THE DEVELOPMENT OF KOREA'S ELECTRONICS AND IT INDUSTRIES

EE482 Industrialization: Role of Public and Private Sectors
(Section 046401)
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Faculty of Economics, Thammasat University

The Development of Korea's Electronics and IT Industries

- It was evidenced by an address President Park delivered in January 1967.
- In his New Year's message, he said his government aimed **at attaining the goal of $35 million in electronics exports**.
- It seemed that the president **gained in-depth understanding** about the electronics industry from **academics and international experts** and was acting on their advice.
- Records show that among them were **Dr. Kim Wan-hee** of **Columbia University**, other **Korean-American scientists** and Japanese business leaders.
- In accordance with the presidential direction, relevant junior officials at the ministry drafted a plan to **increase electronics exports to $100 million** in the final year of the **second Five-Year Economic Development Plan (1967–1971)** and reported it to the director-general in charge only to have it turned down.

Source: Directly quoted from Chun, S.H. (2018). *The Economic Development of South Korea: From Poverty to a Modern Industrial State*. London: Routledge.

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- He told them that it would be preposterous to expect that a nation that exported a mere **$1.78 million worth of radios in 1965** would increase its electronics **exports to $100 million in 6 years**.
- The officials, still convinced that the goal could be attained, reported the draft plan directly to the minister and obtained his approval.
- One year before it was gearing up to develop an electronics industry, the government **established the KIST** and **appointed Dr. Choi Hyung-sup** to head the institute.
- Dr. Choi, who played a key role in making government **policy on science and technology**, **recommended** President Park **meet Dr. Kim Wan-hee** of Columbia University for advice.
- Dr. Kim submitted a report titled "**Promotion of Electronics Industry in Korea**" to President Park in September 1967.
- His proposal centered on three measures to be taken:
  - (1) **legislating** an electronics industry promotion act
  - (2) establishing an electronics industry **promotion fund**
  - (3) establishing an **agency tasked** with electronics **industry promotion.**
- President Park asked him for a more detailed study, for which $100,000 was set aside.

Source: Directly quoted from Chun, S.H. (2018). *The Economic Development of South Korea: From Poverty to a Modern Industrial State*. London: Routledge.

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- Based on a report that came out in May 1968, the **Electronics Industry Promotion Act was legislated** in December 1968.
- The government, which launched the Electronics Industry Policy Committee, started to push for its policies on electronics industry promotion.
- It also sent its officials in charge to the **United States**, **Japan** and **Taiwan**, together with business leaders, on a **study tour** of the electronics industries.
- Under instructions from President Park in June 1969, the Ministry of Trade and Industry **selected 95 electronic items** to be developed for local production – **62** in **3 years** and **the rest in 5 years**.
- Then the **ministry selected companies developing** them for **its subsidies**.
- In addition to developing the items, the **MTI set yearly targets for exports – $42 million** ($8 million from finished products and $34 million from parts) in **1969** and **$400 million** ($160 million from finished products and $240 million from parts) in **1976.**

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- To President Park, the deputy prime minister committed himself to **providing government support** without a hitch for the ambitious project to increase electronics exports as planned.
- The selection of companies for the **development of 29 items**, **all of them parts**, was delayed a year and a half.
- In January 1970, taking in charge of assistant minister for mining, manufacturing and electricity, O took swift actions for **designation of companies for electronics parts development** in 1971 after one and a half years had passed.
- **Benefited by the government's support**, the export of electronics goods began to **increase sharply**.
- In 1976, electronics shipments **went far beyond the target of $400 million** and **reached $1.1 billion**.

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- Another strategy the Korean government had for the development of an electronics industry was to **build an industrial cluster** producing electronic **parts and finished products**.
- For this purpose, the government built a **large electronics complex in Gumi** in 1971.
- But that was **not enough for Korean electronics companies** that urgently wanted to **acquire technology** for the manufacture of parts.
- A solution to this problem, the government concluded, lay in **foreign direct investments by Japanese parts producers**, **many of them SMEs**.
- At that time, Japan was the world's leader in manufacturing electronics goods. The problem was that **Japanese firms were reluctant to invest to Korea**.
- As an incentive for their investments in Korea, the government established an industrial complex in **Guro, Seoul**, **exclusively for Japanese electronics parts producers**.
- To manage the complex more effectively, the government named an influential person, **Yoo Chang-soon**, who would **later** be **appointed prime minister**, to **supervise the complex**.

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- The government also encouraged **ethnic Korean businessmen in Japan** to invest in their mother country **accompanying Japanese SMEs**.
- All these measures the government took indicated **how much it valued foreign direct investments** as a means for Korean companies **to learn advanced technology.**
- In an effort to draw public attention to the electronics industry and **facilitate the exchange of information** among electronics companies, the government sponsored **annual Korea Electronics Exhibitions**, the first of which lasted 8 days in October 1969.
- As a demonstration of his commitment to the promotion of the electronics industry, **President Park attended all the exhibitions** until he died in 1979.
- Among the few Korean companies that **took an early business opportunity** in the electronics industry was **Goldstar**, the **predecessor of LG**, which started to **produce radios** in November 1959 for **the first time in Korea.**

Source: Directly quoted from Chun, S.H. (2018). *The Economic Development of South Korea: From Poverty to a Modern Industrial State*. London: Routledge.

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- The price of a **vacuum tube radio** was set at **KRW 20,000**, **roughly three times** the entry-level **monthly pay** for **college graduates**.
- The next year, it put **electronic fans** on the market. It produced **monochrome televisions** in 1966. A television was sold at **four times** the entry-level **monthly pay** for **college graduates**.
- **Supply could not meet demand**, although the price was so high.
- Another company that was to lead the Korean electronics industry was **Samsung Electronics**, which started as a **joint venture with Sanyo** of Japan in March 1969.
- When Samsung and opposition claimed that Samsung's **dependence on Japanese technology for television manufacture** would do harm to the entire Korean electronics industry.
- Under the circumstances, the government approved of its incorporation on the condition that all its products would be exported.
- It also approved Samsung-NEC's incorporation under the same condition in 1970.

Source: Directly quoted from Chun, S.H. (2018). *The Economic Development of South Korea: From Poverty to a Modern Industrial State*. London: Routledge.

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- Korean companies that **acquired technology through joint ventures** with **Japanese electronics giants** and **foreign direct investments** by Japanese parts makers entered the niche market for **low-end products left behind by Japanese** home appliance makers.
- Then, they started to **reduce the wide gap in technology** with Japanese companies and **produced higher-end products**.
- It was **Anam Electronics**, a **joint venture with Matsushita Electric** of Japan, which **produced color televisions** in 1974 for the **first time in Korea**.
- Soon after, **Samsung Electronics** also began to produce **color televisions**. It was the first Korean company that produced color televisions **with its own technology**.
- However, none of the Korean companies **could sell color televisions** in the **domestic market** because color television broadcasting was **not permitted** in the nation.
- President Park **banned** it on the grounds that it would **fuel consumer spending and class conflicts**.
- A new junta, which took power in a coup in December 1979, **permitted the sale of color televisions** in 1980 to **support development** of the electronics industry.

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- Color television broadcasting started the next year. Assisting the electronics industry about this time were the **KIST and other government-funded research institutes.**
- In a strategy to reduce Korea's gap in technology with advanced countries, the Korean government **brought home many Korean scientists** working at foreign research institutes and **staffed domestic research institutes with them**.
- Those scientists, **rewarded with a high level of pay and other incentives**, worked hard in coveted research environments to **help Korean corporations acquire needed technologies**.
- **A turning point** in the development of electronic technology came when **Lee Byung-chull**, **Chairman of Samsung Electronics**, decided to make a **massive investment in semiconductor** manufacturing back in 1983.
- During a long period leading up to his "Tokyo Declaration" on an **investment in chip-making plants** in the year, executives of Samsung had voiced opposition to Lee's investment proposal, saying it would **be impossible for Samsung** to manufacture semiconductors similar in quality to or higher than those being manufactured by Japanese and other globally renowned chipmakers, given that it was **now barely producing color televisions**.

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- Lee Byung-chull, Chairman of Samsung Electronics, was determined, and thanks to his decision, Samsung has emerged as the **largest memory chip producer in the world**.
- In addition, it has turned itself into a **top-ranking manufacturer of smartphones**, electronic home appliances and other technology-intensive products in the world.
- With a successful launch in the chip-making business, Samsung could lead the Korean electronics industry, surpassing its Korean rival LG.
- It is not Samsung alone that is doing well in global markets. **LG and other Korean companies** have **substantial shares** of world markets for electronic and information technology-intensive products.
- The history of Samsung's semiconductor industry represents **a good example** of the **entrepreneurship** of **Lee Byung-chull**.
- Lee set **64K DRAM** as the first product to develop, which was only produced in the United States at the time. **Japanese firms hooted at Samsung** that it would **take 20 years for Samsung** to develop it.
- However, by the forced march of Lee, **Samsung succeeded** in its development in **6 months**.

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- With this success, Korea became the **semiconductor chip producer** by **shoulder** with the **United States** and **Japan**.
- It was followed by the first **256K DRAM** development in 1984 the next year, the first **64K SDRAM** in 1985, the **first 1M DRAM** in 1986, and the first 256K SDRAM in 1986.
- **Hynix** of Korea joined in the market by developing 64K DRAM in 1992.
- In the process, the **talents fostered by KAIST**, the elite education institute for science and technology, played a significant role.
- Lee reflects that **one-fourth of KAIST graduates** were **recruited by Samsung.**

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- In 2013, Korea became the **second in the world semiconductor** market, pushing out Japan.
- In retrospect, Samsung and Hynix had been held by the Japanese and US makers through dumping activities and anti-dumping lawsuits.
- Korea occupied **75 percent in D Ram** and **33.6 percent in television sets in 2015** in the world market, ranking number one in these industries.
- The principal actor of this IT dynamics in Korea is Samsung Electronics.
- Having started in 1986 as a joint venture with a Japanese firm wholly depending on Japanese technology, **Samsung surpassed Sony**, the symbol of Japanese electronics technology, in **market value** and **sales** volume in 2002 and 2004 respectively.
- Continuously, by **pushing out Hewlett-Packard** of the United States and **Siemens** of Germany, it finally ascended in 2009 to the **top in sales volume** of **world IT** business.
- In the global smartphone market, from 2011 until recently, **Samsung** has **ranked number** one followed by Apple.

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- Looking at business performances in the second quarter of 2017, Samsung outran Apple, acceding to the throne at the top of the global manufacturing industry in sales volume, operating profit and profit rate.
- Many developing countries, marveling at the outstanding performances of Korean companies in IT industries, may **want to follow the footsteps Korea** has taken in **fostering those industries**.
- The government officials from developing countries used to ask me about **the secrets of its success in Korea's IT industry**.
- It seems to take no spectacular policy skills or managerial know-how in Korea for developing the industries.
- The government had a **vision of an IT industry** and made **a head start in investing in IT infrastructure**.
- Then, it **took care of business start-ups** and enterprises **as parents do for their children**.
- It launched a national drive to **fostering technicians and skilled workers**.

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- When nobody thought that Korea was ready for development in science and technology, the Korean **government initiated research investments**, providing **exceptional treatment for scientists** returning from advanced countries with **higher salaries than that of the president**.
- Under the circumstances, entrepreneurs exerted their **full entrepreneurship** to survive in the market and **catch up with IT companies of advanced countries**.
- In line with growth of private companies, the government disengaged itself in its engagement in the industrial development.
- There is **no royal road to the development of IT industries** and advanced technology.
- As children grow with the care of their parents, so enterprises and industries grew with the devotion of the government.

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