

## Mars and Manna: *Defense Industry and the Economic Transformation of Korea under Park Chung Hee*

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### Abstract

*This paper examines the origins of South Korea's industrial economy in the Park Chung Hee regime's program for building a "self-reliant national defense" (jaju gukbang). Through independent arms development in the 1970s, Park's technocrats engineered and launched the modernizing forces that propelled South Korea's rapid economic growth, referred to as the "Miracle on the Hangang River." From 1973 to 1979, the regime's Heavy and Chemical Industrialization Plan (HCIP) systematically merged civilian industries with a state-controlled system of indigenous weapons production built from the ground up. Drawing strength from a defense-related infrastructure, HCIP rapidly advanced civilian technology and developed a highly skilled labor force, while simultaneously promoting private sector growth and exportation. As select civilian industries produced weapons, military technologies were diffused through "spin-off" effects that built and expanded private-sector, export-based heavy and chemical industries. Deeply intertwined with economic development and export trade, South Korea's burgeoning defense industry aggressively supported Park's dual pursuits of "self-reliance" (jaju) in both national security and the economy. The legacy of South Korea's independent military modernization is seen in the state's enduring deep ties with what today represent the most technologically advanced and lucrative commercial industries in the Korean economy.*

**Keywords:** *jaju gukbang*, Park Chung Hee, heavy and chemical industrialization, Korean economy, defense industry, chaebol, South Korea

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## Introduction

The military regime of Park Chung Hee (1961–1979) accelerated the industrialization of the Republic of Korea (ROK, or South Korea) through a militarized mobilization and control of all cultural and institutional structures of the nation. Park and his technocrats crafted new laws and reconfigured bureaucratic forces to drive unprecedented national economic growth through a military modernization program that in turn opened the floodgates for what today is known as the “Miracle on the Hangang River.” The dramatic results continue to sway the course of the national economy today, long past the demise of Park’s military rule and the initial rise of democratization in the 1990s. Seungsook Moon (2005) has coined the term “militarized modernity” to describe how deeply militarism was embedded in South Korea’s industrialization. Carter Eckert (2016) has traced the “martial” traits of the Park regime and its rapid development of South Korea to Park’s exposure to Japanese militarism in colonized Manchuria (1932–1945) in the 1940s. Aside from these sources, however, only scarce literature exists—and hardly any historiography—to explain the deep interplay of ROK military modernization, industrialization and economic development of the Park era.

This gap in scholarship stems partly from acrimonious politics and partly from the inaccessibility of documented data. Many Koreans who lived through the period of military dominance, from the 1960s to the 1980s, regard “military” as synonymous with state coercion and control. The impeachment of former President Park Geun-hye in 2017 has only exacerbated the conflict over her father’s legacy. Open discussion of the role of militarization in South Korea’s rapid industrialization is taboo, if not perilous, in this political climate. Furthermore, until very recently, studies of indigenous government documents on Park’s military programs have been limited by Park’s secrecy as well as the long-term government classification of data related to the ROK’s development of banned weapons in the 1970s. With tightly restricted access to Korean data, scholars have tended to emphasize the role of US policy, often treating it as the main determinant of ROK military modernization and development (Moon 1988; Cumings 1987; Shin 1993; Glassman and Choi 2014). As another distortion, an imperfectly

fitting “developmental state” model has been applied to explain the ROK’s rapid industrialization in the 1960s and 1970s (Amsden 1989). In still other cases, comparative analyses of Korea’s arms procurement practices based on ill-fitting theoretic models of small arms producing nations or other East Asian defense industries have been published (Bitzinger 2003; Heo and DeRouen 1998). When indigenous perspectives on the ROK defense industry have been published, research findings have been drawn almost exclusively from the testimonies of a few government officials from the Park state (J. Kim 2010; H. Kim 2004). Overall, then, the integral relationship between defense industrialization, Heavy and Chemical Industrialization (HCI), and economic development has not yet been adequately assessed with tools of empirical, historical analysis.

A major set of data on the Park regime’s defense industry policies is now available in recently declassified government and military sources from South Korea.<sup>1</sup> These archival collections from the Park era detail critical pieces of history that illuminate how HCI policies were crafted and instituted to build a national defense system supported with civilian economic forces. Based on this new evidence, this study discusses how the emergent defense industry of this period influenced Korea’s overall modernization trajectory. Specifically, the study answers the following three questions: (1) How did the Park government achieve the dual development of an indigenous weapons production system and a thriving private sector in only seven years (1973–1979)?; (2) What mechanisms of government control and policies might have accelerated rates of transformation in business, defense industry development, and military modernization?; and (3) How is the legacy of Park’s military modernization program evident in the ROK’s economy today?

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1. For example, newly available military records on Park’s clandestine weapons programs are included with declassified materials from the Presidential Archives of Korea, Ministry of National Defense, Korean Defense Industry Association, and the Agency for Defense Development. See references.

## The Security Context of Park's "Self-Reliance" Campaign

Park launched South Korea's independent military modernization program and deeply integrated it with his economic plans in the context of a precarious geopolitical environment defined by two major dynamics: North Korean aggression and a drastic shift in US foreign policy in the region. In the late 1960s, North Korea's military deployed armed commandos to the Blue House (1968), abducted a US ship near the peninsula (1968), and shot down a US spy plane over international waters (1969). Amid these tensions and escalating threats in the peninsula the United States, as the chief protector of the ROK, announced the Nixon Doctrine in 1969, which encouraged US allies in Asia to develop their own self-defense capabilities. Shortly thereafter, the United States announced its plan to withdraw all United States forces from Korea by 1976. This stance led to the removal of the 7th Infantry Division of US Forces Korea (USFK) in 1971.

In 1971, however, the ROK still lacked the independent technology, infrastructure, and technical workforce required to manufacture modern weapons and, as a result, was totally dependent on US military aid, even for guns and ammunition (see Kwon 2017, 192). North Korea, meanwhile, was much further ahead in terms of military modernization, thanks to massive Soviet military aid in the late-1950s and early 1960s.<sup>2</sup> ROK officials at all levels of government, together with the general public, saw the threat of USFK troop departures as dire, and eventually even Park's political opponents joined his desperate attempts to persuade Washington to reverse its policy.<sup>3</sup> In exchange for the withdrawal of US troops, President Nixon agreed to grant military aid for Park's Five-Year Military Modernization Plan (1971–1976) in the form of US\$1.5 billion as well as transfers of US weapons technology to assist Korean manufacturers of US-model weapons. However, the US Congress rapidly undercut Nixon's promised aid, as a result of heavy

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2. See PANAK (1968).

3. See Letter for President Jimmy Carter from Lee Chul Seung, "Withdrawal of US Ground Troops in Korea," May 25, 1977, White House Central File, Subject File, Countries, CO82-2 7/1/77-8/31/78, Box CO-41, Presidential Papers of Jimmy Carter, Jimmy Carter Library and Museum, Atlanta, Georgia.

spending on the conflict in Vietnam. In addition, the United States imposed restrictions on independent arms procurements by Park, out of fears that dangerous arms in the hands of the ROK might stir a second civil war in Korea or trigger an arms race in the region (US Congress 1978, 78–80, 204).

The twin shocks of US troop withdrawals and arms restrictions presented the ROK government with a crisis that necessitated the fundamental restructuring of its national defense system, both practically and conceptually. Throughout the 1970s, then, Park strategically campaigned for greater economic as well as military “self-reliance” (*jaju*), urging civilians to build a self-sufficient economy (*jarip gyeongje*)—the foundation on which Korea could establish a self-reliant national defense (*jaju gukbang*) (see figure 1).<sup>4</sup>



**Figure 1.** On the left is President Park’s hand-written catchphrase, “self-reliant national defense, self-reliant economy” (1977). On the right, Park’s calligraphy emphasizes “self-reliance” in its three variations: *jajo* (self-help), *jarip* (another word for “self-reliance”), *jawi* (self-preservation) (1970).

Sources: The National Archives of Korea (public domain); National Museum of Korean Contemporary History (public domain).

To these dual ends, Park’s slogan, *buguk gangbyeong* (rich nation, strong military), reflected his vision for parallel economic and military

4. “Bak daetongnyeong, gukbang daehagwon joreopsik chisa” (President Park, Congratulatory Message for the Graduation at the National Defense University), *Dong-A Ilbo*, July 20, 1971.

modernization.<sup>5</sup> He frequently claimed, “Economic construction is the foundation for national strength” (Presidential Secretariat of ROK 1971, 19), and he underlined his convictions with what became an official rallying cry for economic development, “Let us fight while rebuilding!”<sup>6</sup> Thus South Korea’s efforts to build its own military-industrial complex were from the start completely enmeshed with national economic development. The geopolitical dynamics and Park’s response to them through his commitment to national wealth and power almost immediately then gave rise to government planning for heavy and chemical industrialization.

As the United States initiated troop withdrawals, Park quickly declared a national state of emergency in December 1971, citing national security needs. He then instituted increasingly repressive policies that limited political freedom and led the nation into a war mode. In October 1972, under martial law, Park established the Yusin (restoration) system, which dissolved the National Assembly and opposition parties, while granting Park a lifetime presidency. Park then aggressively set about campaigning for the establishment of a “total security system” (*chongnyeok anbo cheje*), which would be built and bolstered through the sacrificial devotion and hard work of every Korean.<sup>7</sup> Park’s Yusin system mirrored prominent features of Japan’s wartime mobilization of the 1930s, with a planned economy that expedited the total merger of public and private sectors for military production (see Eckert 1996).

The resulting authority structure was highly centralized under Blue House command and control. The “task force” (or HCI Planning Corps) officially headed by O Won-chol, Park’s presidential secretary in the Second Economic Secretariat (SES) in the Blue House, was thus enabled to carry

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5. “Bak daetongnyeong gangjo, buguk gangbyeong-mani sal gil, gukje sahoe-neun gyeongje jeonjaeng chiyaeol” (President Park Emphasizes, “Rich Nation, Strong Military” Is the Only Path to Survival Amid Fierce Economic Warfare in International Society), *Kyunghyang Shinmun*, March 27, 1972.

6. “Saemaoul-ui norae sajeol-kkaji nawa” (Fourth Verse of the Saemaoul Song Comes Out), *Dong-A Ilbo*, December 11, 1973.

7. “Beonyeong-gwa tongil-ui jeongcho (3): chongnyeok anbo cheje guchuk” (Laying the Cornerstone of Prosperity and Re-unification (3): Establishing a Total Security System), *Kyunghyang Shinmun*, December 21, 1972.

out Korea's Heavy and Chemical Industrialization Plan (HCIP; *Junghwahak gonggeop jeongchaek*). HCIP conceived the development of defense-related civilian industries to fulfill Park's priority of supplying Korean troops with domestic arms as a way to mitigate the lackluster effort the United States was exerting to defend its own ally from North Korean threats. Under Yusin, all policies related to HCI operations would soon pass through the SES in the Blue House, guaranteeing Park's unimpeded control over the entire defense-centered HCI program (see J. Kim 2010, 184–185).

### HCI Master Plan, *Gaepyeollon*

In 1972, Kim Kwangmo, vice-director of the HCI Planning Corps (1972–1979), under SES command, was in charge of developing the HCIP.<sup>8</sup> Kim mapped the course for implementing the plan by drafting a document (now-declassified) titled, “On the Restructuring of Industry in Accordance with HCI Promulgation” (or “Junghwahak gonggeop jeongchaek seoneon-e ttareun gonggeop gujo gaepyeollon”; hereafter, *Gaepyeollon*).<sup>9</sup> O Wonchol (2009, 249–254) presented the final version of *Gaepyeollon* to Park and his policymakers in January 1973. While written as an industrial plan and without mention of military production, the overarching intent of this scheme was to outline and promote the course for an interdependent and parallel development of HCI and a defense industry. Accordingly, *Gaepyeollon* included detailed designs for building a civilian-based system of weapons production by the following means: assigning specific industries to serve dual purposes, prioritizing mass production and exports in industrialization policy, promoting the convergence of public and private sectors, and directing investments in the development of highly skilled labor. According to its grand design, *Gaepyeollon* also laid specific plans for building distinct industrial complexes to support mass production in

8. Kim Kwangmo, interview by author, Mapo, South Korea, April 16, 2013.

9. Gyeongje 2 (1973); Kim Kwangmo, interview by author, Mapo, South Korea, April 16, 2013.

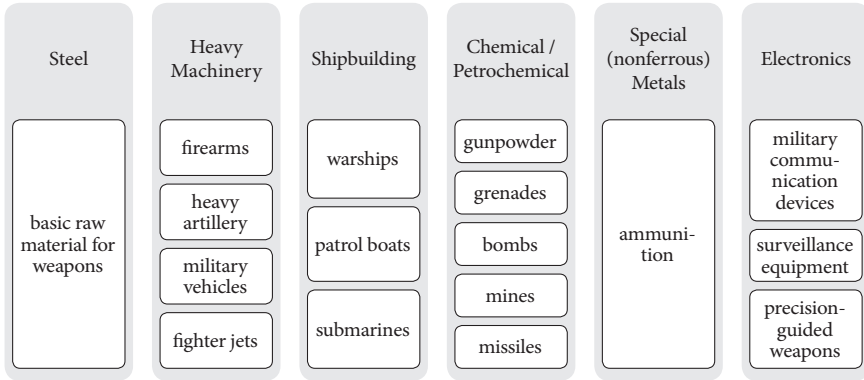


Figure 2. Duel-Purpose Heavy and Chemical Industries in the 1970s

Source: Figure by author

each of the following six key industries: industrial machinery, shipbuilding, petrochemical/chemical, steel, electronics, and nonferrous metals (15, 28; see figure 2). The sector specifications of the overall policy reflected a shift away from light industries to heavy and chemical industries, while expanding exports to include intermediate goods.

Park's former Chief of Staff during 1969 and 1978 Kim Chung-yum has commented as follows:

Indeed, the steel industry and the nonferrous metal industry needed to be developed to produce steel, specialized steel, copper, and zinc, all of which are basic materials of the defense industry. Also, the machinery industry needed to be developed to facilitate precise high-tech processing, along with the electronic industry to produce electronic weapons and components. Also, the scale had to [sic, be] big enough considering the massive demand of having to arm 600,000 soldiers in the standing army and 2.5 million reserve soldiers (C. Kim 2011, 409).

Of its proposed sectors for development, *Gaepyeollon* referred to industrial machinery as the *pillar* of Korea's heavy and chemical industries, citing it as



the country's most underdeveloped sector (*Gaepyeollon*, 18). This priority on the machinery sector corroborates a 1972 declassified SES report to Park on defense industry planning, which notes that a cost-effective mass production of weapon parts by private manufacturers in the machinery sector would constitute the largest part of Korean weapons production (PANAK 1972).

As envisioned by the architects of *Gaepyeollon*, export-oriented industrialization (EOI) would elevate the technology and quality of Korean defense products to render them competitive at the level of international trade (*Gaepyeollon*, 19), thereby profiting the national economy (O 2009, 135), especially given the high demand for cheaper weapons on the global market at the time. The capital obtained through sales from exports would be re-invested in HCI for industrial development. Since the EOI model required a firm alliance between government and the private sector, *Gaepyeollon* recommended a public (i.e., military)-private-sector convergence through special laws, institutions, and public funding to assist businesses in transitioning to state-planned HCI industries (*Gaepyeollon*, 31). While not directly stated in *Gaepyeollon*, this collaboration would fully incorporate private enterprise in a nationalized weapons production system. According to plans, defense and civilian industries would develop as two rails of one railway. The defense industry would gain entrepreneurial creativity, economic competitiveness, technological innovation, and production abilities from private enterprise; at the same time, civilian industries would achieve the modern standards of business management, precision, efficiency, and high-quality production from the defense industry.

*Gaepyeollon* furthermore promoted rapid advancement in human resources in precision engineering, science and technology, all required for weapons manufacturing (21–23). The HCIP proposed a ten-year process for upgrading the Korean labor supply, from predominantly simple laborers to a highly-skilled workforce. Aided by state subsidies for technological high schools (*gonggo*) and vocational training, laborers would retool for work in HCI factories and supply the first-generation technical workforce for defense industrialization.

Equipped with the political authority of Yusin and HCIP, the ROK

government then embarked on its own national course of independent arms production in 1973. Park's proclamation of HCIP on January 12, 1973 publicly introduced sector-specific development plans for the state's concentrated investments in HCI industries, including machinery, shipbuilding, steel, special steel, and petrochemicals (Presidential Secretariat of ROK 1973, 58–59). Park also declared it a national goal to expand Korean exports to US\$10 billion in annual earnings by the early 1980s, in addition to declaring the National Scientification Movement to promote the technical education of the domestic workforce. Though publicly announced as an economic plan, the HCIP fundamentally sought to realize the independent defense industry through which Park would equip Korean troops with domestic arms. The dearth of official records on Park's weapon programs reflects the clandestine nature of this project, which grew even more secretive after the government implemented the Yulgok Operation in 1974, under which the ROK pursued the independent development of nuclear arms and long-range missiles, among other weapons.

### **Militarization and Industrialization**

In February 1973, with the passage of the Military Procurement Law (MPL; Gunsu jodal-e gwanhan teukbyeol jochibeop), the state codified and legalized the collaboration of government and private industry for military production (MND 2002, 175, 185). This sweeping, special legislation then mobilized the private sector to develop Korean defense products and to commercialize and export them (KDIA 1988, 283). To minimize the time and costs required to build a new HCI-based defense industry, the government chose to utilize large family-owned conglomerates called chaebol, since they were already operating industrial factories and had basic manufacturing abilities (O 1996, 138).

The MPL financially incentivized the chaebol to concentrate investment in defense-related production. Under MPL, Article 6, funding and resources were distributed to support businesses meeting the state's production goals. Article 7 sanctioned state financial support for the construction of weapon

production facilities, allowing the state to fund purchases of raw resources from abroad, as well as to publicly finance or provide special low-interest loans for R&D (KDIA 1988, 62). Accordingly, when the government established the National Investment Fund (NIF) in December 1973, it supported defense-related manufacturers under the guise of funding HCI projects.<sup>10</sup> In July 1975, as US military aid rapidly continued to decline, Park implemented the National Defense Tax (*Bangwise*) to fund weapons projects under Yulgok. MPL also offered corporate income tax breaks, in addition to special protective excise taxes and tariffs.

Along with the above measures, the MPL promoted domestic R&D for weapon indigenization. Articles 8 and 9 allowed state subsidies for business procurement of technical training, technology, and research infrastructure to advance independent military technologies (KDIA 1988, 283–293). Defense-related research institutes used state-allocated investments to accelerate independent weapons R&D, while working closely with designated contractors to produce Korean weapon prototypes. Here the ADD, which Park had built in 1970 to advance domestic weapons R&D, played the central role in transferring to chaebol the advanced weapon technologies that Korea acquired under US military aid programs or joint production agreements with foreign suppliers.<sup>11</sup> As a result, chaebol received the latest technology and technical aid required for defense production, which in turn put these businesses at the forefront of all domestic R&D activities.

The MPL worked in conjunction with HCIP to supply the highly skilled workforce required for chaebol weapons production. Article 11 of the MPL granted skilled laborers, including engineers, technicians, and craftsmen in defense plants exemption from the military service that was otherwise mandatory for all able-bodied Korean men (see KDIA 1988, 62). The rollout of this program after 1973 incentivized many young male students to enroll in technical high schools. In doing so, they earned exemption from military

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10. Chung-yum Kim (former Chief of Staff under President Park, 1969–1978), interview by author, Seoul, South Korea, April 5, 2013.

11. See, for example, PANAK (1976a).

service and rewards in the form of scholarships, tuition waivers, and low-cost room and board through subsidized education in elite schools that equipped future laborers with the skill sets needed for HCI (H. Kim 2013, 581). Following MPL provisions, upon graduation and passing the technical license exams, workers received their assignments in HCI plants, where they in turn sacrificially dedicated their lives to national industrialization, instead of serving in the military. This new group of skilled workers were hailed by the Park government as “industrial warriors” (*saneop jeonsa*), or “special soldiers” (*teungnyebyeong*) on the industrial frontier in South Korea’s economic war against North Korea (see Moon 2005, 60, 62; see also Presidential Secretariat of ROK 1975, 233–234, 255–256). MPL not only guaranteed perks for these laborers, however, but also granted weapon-producing factories total protection against labor disputes, treating any such incident as a threat to national security (KDIA 1988, 292). Restrictions on labor kept labor costs low and maximized chaebol investments to meet the state-mandated production and export quotas.

MPL also bound defense contractors to meet strict performance criteria and established systems of rewards and penalties based on company performance and resource management. Article 23 placed sanctions on financial malpractice and corruption by any defense contractor. Businesses that met the government’s export targets and high-quality standards earned low-interest loans to increase output. The same qualifying businesses received exclusive licensing rights to produce new military products. Defense contractors that performed poorly or failed to meet government standards jeopardized their privileges (Shaw 1984, 7).

Besides impacting business models, the MPL also reconfigured bureaucratic forces. Significantly, after the formal ratification of the law in 1973, the scope of the Ministry of Commerce and Industry (MCI) in the defense industry greatly expanded, as it immediately took the lead in implementing MPL support for defense businesses. In close cooperation with the SES, the MCI funded the construction of large industrial plants for weapons production by private contractors (PANAK 1976c). With the SES exerting ultimate control over defense industry development, as MCI expanded, it disempowered the Ministry of National Defense (MND), the

bureaucratic structure that had previously (prior to the 1970s) had authority over all military-related procurement activities. Through the mid to late-1970s, especially after the state's revisions of the MPL in 1977, contractual, marketing and other business-related responsibilities in the defense industry were steadily transferred from military heads of the MND to civilian bureaucrats of the MCI (Bak 2012b, 36–37).

### **Building Industrial Foundations**

The financial provisions of MPL granted the MCI huge subsidies to fund the construction of new industrial complexes for the following six heavy and chemical industries of Korea's newly burgeoning military-industrial complex: integrated steel mills, shipyards, electronics complexes, nonferrous metals complexes, integrated chemical/petrochemical complexes, and an integrated machinery complex. Corresponding complexes comprised the industrial base for expanded production by government-licensed manufacturers. The new infrastructure helped to increase localized arms production to an industrial scale.

The steel industry was dominated by the state-owned POSCO (Pohang Iron and Steel Company), but civilian plants occupied all the other complexes. In July 1973, as POSCO began producing steel, the basic material for all weapons production, the state broke ground on building a domestic defense industry. Then the Onsan Industrial Complex, completed in 1977, enabled South Korea to produce special steel, copper, zinc, and lead—basic materials for ammunition (see O 2009, 250). Thus was born the nonferrous metals industry and an indigenous labor force newly equipped with technical skills in large-scale steelmaking, iron making and rolling, as well as copper- and zinc-smelting (HCIPCP 1976, 25, 117). With indigenized production of steels and nonferrous metals, South Korea expanded industrialization to car manufacturing and production for advanced heavy machinery.

Independent production of steels further allowed Korea to establish its shipbuilding industry, one of Park's top objectives for HCI. At Ulsan,

Hyundai Shipyard was constructed in 1974, and by February 1976 South Korea had become one of the largest shipbuilders in the world, possessing contracts for 141 ships (HCIPCP 1976, 41). Park's technocrats had selected the locations of new shipyards, such as Okpo Dockyard and Samsung Dockyard, to be near the naval base in Jinhae, to manufacture and repair battleships in the event of war (O 2009, 250).

**Table 1.** Science & Technology Research Institutes  
Built during HCI, 1973–1979

Research Institute	Establishment Date (in chronological order)	Related Government Ministry
Korea Research Institute of Standards and Science	Dec. 1975	Industrial Advancement Administration
Korea Research Institute for Resources Development	May 1976	Ministry of Energy Resources
Institute of Chemical Research	Sept. 1976	Ministry of Commerce and Industry (MCI)
Maritime Research Institute	Nov. 1976	MCI
Nuclear Material Research Institute	Dec. 1976	Ministry of Science and Technology (MST)
Korea Institute of Electronic Technology	Dec. 1976	MCI
Korea Institute of Machinery & Metal	Dec. 1976	MCI
Korea Electrotechnology Research Institute	Dec. 1976	MCI
Institute of Atomic Energy of Korea	April 1977	MST
Institute of Heat Management	Sept. 1977	Ministry of Energy Resources
Institute of Telecommunications Technology	Dec. 1977	Ministry of Communication

Source: K. Kim (2017, 268–269).

Besides making rapid progress in shipbuilding, South Korea established three electronics industrial complexes in Gumi, which were devoted to domestic production of electronic weapons, communication devices, and surveillance equipment for the ROK military (C. Kim 2011, 409). The maturing industries further advanced skilled labor, R&D, technology, mass production, and quality control in export goods, all developments that were vital to the defense industry. The government complemented the industrial complexes with public research institutes for R&D to support the technical and scientific advancement of each sector of HCI, making the economic environment all the more conducive to the defense industry (see table 1).

In April 1974, the MCI began constructing the Changwon Industrial Complex as the infrastructural base for the production of both commercial and weapon-related machinery. With Park's third and fourth Five-Year Economic Development Plans (1972–1976, 1977–1981), the government strongly encouraged chaebol to expand into defense-related engines, car parts, and industrial equipment. The top machinery manufacturers received government occupancy approvals at Changwon and began building new plants there with state funds in the mid-1970s (HCIPCP 1976, 67–68). The same businesses received government contracts for weapons production.<sup>12</sup> Allocations of the National Investment Fund, from 1974 to 1975, reserved a significant portion of NIF funding of HCI for supporting the machinery industry, reflecting the industry's critical place in the HCI effort to mass produce weapons (see table 2). With new weapon-machinery plants, Changwon became the largest industrial base in Korea and served HCI's highest aims—heavy machinery production and weapon manufacturing.

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12. An MND report to Park from November 1975 details the ROK plan for the mass production of domestic Vulcans by machinery contractors such as Daewoo, Tongil Industries, and Cheil Precision Industries, all of which began contracted work by building facilities in Changwon. See PANAK (1975b).

**Table 2.** NIF Industrial Support

(unit: million won)

Industry	1974	1975
Machinery	13,313	22,600
All other HCI industries	26,209	29,760
Total industrial fund support by the NIF	39,522	52,360
% of NIF funds allocated to machinery industry	33.7%	43.2%

Source: HCIPCP (1976).

Under Park's reforms and statutory revisions to accelerate the commercialization and exportation of the defense industry in the late-1970s, the private sector gained leverage in the defense industry. For instance, when the state revised the MPL for the second time in 1979, the law promoted the Korea Defense Industry Association (KDIA, established in 1976), a cooperative body between the military and business leaders, as the primary government-certified association working with the state for defense industry growth and exportation (KDIA 1988, 83, 120). As KDIA promoted the Park agenda for weapons exports, the MND further collaborated with private businesses on defense export policies. Altogether, reforms and legislative rearrangements of financial, technical and bureaucratic structures supported private sector growth, by expanding business operations, funding weapons R&D, and executing plans for marketization and exportation in the defense industry. Table 3 (below) summarizes the governmental measures taken to aid business growth in the defense sector of the 1970s.

Eventually, a competitive business environment emerged in the defense sector, as profit-driven businesses sought lucrative government contracts. SES designs for privatized weapons production developed further under MPL guidelines, and companies increasingly made independent capital investments in R&D to develop superior weapon prototypes (Kia Heavy Industries 1999, 94, 99). They took initiatives to procure weapons



**Table 3.** Key State Measures to Develop the Defense Industry in the 1970s

Date	State Measures to Support the Defense Industry	Effects on Defense Industry
Nov. 10, 1971	SES installment in the Blue House	Established the “control tower” over independent defense industry development
Jan. 12, 1973	HCIP Promulgation	Synchronized arms production with civilian industrialization
Feb. 17, 1973	Military Procurement Law	Legalized the state’s political and financial support as well as regulatory role in the development of defense businesses
Dec. 14, 1973	National Investment Fund	Funded HCI and the defense industry
July 16, 1975	National Defense Tax Law	Funded Yulgok projects
July 23, 1977	First Revision of MPL	Assigned contracting and overseas weapon sales under the final authority of the MCI
April 17, 1979	Second Revision of MPL	Expanded state support for domestic weapons R&D; elevated role of KDIA in defense export policies

Source: Data from KDIA (1988, 62, 83, 120, 283), MND (2002, 185–187), and Shaw (1984, 7–8).

technologies through negotiations abroad as well (PANAK 1976b). Therefore, the state successfully drew on civilian entrepreneurial capacity and competition for military modernization, instead of building a totally state-run defense industry. In parallel with the civilian-based defense industry, the ROK’s underdeveloped economy, previously built on light, labor-intensive industries in the 1960s, grew into an export-oriented system driven by advanced heavy and chemical industries. As HCI exposed the chaebol to the free market and international competition, quality standards rose to benefit the defense industry. In turn, then, HCI development boosted weapons production capabilities of the chaebol not only through the mass production of defense products, but also through their exportation to other developing nations (PANAK 1975a).

### Cross-Fertilization of Military and Civilian Industries

While the MPL streamlined military procurement and civilian infrastructure according to HCI designs, the resulting inter-industrial technological linkages channeled “spin-off” and “spin-on” effects between military and commercial production. Defense industrialization gave the major impetus to technological and technical modernization of HCI-related civilian industries. Government policy and capital investment in military modernization indigenized advanced R&D, precision manufacturing, cutting-edge technologies and highly skilled labor. Park’s aggressive campaign in the late-1970s to advance *guksanhwa* (indigenization) and *jeonmunhwa* (specialization of technical skills) for all defense (or HCI) products (Presidential Secretariat of ROK 1977, 166, 173) pushed chaebol to acquire technologies through either independent R&D (with the ADD’s assistance) or the purchase of foreign contracts.<sup>13</sup> Once acquired, these coveted technologies and skills required for military production were diffused throughout civilian industries, providing the technical and technological foundations for South Korea’s modern commercial industries in heavy machinery, automobile, shipbuilding, and electronics. Through “spin-off” effects, the precision, reliability, and blueprints of technology acquired in the development of military equipment were transferred to civilian industries to improve product reliability and durability, as well as civilian production management systems, thus increasing the overall quality and competitiveness of all HCI products (Ku 1998, 64).

A prominent example of a “spin-off” is the skill set needed for steel welding, and these skills were indigenized through the initiative that Kia Heavy Industries took to produce the hulls of Korean-model armored vehicles in 1976. This advancement gave rise to South Korea’s automobile and shipbuilding industries (Kia Heavy Industries 1999, 102-103; ADD 2007, 75). Kia, along with other companies like Daewoo Heavy Industries

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13. For example, Park’s intense effort to modernize the ROK Air Force in the late-1970s led to Samsung Techwin’s joint production efforts with US corporations to indigenize the production of key parts of American fighter jets (see MND 1994, 36-37).

and Tongil Industries, also produced heavy artillery. The same corporations similarly indigenized materials technology and metallurgy for special steels, high tensile aluminum, brass, and cast steel, the manufacturing of heat mitigation equipment and high tensile bolts, essential components of Korea's various heavy machinery products (Yu 2005, 18–19; ADD 1987, 138).<sup>14</sup>

Skills for manufacturing mobility equipment and mechanical properties for jeeps, tanks, and armored carriers quickly contributed to the production of commercial cars, railcars, trucks and other civilian modes of transport. Corporations that developed specialized skills in precision manufacturing of weapon parts and hardware thus became Korea's representative automobile producers, including Kia, Hyundai, and Daewoo (Hwang 1996, 165). As an example, under Park's order to develop domestic tanks as part of Yulgok Operation, Hyundai was contracted to produce Korean tanks in 1974 (PANAK 1974). Hyundai, as well as subcontractors assigned to indigenize specialized tank parts, including Ssangyong, Tongil Heavy Industries, and Tongmyung Heavy Industries, all received government funding along with ADD technical support for tank production, which benefited these companies as producers of commercial transportation devices (see ADD 1987, 142–143). Ssangyong (now STX Corp.), Tongil (now S&T Heavy Industries), and Tongmyung still function as leading manufacturers in commercial transportation industries.

Engine manufacturers, such as STX Engine and Samsung Techwin (now Hanwha Techwin), not only contributed to manufacturing military vehicles, surface combatants, and jetfighters, but also enhanced production of commercial engines (see KDIA 2012, 238–239, 252–253). In the same fashion, Korean aerospace manufacturers, such as Korean Air, achieved breakthroughs in technological innovations through the defense industry's production of US-licensed helicopters and jetfighters in the late-1970s (O 1996, 327–328). The indigenized production of precision-guided weapons and equipment, such as missiles, missile-tracking devices, fire control systems, and laser-based equipment, similarly contributed to the development of the Korean aerospace and electronics industries (Hwang 1996, 165; KDIA 2012, 145). Furthermore,

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14. See also PANAK (1976a).

the production of military communication-electronics equipment beginning in the late-1970s multiplied basic technologies used in Korea's semi-conductor and computer industries, as well as in information technology (IT) and telecommunication, including cell phones and GPS devices, enabling South Korea to own some of the world's most advanced IT industry by the 1990s (see KDIA 2012, 146-147; Ku 1998, 64).

"Spin-off" effects have continued to contribute to technological advancement by sparking concentrated development of technology-intensive businesses for weapons-related production; this growth has also spilled over to advancements in R&D for high-end commercial science and technologies (Hwang 1996, 158-159; see table 4). From the knowledge-intensive defense industry workforce, likewise, technical know-how and skills have "spun off" to contribute to the development of highly skilled human resources in the private sector, including scientists, engineers, and craftsmen (Moon 2015, 233; Bitzinger 1995, 247).

**Table 4.** Defense Technology Applications in the Private Sector

Industrial Sectors	Defense Technology	Civilian Applications
Information	Satellite imagery map	Navigation (GPS)
Transportation	Tanks and military vehicles	Subway trains, railway vehicles, cargo trucks
Telecommunications and Electronics	Electronic weapons and radar technology, wireless communications	Anti-car crash radar, wireless phones, mobile telecommunication, radios, marine electronics, video recorders
Others	Tank gunnery stimulator	Subway train simulator

Source: MND (2010), Hwang (1996, 165), and KDIA (2012, 145).

The Park state's long-term investment in civilian R&D and technological capabilities for defense catapulted the chaebol into state-of-the-art manufacturing. The chaebol-based military modernization program of the 1970s equipped Korean manufacturers with unprecedented technological assistance and developed the chaebol's capacity for mass production under

HCI. As a result, the chaebol, which had specialized in limited commercial products through the 1960s, began acquiring modernized, mass-producing plants to supply various parts for both military and commercial use in the 1970s. New technology and mass production capabilities further opened doors for the chaebol to become major exporters.

Sustained rapid progress in the development of commercial technologies eventually led to advancements in domestic military technology through “spin-on” (from civilian to military) effects, as companies transferred their expertise in commercial products to spearhead new projects in military-related technologies (see *Business Monitor International* 2011, 55-56). These processes occurred in sync with the Revolution in Military Affairs (RMA), based on increased military use of civilian technologies and military-IT convergences that characterized the 1990s (Moon and Lee 2008, 134; Bitzinger 1995, 248). Ultimately, while leading Korea’s technological breakthroughs in aerospace, automobiles, computers, telecommunication, and machinery, the defense contractors born under Park, such as Hyundai, Daewoo, Kia, Hanwha, and Samsung, developed into top multinational corporations with diversified products.<sup>15</sup> Likewise, the cutting-edge military technologies of today have their roots in the innovative pursuits of the private corporations that emerged during the Park era and the cross-fertilization afforded by structural convergences of military and civilian industries (table 5).

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15. In the long-term, some businesses fared better than others through the vicissitudes of change following Park Chung Hee’s presidency. Companies like Kia and Daewoo, which had vastly expanded through state contracts and HCI in the 1970s, became highly vulnerable to policy shifts to downscale HCI during the 1980s and 1990s (see E. Kim 1997, 185, 197). By contrast, electronics manufacturers like Samsung and LG, with less reliance on defense contracts in the 1970s, enjoyed relatively more political freedom and entrepreneurial leeway during the post-Park era amid economic liberalization. Yet the defense industry had significant impact on both corporations. It was only after joining as defense contractors in the late-1970s that Samsung and LG became conglomerates, with government assistance enabling them to acquire sophisticated technology and resources for expansion in HCI sectors, as well as in aerospace and telecommunications (KDIA 2012, 238–239, 247; Jones and Sakong 1980, 353–354).

**Table 5. Commercial Contributions to Military Products**

Industrial Sectors	Businesses	Military Products
<b>Information / Electronics</b>	Lucky Goldstar (LG) Electronics, Yeonhap Precision, Eosystem, Samsung Thales (now Hanwha System)	C4I, high-tech electronics & information systems for the military
<b>Transportation</b>	Kia Motors, Hyundai, Daewoo Heavy Industries, Samsung Techwin (now Hanwha Techwin), Doosan	Armored vehicles and their components, artillery and naval vessels
<b>Shipbuilding</b>	Hyundai, Daewoo Shipbuilding & Marine Engineering	Submarines & other weapons for naval electronic warfare
<b>Aerospace</b>	KAI (Korea Aerospace Industries; formed in 1999 through the aerospace subsidiaries of Daewoo, Hyundai, and Samsung), Korean Air, Hanwha	Aircraft (KT-1, T-50), unmanned aerial vehicles (UAVs) & helicopters (KHP), precision missiles

Source: KDIA (2012, 237–261), Frost & Sullivan Research Service (2005), Business Monitor International (2011, 54–56), and Bitzinger (1995, 247).

### **The Implications and Legacy of Park’s Military Modernization**

Through HCI, Park’s “total security system” was instituted with a militaristic advancement of civilian industry and a complete convergence of business, technology, and ideology. The results are deeply embedded in the ROK’s economic system today, as the chaebol continue to maintain a close partnership with the state, not only by participating at the forefront of all economic activities, but also in promoting the ideological pursuit of a “self-reliant national defense” based on heavy investments in domestic weapons R&D (Kwon 2016, 299–300). This outcome might offer a case example for global comparison, based on the proposition advanced by Linda Weiss (2014) in her study of the American “national security state” (NSS) that emerged in the post-World War II era. Weiss (2014) argues that the NSS gave the United States its “commercial prowess,” even hegemony, in high technology, by catalyzing private sector advancements in military technologies that had multi-purpose applications. According to Weiss (2014, 15–16), a proactive NSS in the US forged “a system of governed interdependence,” incentivizing

private firms to develop the technologies needed to maintain US military supremacy; as businesses benefited commercially they strengthened the state economy.

Korea's national security state, like that of the United States, emerged amid Cold War geopolitical dynamics. In the process, the chaebol ventured into new military (HCI) technology led by state contracts and demand for weapons R&D, manufacturing, and exportation. The Korean government, in fact, distinguished itself from other so-called "developmental states" in East Asia in terms of the scope, scale, tempo and long-term influence of defense industry development in private-sector R&D and manufacturing. The Blue House (via SES) micro-managed nearly every aspect of industry, totally transformed corporate structures and determined industrial priorities for "defense industry needs" by fiat, and rapidly built a highly skilled labor force to meet the technical demands for military production. The totalizing and highly accelerated civilian-military synergy of this "total security system" was firmly established in less than one decade. By contrast, other developmental states, like Taiwan and Japan, placed relatively less priority on the military in industrial policies, and they yielded considerably less control over private sector. The all-out pursuit of the ROK state in the 1970s gained momentum from domestic and international factors, particularly as Park took control under the Yushin system in reaction to the perceived threats of US withdrawals and North Korean incursions into South Korea. The cultural homogeneity of Korean society eased the Park regime's efforts to build a tightly knit relationship with the commercial sector, which in turn enabled a complex, state-led defense industrialization, as civilian responsiveness encouraged collaboration with top-down mobilization and furthered the state's cause. By contrast in other developmental states, such as Taiwan, ethnic and cultural differences divided government and private sectors, and development in these states proceeded at relatively more gradual rates.<sup>16</sup>

While the legacy of South Korea's independent military modernization is particularly evident in the state's ongoing close relationship with what

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16. In addition, in Taiwan, the government approach to private industry was less interventionist, encouraging rather than directing or protecting private businesses. See Nolan (1986, 98-99).

today represent the most technologically advanced and lucrative commercial industries in the Korean economy, this result has left stains and wrinkles in the fabric of the Korean political economy. Critical errors in centralized defense industry policies became obvious almost immediately following Park's assassination in 1979. By overinvesting in limited suppliers (chaebol) and sectors related to defense (HCI), all key industries under Park grew largely from a supply chain run by a few elite corporations. This oligarchic production structure invited corporate-state collusion and narrowed the production base (Park 2010, 201). In fact, the chaebol-centered industrial structure held so firmly intact in the 1970s that the subsequent Chun Doo-hwan and Roh Tae-woo administrations' reform policies to downscale the HCI in the 1980s and 1990s, including reduced state subsidies, did little to disperse the concentrated wealth or diminish the corporate dominance of chaebol in the national economy (E. Kim 1997, 182).

Park had also, through his so-called "presidential guidance," established himself as the *de facto* engine of control over a system that subsequent presidents were not able to effectively maintain (J. Kim 2010, 182). Under the Chun Doo-hwan administration (1980–1988), as Korean defense businesses began delivering poor performances under downscaled state management and reduced support, Chun began relying on technological acquisitions from the US, deviating from the priority set by Park to advance domestic weapons R&D (Moon and Lee 2008, 131). Without active state administration offering long-term support and pushing defense businesses in clear directions, businesses became passive, and the defense industry floundered, proving the critical role of the state in Park's original designs and the initial rapid industrialization that attended military modernization.<sup>17</sup>

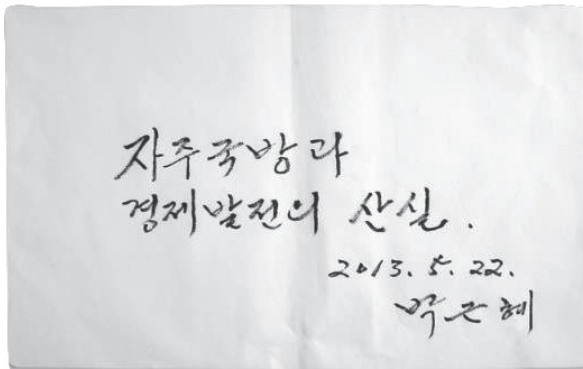
Following industry decline in the 1980s, subsequent ROK regimes re-aligned themselves with Park's priority of indigenizing weapons R&D. As a prime example, the Kim Dae-jung (1998–2003) administration implemented a special law in 1998 to promote civilian-military "dual-use" of the defense industry (Moon and Lee 2008, 131). Similarly, the phenomena

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17. See Weiss' thesis (2014) on the role of NSS in developing high-technology industries in the United States.



of spin-on and spin-off supplied the basic rationale for efforts by the Lee Myung-bak (2008–2013) and Park Geun-hye (2013–2017) administrations to offer expanded technical support to private businesses specializing in IT and weapons-related R&D, as a way to encourage more companies to enter the defense industry (MND 2010, 230–231; 2016, 118). Both administrations pursued benchmarks set by the Park Chung Hee regime’s privatization of military technology and promotion of civilian participation in defense R&D, in keeping with HCI and Park’s motto, “rich nation, strong military” (see figure 3).

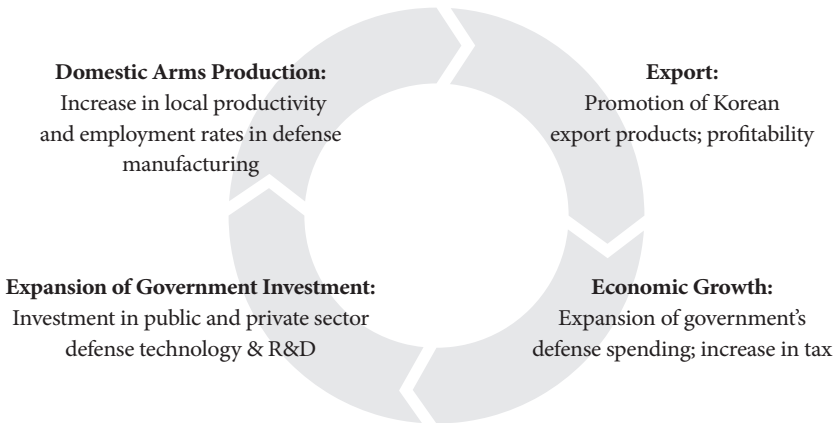


**Figure 3.** “Cradle of Self-Reliant National Defense and Economic Development,” hand-written by former President Park Geun-hye to label the Agency of Defense Development during her visit there in May 2013

Source: MND (2014)

The most recent ROK presidents have also consistently tended to garner political support by promoting both economic and military strength while emphasizing *self-reliance*. The messaging is typically reinforced with reference to security concerns related to North Korea and a fragile US-ROK alliance. Even the current Moon Jae-in administration (2017–present), despite standing for rapprochement with North Korea, has publicly committed to building the economy and national defense as the most

important pillars of the nation, through an expanded defense budget and military reforms.<sup>18</sup> Indeed, regardless of political affiliations, ROK regimes have held intact Park's strategy of "security and development" (Bitzinger and Kim 2005, 187), as parallel tracks laid to supply the ROK military and to expand South Korea's exportable products. In this sense, Park's initiatives in the 1970s have served as a blueprint for permanently linking military expansion with commercial high-tech industrial advancement. Park's legacy is in this way institutionalized in a form of militarized economic planning that remains tightly woven into the ROK systems of government and industry today.



**Figure 4.** The Cycle of National Security and Economy  
Source: Data partially drawn from MND (2010).

As seen in figure 4, the structures and forces of the military and the economy remain synchronized and continue to feed off each other for mutual and interdependent growth. The Blue House, ADD and MND have made considerable efforts to expand and accelerate private-sector

18. "Moon to Raise Defense Budget to 2.9% of GDP within Term," *Korea Herald*, July 18, 2017; "Moon Tells Military It's Time for Reforms," *Korea JoongAng Daily*, July 28, 2018.

defense exports as the future “engine of economic growth.”<sup>19</sup>

While South Korea’s government-chaebol collaborations wield potent influence today, the ROK remains dependent on US weapons technology, an outgrowth of Park’s earliest concentrated development of US-model weapons. Further, as a former director of ADD has observed, despite efforts to revitalize the private sector’s role in the defense sector, profitability remains a challenge for businesses in South Korea’s defense and R&D sectors today.<sup>20</sup> The private sector has limited sustainability without state intervention, and options are limited to introduce structural changes for state programs and directives to keep pace with the rates of change in technology and finance in the global market. Recent developments, current trends, and long run challenges facing the ROK should spawn more literature on the Park era, including more effort to analyze the details and the degree to which the defense industry has shaped and continues to influence the technological and industrial infrastructure of the ROK economy and the ROK’s place in its geopolitical context.

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19. “South Korean Leader Calls for More Arms Exports, Enhanced Defence Capabilities,” *The Straits Times*, October 17, 2017; MND (2010, 228); and Mr. Bak (former director of ADD, name protected for privacy), interview by author, Daejeon, South Korea, October 29, 2012.

20. Mr. Bak, interview by author, Daejeon, South Korea, October 29, 2012.

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