in 1957, to "further consolidate the economic foundation of socialism and to meet the main needs of the people for food, clothing, and housing." However, as the economic conditions in North Korea improved, economic aid was reduced from 33.4 percent of the state's revenues in 1954, to 4.5 percent in 1958.[14] Although economic aid was cut drastically, North Korea had sufficient economic momentum to complete their Five-Year Plan a year ahead of schedule, with an average annual growth rate of 21 percent.[15]

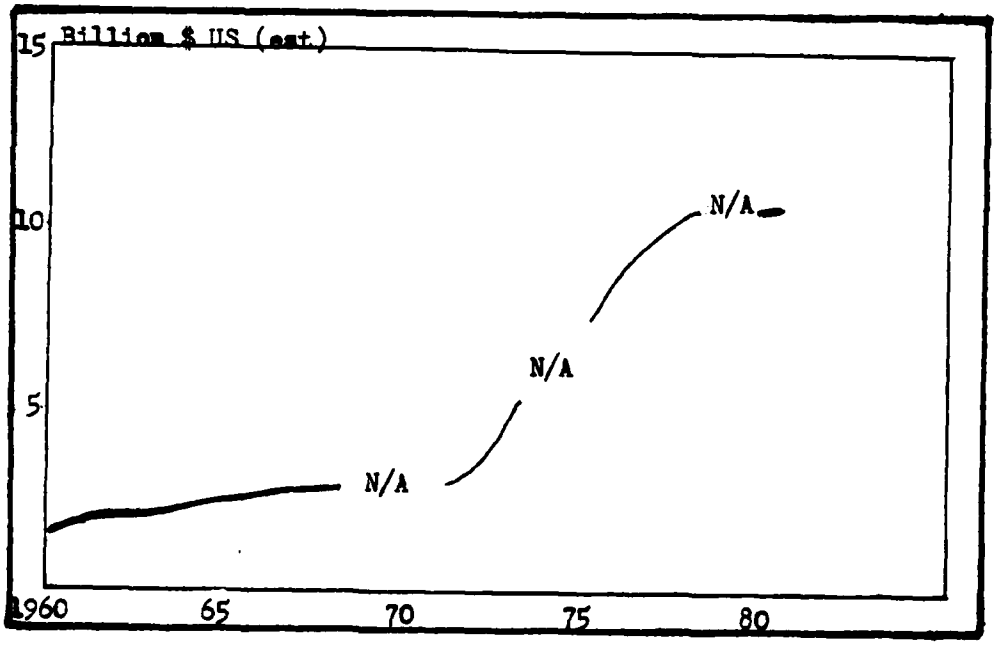
Between 1945 and 1960, with the exception of the war years, the overall trends of economic growth in North Korea were quite impressive. There are several reasons for this rapid growth following the Korean War: a technical base already was established, foreign aid was readily available, and the economy was reestablished using modern technology. It should be noted, however, that the small initial base from which the economy began presents a somewhat exaggerated picture of the early growth performance in the 1950's.[16]

b. Chuch'e: Self-Reliant Economy, 1960-1979

Since entering the 1960's, the pace of economic growth has decreased drastically as measured by national income. The average annual growth rate between 1961-67 was 8.9 percent as compared to the two previous plans (1954-56, and 1957-1960) where growth averaged 26 and 21 percent respectively.[17] The fact that no mention of the status of national income was made in Kim Il-sung's 1970 speech to the Fifth Party Congress suggests that their target of raising national income by 2.7 times was not fulfilled.[18]

CHART 5

NORTH KOREAN GROSS NATIONAL PRODUCT, 1960-1980



SOURCE: Far Eastern Economic Review Yearbooks.

North Korea's poor economic performance continued into the 1970's with a less than successful Six-Year Plan (1971-76). Although Pyongyang claimed an annual growth rate of 16 percent in industrial production, an increase in grain production to 8.5 million tons in 1977, and a 70-80 percent standard of living increase, these claims seem to have been exaggerated.[19] In fact, some annual targets announced for completion in the present economic plan--including 56,000-60,000 megawatt hours of electricity generation, 70-80 million tons of coal production, 8 million tons of steel production, and 5 million tons of chemical fertilizer--are equal to, or below, those announced for 1976.[20]

While North Korea gradually has increased its GNP and per capita GNP over the past two decades, performance still has fallen short of the government's targets. For a planned economy, like that of North Korea, economic performance must be judged in terms of its own expectations as well as the objective norms of economic growth. North Korea's economic performance during the 1960's and 1970's failed on both counts, although for somewhat different reasons in the early and latter years. Outstanding economic performance in the 1950's resulted in setting unrealistically high targets for the 1960's. Poor performance in the 1970's stems from poor economic planning. In the early 1970's, North Korean planners felt it was possible to stimulate economic growth by massive imports of technology. They vastly underestimated the importance of establishing a modern infrastructure

to support these technological inputs. As a result, infrastructure bottlenecks created by low levels of investment in this area caused the economic plan for the 1970's to fail miserably.[21]

Although North Korea has been plagued with economic setbacks, recent events indicate that the country is approaching the 1980's with a more pragmatic view. Increasing exports were given top priority in Kim Il-sung's 1980 New Year's address.[22] The government's growing concern over the countries' large balance of payments deficit ($2 billion) suggests that North Korea is becoming more aware of its dubious standing in the world economic community. By renegotiating their outstanding debts with Japan in 1979, North Korea gained time needed to alleviate their growth-inhibiting infrastructure bottlenecks.[23]

2. South Korea

South Korea has an export-oriented economic system based on the Japanese model. Ever since the early 1960's, when President Park Chung Hee assumed control of the government, South Korea has experienced rapid economic modernization transforming them from one of the most backward countries in Asia to one of the most advanced.[24]

a. Chaos and Survival, 1945-1961

The sixteen years between the end of World War II and the military coup d'etat was marred by political turmoil and economic stagnation. Following World War II, a United States Military Government was established to replace the ruling Japanese government. Under Japanese rule, all major aspects of the economy were controlled by

Japanese managers. With their departure, control was assumed by the U.S. Military Government. The loss of effectiveness due to the reorganization was not regained until 1947.[25]

The Republic of Korea (South Korea) was founded in 1948. Syngman Rhee was elected President because of his great popularity based on his long service in the independence movement rather than upon his abilities. The first two years under Rhee were, however, years of substantial progress with electric power output increasing by 33 percent, and industrial production by 50 percent. The Korean War, however, wiped out these gains.[26]

Although progress was made under the U.S. Military Government and the First Republic of Rhee, the desperate circumstances in which the mass of the South Korean people found themselves following World War II made survival the primary goal. Rice production fell drastically in South Korea because of the lack of fertilizer. Under Japanese rule, fertilizer was produced in North Korea and shipped to the South. With the division of the Peninsula, fertilizer shipments ended. Mass starvation in South Korea was prevented by large quantities of wheat supplied by the United States.[27]

Following the Korean War, Syngman Rhee's policies became increasingly inept. Rhee's "Caesaristic" tendency emphasized personal power, extreme nationalism, and anti-communism, while neglecting the more mundane but essential task of institutionalization. Cabinet instability and excessive centralization made concerted attention to development impossible. To illustrate: Cabinet Ministers' tenure averaged

only eleven months during Rhee's twelve-year administration. At one time, Rhee himself had to approve all allocations of foreign exchange above $500. Practically none of the administrators were experienced in national planning.[28]

The Rhee Government was overthrown by a massive uprising in April 1960. It was replaced by the short-lived Second Republic of Chang Myon. The Chang regime was characterized by excessive idealism and commitment to civil liberties. Due to perpetual chaos and instability, the Second Republic was ended in a coup d'etat led by Major General Park Chung Hee.[29]

Although South Korea was able to achieve nominal economic growth (five percent per year) it entered the 1960's with a per capita income level of less than $100--one of the lowest in the world. Additionally, imports were ten times higher than exports; inflation was rampant; productivity was low; natural resources were underdeveloped; illiteracy was high; and agriculture was the primary sector of the economy. In short, South Korea was an over-populated and extremely poor country. Few countries in the world suffered such austere prospects for rapid and sustained economic development as did South Korea in 1960.[30]

b. South Korea's Economic Miracle, 1962-1979

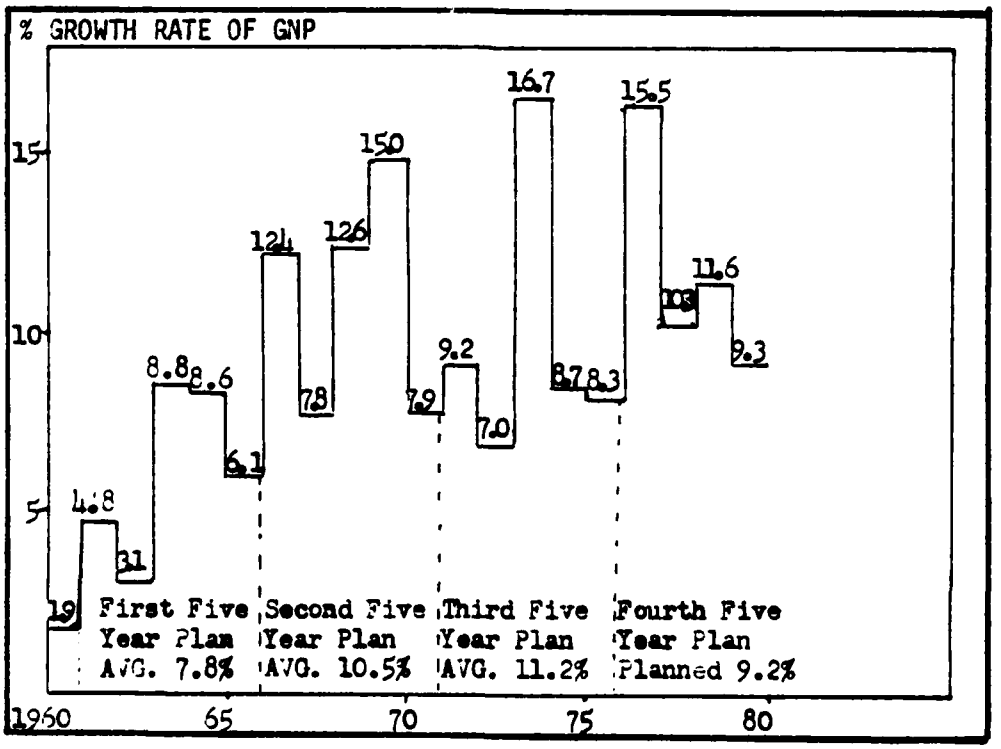
The assassination of President Park Chung Hee on 26 October 1978 seems to have brought to a tragic end an eighteen-year era of economic growth unmatched by any non-OPEC economy in the Third World. Between 1965 and 1979, South Korea's GNP grew at an annual rate of

11 percent with a per capita growth rate of 8.5 percent.[31] The transformation of South Korea from a backward nation to one of the most modern in Asia can be considered to be a miracle.

The actual growth of the South Korean economy is shown in Chart 6. In the five years prior to the first economic plan, the South Korean economy grew at an annual rate of approximately five percent. This was comparable to the world economic growth rate during the same period. Economic growth increased to 7.8 percent during the first Five-Year Plan, while the world average remained about five percent.

CHART 6

SOUTH KOREAN GROSS NATIONAL PRODUCT GROWTH RATE, 1960-1979



Source: Handbook of Korea

Continued export expansion and rapid industrialization accelerated the growth rate to 10.5 percent during the second plan (1966-1971). However, the most impressive performance came during the third Five-Year Plan when South Korea's economy averaged an 11.2 percent growth rate while most developing countries' economies were devastated by international monetary instability and a worldwide recession caused by the 1973 oil embargo.[32]

The assassination of President Park and the political turmoil that followed had serious effects on the South Korean economy. In 1980, South Korea's GNP fell by 5.7 percent. This is the first no-growth year since President Park assumed control in 1961.[33] However, timely economic adjustments, led by the devaluation of the won, expansion of a high quality labor force (3 percent per annum), and the ability to increase productivity by importing advanced technology provide South Korea with an average growth potential of 7-8 percent during the 1980's.[34]

South Korea's sustained economic growth since the initiation of the first Five-Year Plan in 1961 has allowed their economy to develop to a point where economic growth almost can be sustained internally.

B. DEFENSE SPENDING

Both Koreas have invested heavily in their defense. Table II shows the comparative defense expenditures from 1952-1979.

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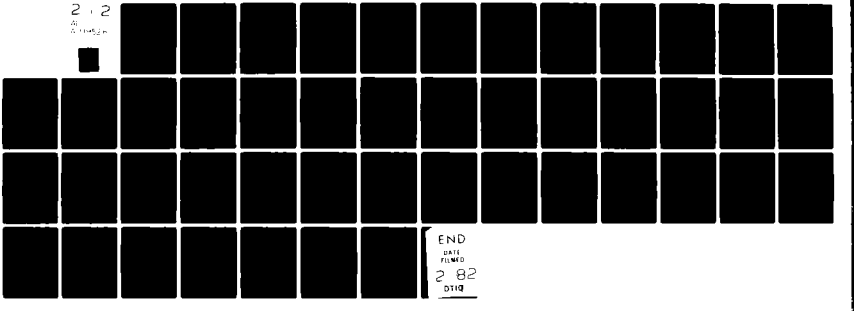

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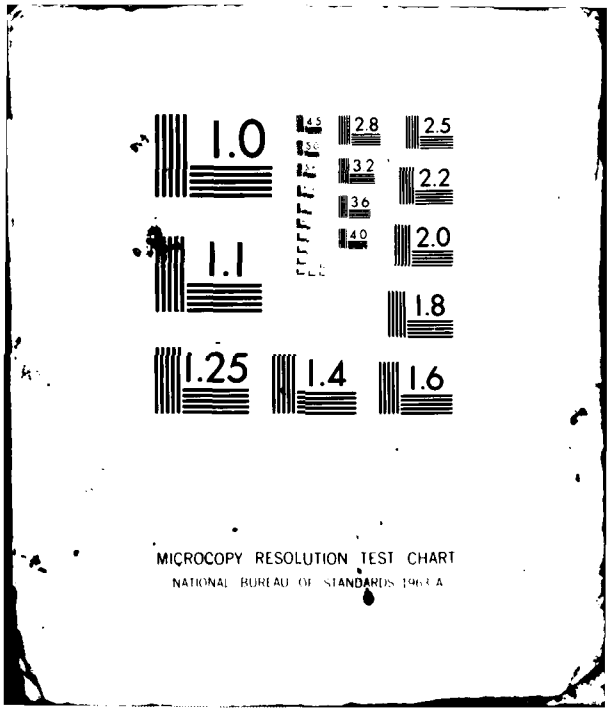
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MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS 1963 A

TABLE 11

NORTH-SOUTH COMPARATIVE MILITARY EXPENDITURES, 1952-1979

	North Korea			South Korea		
Year	Total Exp	% GNP	% Nat Bud	Total Exp	% GNP	% Nat Bud
1952	N/A*	N/A	N/A	67	N/A	N/A
1953	75.4	N/A	15.2	154	5.7	10.1
1954	58.4	N/A	8.0	185	6.6	11.5
1955	61.3	N/A	6.2	151	5.1	10.9
1956	56.4	N/A	5.9	145	4.7	11.4
1957	54.2	N/A	5.3	146	5.8	13.7
1958	56.8	N/A	4.8	172	6.2	14.3
1959	61.0	N/A	3.7	180	6.4	15.8
1960	61.0	N/A	3.1	178	6.1	15.7
1961	275	N/A	2.6	185	5.7	19.2
1962	305	N/A	2.6	213	5.9	25.3
1963	280	12.2	1.9	177	4.2	14.9
1964	300	12.0	5.8	167	3.6	10.7
1965	350	14.0	10.1	175	3.7	11.6
1966	350	12.1	12.5	214	4.0	13.7
1967	470	15.7	30.4	238	4.1	14.2
1968	610	17.4	32.4	281	4.2	16.4
1969	615	15.4	31.0	324	4.1	17.8
1970	700	15.0	31.0	334	3.9	17.0
1971	911	17.1	34.1	394	4.3	17.3
1972	584	13.8	17.0	443	4.4	18.2
1973	630	14.0	15.4	470	3.9	13.3
1974	765	15.8	16.1	601	3.2	15.6
1975	950	16.3	16.4	730	3.8	18.0
1976	1030	11.2	16.7	1460	6.2	19.5
1977	1060	10.5	16.6	2033	6.6	19.1
1978	1230	11.4	16(+)	2586	5.6	19(est)
1979	1231	N/A	N/A	3219	6.4(est)	N/A
1980				4470(est)	NA	N/A

*Not Available

SOURCE: The Military Balance

Table 11 reveals that since 1963, North Korea has committed over 10 percent of its GNP to defense expenditures, whereas, in the same period South Korea has committed a relatively small portion (3-6 percent) of

GNP to defense expenditures.[35] Although the burden of military expenditures has fallen more heavily on North Korea, they have demonstrated a willingness to continue investing a large amount of men and money for defense.

1. North Korea

The effect of military spending on economic growth becomes apparent when a comparison is made between economic growth during that period. Between 1957 and 1960, the North Korean annual economic growth rate was 21 percent, while defense comprised only 3.1 to 6.3 percent of the national budget, depending upon the year. As defense spending took a larger part of the national budget, economic growth slowed.[36] (See Table 12.)

TABLE 12

NORTH KOREAN DEFENSE EXPENDITURES AND ECONOMIC GROWTH, 1957-1970*

Years	Annual Economic Growth Rate	Defense as Percentage of National Budget
1957-60*	21. %	4.2%
1961-63	10.8%	2.4%
1964-66	7.9%	9.5%
1967-70	3.3%	31.2%

*Time frame coincides with North Korean Economic Plans.

SOURCE: The Military Balance; Chong-Sik Lee, "New Paths for North Korea," Problems of Communism, 1977, p. 56; Zagoria and Kim, North Korea and the Major Powers, p. 1056.

While not conclusive, there are strong indications that economic growth is adversely affected by increased defense spending.

2. South Korea

Although defense spending continues to account for a large proportion of South Korea's national budget, economic growth does not seem to have been adversely affected. Economic growth since 1966 has averaged over ten percent annually, while defense spending has accounted for over 15 percent of the national budget, and almost five percent of the GNP. (See Table 13.)

TABLE 13

SOUTH KOREAN DEFENSE EXPENDITURES AND ECONOMIC GROWTH, 1961-1976*

Year	Annual Economic Growth	Defense as Percentage of National Budget
1961-65	7.8%	16.3%
1966-70	10.5%	15.8%
1971-76	11.2%	16.5%

*Time frame coincides with South Korean Economic Plans.

SOURCE: Handbook of Korea

It is apparent that North Korea's economy is more adversely affected by military spending than that of the South. A logical explanation for this phenomenon was presented in a study by Professors Looney and Frederiksen at the Naval Postgraduate School. In the following section their model of Financial Resource Constraints will be used to examine this issue.

C. RESOURCE CONSTRAINT THEORY

1. Financial Constraints

In their study, Professors Looney and Frederiksen propose that the effects of defense spending on economic growth in developing

countries are a direct function of the economic flexibility and the financial resource constraints they face. They arrived at this conclusion by performing a cluster analysis on 44 countries, grouping them on the basis of a set of variables depicting resource constraints and economic flexibility (i.e., diversification of exports, low debt service). Four distinct groups were identified.

Group I consisted of 24 countries which were relatively flexible and also had a relative abundance of financial resources. Group II consisted of nine countries that had relatively inflexible exports and high resource constraints. Group III consisted of three countries with resource constraints somewhere between Groups I and II in that by some measures they were unconstrained while at the same time inflexible. Group IV consisted solely of Vietnam and was omitted because of the dubious nature of its data and the extreme values of its indicators.

Causal inference was proven for Groups I and II using linear regression equations. In this study, economic growth was the dependent variable. The investment rate, aid, and defense expenditures were the independent variables. The coefficient of the defense variable was positive and statistically significant at the 99 percent level for Group I, and negative and statistically significant at the 99 percent level for Group II. Apparently defense expenditures play a positive role in countries with flexible economies and abundant financial resources, and have a negative impact on growth in countries with inflexible economies and financial constraints.[37]

Using this model, a comparison can be made between North and South Korea as to the effect of defense expenditures on economic growth.

a. Application to North Korea

Having studied North Korean economic performance, and seeing the effects of defense spending, it would be expected that North Korea would be a Group II country. According to the Looney and Fredriksen study, North Korea should have a negative relationship because it is characterized by:

(1) A high population growth requiring increased amounts of public services. The average growth rate of North Korea's population between 1969 and 1978 was 2.8 percent annually. Due to this growth rate, 45 percent of the present population is under 15 years of age.[38]

(2) Migration toward cities due to rising aspirations.[39]

(3) An urban-industrial society which needs substantially more infrastructure than previously due to urbanization and industrialization.[40]

(4) High urbanization rates requiring more government attention to the construction of low income housing, urban transportation, etc. These investments have a high capital-output ration. There has been forced migration to the cities increasing the demand for housing and public services, thus North Korea's plans for the 1980's include massive construction of low-cost housing.[41]

(5) Exports that are limited in number and are comprised largely of products whose markets are expanding relatively slowly. As a result, there is inelasticity and instability in the country's external purchasing power. North Korea is limited in its exports, primarily exports of coal, steel, and raw materials.[42]

(6) Shortages of government revenue which create bottlenecks in the supply of social overhead capital and skilled labor. Bottlenecks in the infrastructure, particularly in transportation, arose because of the imbalance in industrial development.[43]

(7) Little or no capacity for the home production of manufactured products, especially engineering products. Thus manufactures amount to a significant proportion of imports. North Korea imports almost all finished goods, while exporting semi-finished goods or raw materials.[44]

(8) Chronic balance of payments difficulties due to limited exports and little capability for home production, with the result of direct import controls. Such controls on imports implies reducing imports to the size of export receipts, which in turn, creates shortages, bottlenecks, and reduced growth.[45]

(9) A large external debt which has been built up as a result of past government deficits and balance of payments deficits. Additional borrowing is becoming increasingly difficult, thus reducing the size of the current account deficit. North Korea has had a chronic balance of payments problem, accumulating a $2 billion debt.[46]

(10) Reduced aid flows stemming from political and economic frictions with its donor countries. Political differences with major allies has reduced the aid received by North Korea.[47]

North Korea's economy has the major characteristic of a resource constrained country. From these examples and the effects of military spending on economic growth (shown in Table 12), it can be concluded that North Korean economic growth is adversely affected by military spending.

b. Application to South Korea

South Korea was one of the countries used by professors Looney and Frederiksen in their original study. It proved South Korea to be one of the strongest economies in the group. (Group I, Table 14) The most relative indicators of financial strength are those of imports and investments.

TABLE 14

MACRO-ECONOMIC INDICATORS,
AVERAGE ANNUAL GROWTH, SOUTH KOREA, 1950-1965

Area	South Korea	Mean
Public Savings (% GNP)	18.9	16.8
Government Savings ($ Revenue)	10.8	10.9
Aid (% GDP)	7.88	3.31
Defense Expenditures (% GDP)	5.32	4.09
Investment (%GDP)	13.17	17.48
GDP (Growth Rate)	5.66	5.77
Defense Expenditures ($ annual change)	-2.50	6.29
Civilian GDP (Growth Rate)	6.23	5.86
Import (Growth Rate)	20.9	9.1
Investment (Growth Rate)	17.1	10.6

SOURCE: Frederiksen and Looney, Military Spending and Economic Growth, (Monterey, CA: U.S. Naval Postgraduate School, 1979, Unpublished research paper.)

The growth of imports at 20.9 percent annually shows that countries have confidence in the South Korean economy, while the investment growth at 17.1 percent annually shows that the imports are being used as a subsistance base for its people. Although the data used in the initial study only included input through 1965, the current economy of South Korea has even less financial constraints than it did in the period used in this model.[48]

The major financial constraints on the South Korean economy have proven to be caused by political instability, not by military spending. During the period of political unrest following the assassination of President Park, limited financial constraints occurred because international banks were afraid to invest because of the chaos in the Korean Government. However, South Korea has sufficient compressibility in its economic system to absorb even major shocks of short duration (i.e., short-term political instability or rapid movement of capital to defense) without seriously damaging the long-term growth of the economy.[49]

2. Manpower Constraints

The impact of increasing military defense exceeds those constraints imposed by financial limitations. By expanding the military, countries also are affected by the labor drain. Naturally, the more a country has of a given resource, the less painful will be the effect of increasing its usage. To realize the total impact of defense spending on economic growth, the human resource factor also must be considered. The fact that North and South Korea respectively

have the fifth and sixth largest standing armies in the world,[50] despite their relatively small sizes emphasizes the need to consider the human resource constraint in light of military expansion and economic growth.

a. Application to North Korea

North Korea is surpassed only by Israel in the percentage of its population committed to military duty. Currently, 678,000 men (12 percent of the working-age males) are serving in the armed forces.[51] Considering that another 45 percent of North Korea's 17.9 million people are under fifteen years of age, this creates a large manpower drain.[52] Common sense indicates that this would adversely affect economic growth. No doubt the emphasis placed on military expansion in the 1970's slowed the development of a skilled work force needed to operate advanced technological equipment.

b. Application to South Korea

South Korea has more than twice the population of North Korea (38.2 million), yet it maintains a slightly smaller standing army of 600,600 men. Only six percent of South Korea's working-age males are on active military duty, which gives them a large comparative advantage in available manpower.[53] Likewise, the South Korean military is used for public works which aids in economic infrastructure development. Thus, the number of men committed to South Korea's military has little adverse effect on economic growth.

D. CONCLUSIONS

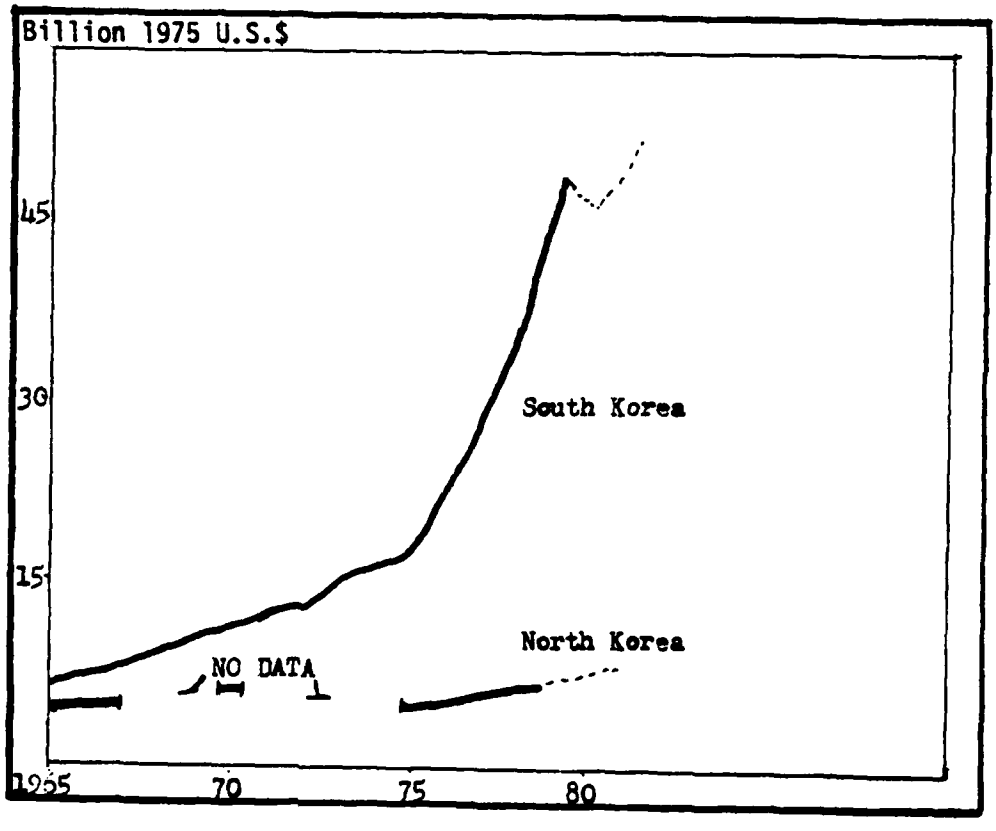
North Korea had a clear economic advantage between 1945 and 1960 because of its ability to mobilize their work forces rapidly, and because of massive aid. However, as the excess labor resources were depleted, North Korea's economic growth began to dwindle, giving way to a more dynamic South Korean economy. Indications are that socialist economic systems, like that of North Korea, do not provide sufficient incentives for workers to increase their productivity levels. Thus, when workers can no longer be transferred from agriculture to industry, growth rates stagnate. This seems to have happened to North Korea during the sixties and seventies. Although North Korea remains one of the most socialized countries in the world, indications are that more incentives are being given to increase productivity.

After a slow start in the forties and fifties, South Korea's export-oriented economy clearly outpaced the North Korean economy in the sixties and seventies. This was accomplished by raising labor productivity, absorbing modern technology, and increasing their international financial status. Sustained economic performance allowed South Korea to surpass the North in per capita GNP, an advantage which Pyongyang had held since the partition in 1945, even though the South had over twice the population. More importantly, all indications are that the economic gap will widen substantially in South Korea's favor during the next ten years.

Another finding in this study is that North Korea's economy is adversely affected by military spending, while it has had some positive effects on the South Korean economy. Financial constraints caused by poor economic performance and cuts in aid by China and Russia, have forced North Korea to sacrifice economic growth to maintain defense expenditures. Conversely, South Korea has been able to maintain high economic growth and military spending because they enjoy a relative abundance of financial resources.

CHART 7

NORTH-SOUTH GNP GROWTH COMPARISON



SOURCE: Far Eastern Economic Review Yearbooks

A corollary finding is that the comparative cost of maintaining a large military force is higher for North Korea than for South Korea. South Korea's larger population allows them to maintain relative parity with North Korea while using only six percent of its total male work force as compared to twelve percent for the North.

Finally, both Koreas have ambitious economic plans for the 1980's If North Korea wishes to attain its economic goals, resources will have to be shifted from the military to the civilian sector of the economy. On the other hand, defense spending has relatively little adverse effect on the growth of South Korea's economy. They are in a better position to increase military expenditures while maintaining economic growth.

VI. THE FUTURE

There is good reason to be optimistic about the prospects for peace on the Korean Peninsula. Although it is doubtful that the major problems between the two Koreas will be settled in the near future, the international environment in the 1980's should foster moderation on both sides, thereby reducing the likelihood of war. The developing U.S. and Japanese ties with China may become a significant force in promoting stability on the Korean Peninsula if care is taken to avoid provoking the Soviet Union.

The relative equality of the military forces in both Koreas has been established in previous chapters. Barring external intervention, there is little reason to expect this situation to change until the mid-1980's when the advantage should shift to South Korea because of the growing gap between the sizes of the economies of the two Koreas, and the level of satisfaction in indigenous production. If the effects of military expenditures and labor drain on economic growth are included, South Korea will have an even greater advantage.

Although both Korean Governments are placing emphasis on economic growth in the 1980's, it will become increasingly difficult for North Korea to keep pace with the South. Recent actions by North Korea indicate that a more pragmatic approach toward economic matters is being taken. If these trends continue into the 1980's, North Korea will shift resources from the military to industrial sectors of the economy to increase growth and negate part of South Korea's growing economic advantage.

Relations between the two Koreas will most likely develop into an atmosphere of detente, largely because of North Korea's inability to compete economically. The only viable alternative to detente is for North Korea to shift to a more dependent position with the Soviet Union to gain aid needed to continue military and economic competition with the South, in which case, it would be expected that the atmosphere of confrontation would become more hostile.

A. STATUS QUO

To meet the growing economic and military pressures from the South, North Korea may turn to their major allies for increased economic and military assistance. Currently, North Korea seems to be tilting toward the Chinese camp. China could become a significant force in promoting stability on the Korean Peninsula because of its relationship with North Korea, and the growing ties with the U.S. and Japan. It is unlikely that military aid from China would cause a significant shift in the military balance in Korea because the technological level of Chinese weaponry (excluding nuclear) is equivalent to that of North Korea. However, economic aid from China would help North Korea alleviate infrastructure bottlenecks and to become more competitive with South Korea.

However, as North Korea faces increasingly sophisticated weaponry produced by its adversary to the South, increased pressure will be brought to bear on the government to improve relations with the Soviet Union. This pressure will occur because the Soviet Union produces

the level of sophisticated equipment needed to offset the gains made by the South. China does not.

The most likely event that would tilt North Korea toward the Soviet camp would be for a military leader to succeed Kim Il-sung. Upon Kim's death, the military leaders will have a major say in the selection of a successor. If strong opposition to Kim Chong Il develops in factions of the military elite, then a senior military leader could rise to power.

If a shift to the Soviet camp does occur, and the Soviets are willing to provide sophisticated weapons to North Korea, it could be expected that the threat of confrontation would increase. The level of equipment needed by North Korea to offset possible gains by the South could prove costly to the Soviet Union. If the Soviet Union introduces a new level of weaponry to the Korean Peninsula, the U.S. would most likely counter with equal technological aid for South Korea. South Korea is economically in a better position to pay for advanced weaponry than North Korea, therefore, in effect, the Soviet Union would be paying for North Korea'a competition with the South.

Even if there is a shift in North Korean policy toward the Soviet Union, it is unlikely that the Soviets would increase the level of weapons sophistication above that obtained by the South Koreans. Both the Soviet Union and the United States have shown restraint in providing highly sophisticated military equipment to their respective Korean allies. Although relations between the United States and the Soviet Union are currently strained, there is no indication that this de facto

control policy would end. Also, it is unlikely that the Soviet Union would allow South Korea to obtain a significant advantage in sophisticated weaponry.

The burden of maintaining the status quo will fall on North Korea. As indicated in Chapter V, South Korea is less adversely affected by resource constraints on military expansion than is North Korea. The futility of attempting to obtain a military advantage over South Korea will become increasingly clear as South Korea's population and economic advantage broadens in the 1980's.

B. DETENTE

A more likely direction in the relationship between North and South Korea is for an atmosphere of detente to develop. Due to economic realities, North Korea will be unable to continue military competition with the South. Even if defense spending had equal impact on North and South Korea, South Korea would have a comparative advantage because of its larger population and GNP base. However, since North Korea is more adversely affected by defense spending, and has a larger drain on its human resources, to maintain relative equality with South Korea it is futile for North Korea to continue hostilities toward the South.

As South Korean economic and military capabilities grow, there could be an increased willingness to make concessions that would facilitate North Korea's acceptance of peaceful coexistence. The future of North/South relationship hinges largely on the leadership

of the two Koreas. A stable leadership must exist in both North and South Korea before meaningful dialog can occur. Currently, South Korea's leadership, under Chun, is trying to establish control. If economic stability is not brought to South Korea, or if domestic unrest continues, then there is likely to be another coup d'etat in South Korea.

In North Korea a peaceful change of leadership is apt to place Kim Chong Il in control. One likely possibility is that he would be more apt to pursue the nationalistic goals established by his father than would a military leader. Although little is known about Kim Chong Il, perhaps he would be more receptive to South Korean overtures than would be a military leader, because Kim Chong Il did not personally experience the bitterness of the Korean War.

C. CONCLUSION

It can be concluded from this study that both North and South Korea place a great amount of emphasis on national security. Currently, the Korean Peninsula is probably the most mobilized area in the world that is not at war. North Korea has the world's fifth largest army, and South Korea's is the sixth. Additionally, both countries have large reserve and para-military forces. Both are capable of defending their nations against an attack by the other. For either to pursue a policy of domination, a massive and prolonged buildup would have to occur without the other side taking action to correct the growing imbalance. Considering the leadership in both Koreas today, an imbalance of this magnitude is not likely to happen.

Another finding of this study is that North Korea's economy is adversely affected by military spending while South Korea's economy has shown positive effects. Financial constraints, caused by poor economic performance and cuts in aid, have forced North Korea to sacrifice economic growth to maintain defense expenditures. Conversely, South Korea has been able to maintain high economic growth and military spending because they enjoy a relative abundance of financial resources.

A corallary finding is that the opportunity cost of maintaining a large military force is higher for North Korea than for South Korea because of the South Korean population advantage.

During the 1980's, economics will play a key role in stability on the Korean Peninsula. If economic hardships befall South Korea, political instability will occur. This would further worsen the state of South Korea's economy because foreign investors would be reluctant to commit themselves. Events stemming from economic instability could lead to another coup d'etat in South Korea.

Although South Korea has suffered economic setbacks since the death of President Park, the changes made by the Chun Government seems to have been timely and correct. If Chun is able to lead South Korea to economic recovery, then South Korea will far outpace North Korea economically and militarily in the 1980's.

Economics also plays an important role in North Korea's future. Although North Korea has demonstrated a willingness to commit large amounts of resources to national defense, there is a limit to which these resources can be exploited. Economic realities confronting

North Korea in the 1980's will demonstrate the futility of attempting to dominate a foe with more than twice the population and five times the GNP. If North Korea wishes to attain its ambitious economic goals for the 1980's, more of its resources need to be devoted to economic development. This will require cuts in military spending because of the adverse effect it has on economic growth.

There is, indeed, reason to be optimistic about the prospects for peace on the Korean Peninsula. An atmosphere of detente offers the best prospects for economic growth. Opportunities also lie in increased stability on the Korean Peninsula because of the developing relationships between the U.S. and the Japanese with China. Barring unforseen developments, the Korean Peninsula will have a more stable environment in the 1980's.

APPENDIX A

TABLE 15

MAJOR ARMS TRANSFERS TO NORTH KOREA, 1950-1979

Date Order	Supplier*	Quan	Item	Date Del'd	Remarks
1950	China	100	MIG-15	1950-51	Built in USSR
		35	La-9	1950-51	
		200	BA-64	1950-51	
		100	Su-76	1950-53	
		100	BTR40	1950-57	
		150	BTR152	1950-59	
		450	T-34 Tank	1950-52	
1951		35	Tu-2	1951-52	
		10	Il-12	1951-52	
1953		100	MIG-15	1953	
		5	Il-28	1953	
		70	La-11	1953	
		2	Il-28U	1953	
		8	Li-2	1953	
		5	Mi-1	1953	
		15	Yak-17 UTI	1953	
		15	MIG-15 UTI	1953	
1954		10	Yak-11	1954	
		4	Patrol Boats, "MO 1" Type	1954	
		8	Fleet Minesweepers, "Fugas" Type	1954-55	
1955		30	Il-28	1955	
1956		100	MIG-17	1956-58	
		12	Motor Torpedo Boats "P4" Type	1956	
1957	China	4	Fong Shou No. 2 Fighters	1957	AN-2 produced under license in China
	China	24	Inshore Minesweeper	1957-60	
1958	China	80	MIG-15	1958	
	China	40	Il-28	1958-59	

Date Order	Supplier*	Quan	Item	Date Del'd	Remarks
1958	China	4	Il-28U	1958-59	
	China	20	Shenyang Yak-18	1958-59	Supplement those supplied before '50 by Soviets
	China	300	Shenyang F-4	1958-60	
1959	China	20	MIG-19	1959-60	
		2	Patrol Boats "Artillerist" Type	1959	
1963		2	Minesweeper, "T43" Type	1963	
		9	Motor Torpedo Boat "P4" Type	1963	
1965		14	MIG-21FL	1965	
		15	Il-14	1965	
		3	MIG-21 UTI	1965	
		5	An-24	1965-66	
		100	Su-100	1965-68	
		250	BTR 152	1965-71	
		250	BTR 40	1965-71	
1966		150	PT-76	1966-68	
		21	MIG-21	1966	
		360	SA-2 SAM	1966	
		20	MI-4	1966	
1967		70	T-54/55	1967	
		2	Submarine "W" Class	1967	
		7	Gunboat "MGR" Type	1967	
		3	Torpedo Boats, "PTF" Type	1967	
	China	4	Patrol Boat "Shanghai"	1967	
		18	Torpedo Boat "P4"	1967	
1968		4	Gunboat "TG" Type	1968	
		65	MIG-21	1968-71	
		390	K-13 "Atoll" AAM	1968-71	
		250	T-54/55 Tanks	1968-70	
1971		28	SU-7 FGA	1971	
		40	"Frog-5" SSM	1971	
		3	"Samlet" SSM	1971	

Date Order	Supplier*	Quan			
1971		132	"Styx" ShShm	1971-72	To arm 8 "OSA" Class & 6 "Komar" Class Patrol Boats
		8	Missile Boat, "Osa" Class	1971-72	
		6	Patrol Boat, "Komar" Class	1971-72	
1972		200	SA-7 SA Missile	1972-73	
		20	Frog 7 Arty Rocket	1972-73	
		50	T-55 Tanks	1972-73	
		2	Submarine "W" Class	1972-73	
1973	China	2	Submarine "Romeo-L"	1973	Coproduced w/China
1974	China	2	Submarine "Romeo-L"	1974	
	China		T-59 Tanks	1974	
		2 Sqns	MIG-21 MF	1974-78	Latest version license prod. begins '78
			Frog-7 SSM	1974	Deployed at est. 2 sites
1975			SS-N-2 "Styx" ShShM	1975	To arm new missile boats
			Fast Patrol Boats	1975	
		50	T-62s	1975	
	China	3	Submarine "Romeo-L"	1975	
1976	China	2	Submarine "Romeo-L"	1976	
1978			MIG-23?		

*Supplier is the Soviet Union unless indicated in this column. More often than not, "date ordered" and "number ordered" are not available. Information on arms transfers to North Korea is sketchy and difficult to obtain.

SOURCES: SIPRI Yearbook 1972, p. 137; SIPRI Yearbook 1973, p. 333; SIPRI Yearbook 1974, p. 274; SIPRI Yearbook 1975, p. 232; SIPRI Yearbook 1976, p. 266; SIPRI Yearbook 1977, p. 324; SIPRI Yearbook 1978, p. 268; Arms Trade Registers. The Arms Trade with the Third World, SIPRI 1975, pp. 10-12; FEER Asia Yearbook 1980, pp. 48, 211; "Home Made Romeos," Aviation and Marine, Jan 1977, p. 29; (Extracted from: "Arms Transfers and Security Assistance to the Korean Peninsula 1945-1980: Impact and Implementation," Thesis by Richard P. Cassidy, Jun 1980, USNPG, Monterey, CA.

TABLE 16

MAJOR ARMS TRANSFERS TO SOUTH KOREA, 1950-1979

Date Order	Supplier*	Quan	Item	Date Del'd	Remarks
1950		75	NA F-51 Mustang	1950-52	
		15	Piper L-4	1950-52	
		15	Douglas C-47	1950-52	
		20	Curtiss C-46D	1950-53	
		2	Frigate, "Tacoma" Class	1950	On loan
		1	Patrol Boat "PC"	1950	
		100	M-Sherman Tanks	1950-51	
		50	M-5 Stuart	1950-51	
		50	M-24 Chaffee	1950-53	
		70	M-10	1950-53	
		200	M-8 Greyhound	1950-59	
1951		500	M47/M48 Patton Tank	1951-66	
		2	Frigate, "Tacoma" Class	1951	
		4	Patrol Boat "PC"	1951	
1952		4	Patrol Boat "PCS"	1952	
		4	Motor Torpedo Boat	1952	
1953		1	Frigate, "Tacoma" Class	1953	Replacement
	Norway	2	Oiler	1953	
1954		70	M-36	1954-60	
		3	Aero Cdr 520 Aircraft	1954	
1955		5	NA F-86F Sabre	1955	
		1	Oiler	1955	On Loan
		2	Tank Landing Ship	1955	
		2	Escort "PCE" Ships	1955	On Loan
		6	Supply Ship	1955-57	
1956		2	Escort "PCD" Ships	1956	
		1	Tank Landing Ship	1956	
		2	Frigate, "Bostwick" Class	1956	
		9	Medium Landing Ship	1956	
		3	Coastal Minesweepers	1956	
		75	NA F-86F Sabre	1956	10-20 Converted to Recce Version
		6	Sikorsky S-55	1956	

Date Order	Sup-plier*	Quan	Item	Date Del'd	Remarks
1957		4	Coastal Minesweepers	1957	Decommissioned in 1962
		3	Medium Landing Ships	1957	
		9	Lockheed T-33A	1957	
		5	Cessna O-1A Birddog	1957	Recce Plane
1958		30	NA F-86F Sabre	1958	
		3	Tank Landing Ship	1958	
		12	Honest John SSM	1959	
		2	Tank Landing Ship	1959	
		1	Escort Transport	1959	Modified Destroyer Escort
		3	Coastal Minesweeper	1959	MPA Transfer
1960		1	Rocket Landing Ship	1960	
		2	Patrol Boat "PC"	1960	
		1	Landing Craft Repair Ship	1960	
		30	NA F-86D Sabre	1960-62	Equipped w/360 Sidewinder AAM
		5	Cessna LC-180	1960	
1961		4	Escort, "PCE" Type	1961	
		150	M-113 APC	1961-65	
1962		2	Tug	1962	
		30	NA F-86D Sabre	1962	Equipped w/ Sidewinder AAM
		16	NA T-28	1962	
1963		1	Destroyer "Fletcher"	1963	
		1	Frigate "Rudderow" Class	1963	
		1	Escort "Auk" Class	1963	
		2	Coastal Minesweeper	1963	MAP Transfer
1964		1	Patrol Boat "PC"	1964	
		8	Cessna 185 Skywagon	1964	
1965		15	Cessna O-1E Birddog	1965	
		30	F-5A Freedom Fighter	1965-66	
		150	HAWK SAM	1965	
		25	Nike Hercules SAM	1965	
		4	Curtiss C-46D	1965-66	MAP
		50	105mm Howitzer	1965-66	
		50	155mm Howitzer	1965-66	MAP

Date Order	Supplier*	Quan	Item	Date Del'd	Remarks
1966	Japan	2	Kawasaki-Bell KH-4	1966	
	Canada	10	DHC-2 Beaver	1966	
		2	Escort Transport	1966	
		60	203mm Howitzer	1966-67	MAP
1967		5	Douglas C-54	1967	
		2	Curtiss C-46	1967-68	MAP
		5	Cessna O-1A Birddog	1967-68	MAP
		3	Escort Transport	1967	2 Transferred Under MAP
		2	Escort "Auk" Class	1967	
1968		2	F-5B Freedom Fighters	1968	MAP
		40	F-5A Freedom Fighters	1968	
		1	Coastal Minesweeper	1968	MAP
		1	Coastal Minesweeper	1970	MAP
		2	Destroyer "Fletcher Clas	1968-69	On Loan
		1	Hydrographic Survey Vessel	1968	
		9	Patrol Boats	1968-69	
1969		19	F-4E Phantom	1969	$52m - ROK $48m - US MAP
		5	Bell UH-ID Helicopters	1969	$2.4m
		700,000	M-1 Rifles	1969	
1971			M-16 Rifle Factory	1971	$10m Factory Contract Replaced F-5s sent to Vietnam, leased until 1976, Bought for $46.5m
1971		18	F-4D Phantom	1972	
		10	Grumman S-2 Tracker	1971	
		12	Honest John SSM	1971	
		2	Bell 212 Twin Pac	1971	
		50	203mm Howitzers	1971	MAP
		50	M-113A APC	1971	MAP
		50	M-60 Tanks	1971	Trans f/US 7th Div
		50	M107 Howitzer	1971	
		50	M-48A2C Patton Tank	1971	MAP
		1	Patrol Boat	1971	
		1	Oiler	1971	
		1	Supply Ship	1971	

Date Order	Supplier*	Quan	Item	Date Del'd	Remarks
1971		2	Destroyer "Gearing" Cl	1972	On Loan
		4	Pazmany PL-2 Light Aircraft	1972	Built for Evaluation
1972		72	F-5E Tiger Fighters	1974-22 1975-24 1976-21 1977-2	MAP MAP MAP MAP
		0	Hughes AGM-65 Maverick ASM	1975-76	To Arm F-5Es
		733	AIM-9J Sidewinder AAM	1974-220 1975-240 1976-210 1977-63	
		1	Patrol Boat	1973	
		2	Coastal Minesweeper	1975	MAP
		22	T-33A Lockheed Trainer	1972-4 1973-4 1974-4 1975-4 1976-4 1977-2	
1973		3	Fast Patrol Boats PSMM	1973-74	$16m Credit
	Britain	2	HS 748 Transports	1974	
1974		4	Coastal Patrol "Tacoma" Class	1977-2	3 others being produced by SK under license
		7	Fast Patrol Boats PSMM	1975-2 1976-2 1977-3	
		40	Standard ShShM	1975-77	8 Launchers-Use w/PSMM Ships
1975			Solid Fuel Rocket Motor Plant from Lockheed Corp.	1975	$2m
		19	F-4E Phantom Fighters	1978-79	$178m; arms; Sidewinder AAM & Maverick ASM
		54	F-5F Tiger - 2	1978-79	$205m; followup order to 72 Ordered in '72

Date Order	Supplier*	Quan			
1975		120	Harpoon ShShM	1978-79	$81m; mil transport equip, spares, training
		600	AIM 96 Sidewinder AAM	1077-79 (480 ea)	Arming F-4 Fighters
		1	"Casa-Grande" Class Dock Landing Ship	1976	Arms; AA Guns
		2	"Gearing" Cl Destroyers	1977 (2 ea)	In add. to 2 Prev. Acquired
		66	Vulcan 20mm AAG	1975	
1976		34	"Hughes" 500/MD Armed Helicopter	1976-78	$50m for Total of 100; 66 License Produced by S.K., 4 Del in '76 w/o arms; arms: TOW ATM
		24	Rockwell OV-10G Bronco Observ. Helicopter	1977	$58.2m; part of Total $116.1m sale before FY-77
		200	Hughes AGM-65A Maverick ASM	1977-78 (150 ea)	$10.2m, arming 60 F-5Es
		1152	Hughes TOW ATM	1977-78	(720) Arm Heli.
		421	M-48 Main Battle Tank	1977	$36.6m F/Conversion to M-48A3/AS
		3	"Asheville" Class Fast Missile Boats	1975-76	New Const.; 4 more built under license in S.K.
	Italy	170	Fiat-6614 CM APC	1977-20	Built under license in S.K.
		?	Lance SSM	1977	To replace Honest John & Sergeant
		12	Cessna A-37A COIN/ Trainer	1977	
		10	Bell AH-1J Heli Gunship	1977	
		10	Fairchild C-123 Transport	1977	
		100	Hughes-500M Defender Hel Missile	1977-30	
		45	Nike Hercules SAM	1977	
1977		341	AIM-7E	1979	
		45	Bell UH-1H Cobra Heli.		$40m
		20	Bell UH-1B Heli.	1977	$1.1m
		100	Laser Guided Bomb Kits	1977	$3.7m
		6	Lockheed C-130H Hercules Transports		$7.6m

Date Order	Supplier*	Quan	Item	Date Del'd	Remarks
1977		18	F-4E Phantom Fighter		$156.2m
		24	Honest John SSM	1978-79	Trans fm U.S. Forces
		15	M-88 A1 Tank Recovery Vehicle	1978	$12m
			MIM-23B Hawk SAM	1978	$82m
1978	France	?	MM-38 Exocet ShShM		UNK # Ordered
		72	A-10A Fighter	1978-2	Pending approval for remainder
		?	M-48A3 Tanks		$7.1m
		6	CH-47C Chinook Heli.		Pending approval
		2208	Hughes BGM-71A-1 Air-to-Surface TOW ATM		" "
		4	Patrol Ship "Asheville"		
		37	M-109A2 SP Howitzer		$24m
		1	Patrol Boat "Grasp"	1978	
1979		1800	Hughes BGM-71A TOW ATM s/10 Launchers		$13.7m
		4	AN/TSZ-73 Missile Minder		$29m
		60	F-4E		Pending LOA
		180	F-16A/B Fighter		Disapproved by President

*Supplier is the United States unless indicated in this column.

SOURCES: SIPRI Yearbook 1968/69, p. 236; SIPRI Yearbook 1969/80, p. 349; SIPRI Yearbook 1972, pp. 138-39; SIPRI Yearbook 1973, pp 334-35; SIPRI Yearbook 1974, p. 274; SIPRI Yearbook 1975, p. 232; SIPRI Yearbook 1976, p. 266; SIPRI Yearbook 1977, pp 324-25; SIPRI Yearbook 1978, pp. 268-69; SIPRI Yearbook 1979, pp 222-25; "Foreign Military Markets," Defense Marketing Services (DMS) (Greenwich: DMS, 1976) South America/Australasia (South Korea); "Foreign Military Markets," Defense Marketing Services (DMS) (Greenwich: DMS, 1979) South America/Australasia (South Korea); Arms Trade Registers-The Arms Trade with the Third World, SIPRI 1975, pp. 12-15; "Pentagon Plans Sale of $322.6 Million in Arms to 8 Nations," Wall Street Journal (Apr 10, 1979), p. 12; International Defense Review, Vol. 12, no. 5, 1979, p. 846; International Defense Review, Vol. 13, No. 1, 1980, p. 126; Extracted from: "Arms Transfer and Security Assistance to the Korean Peninsula, 1945-80: Impact and Implication," Thesis by Richard P. Cassidy, USNPG, Monterey,CA, June 1980.

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