

Industrial Development of Korea:

Policies and Performance in a Historical Perspective

December 19–20, 2016

In the Seminar with ITSr in Tehran, Iran

Dr. Dong-Joo Joo

Senior Research Fellow

Korea Institute for Industrial Economics and Trade (KIET)

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I . Transformation of Korea at a Glance

Korea : A Brief History



BC 2333. Foundation of Ancient Chosun

→ **AD 917 Ancient Kingdoms and Unified Silla Dynasty**

918 – 1391. Koryo Dynasty

1392 – 1910. Chosun Dynasty

1910 – 1945. Japanese Colonial Rule

1945. Independence and the division of South & North Korea

1948. Foundation of the Republic of Korea

1950–53. Korean War

1962. Launching of the First 5 Year Economic Development Plan

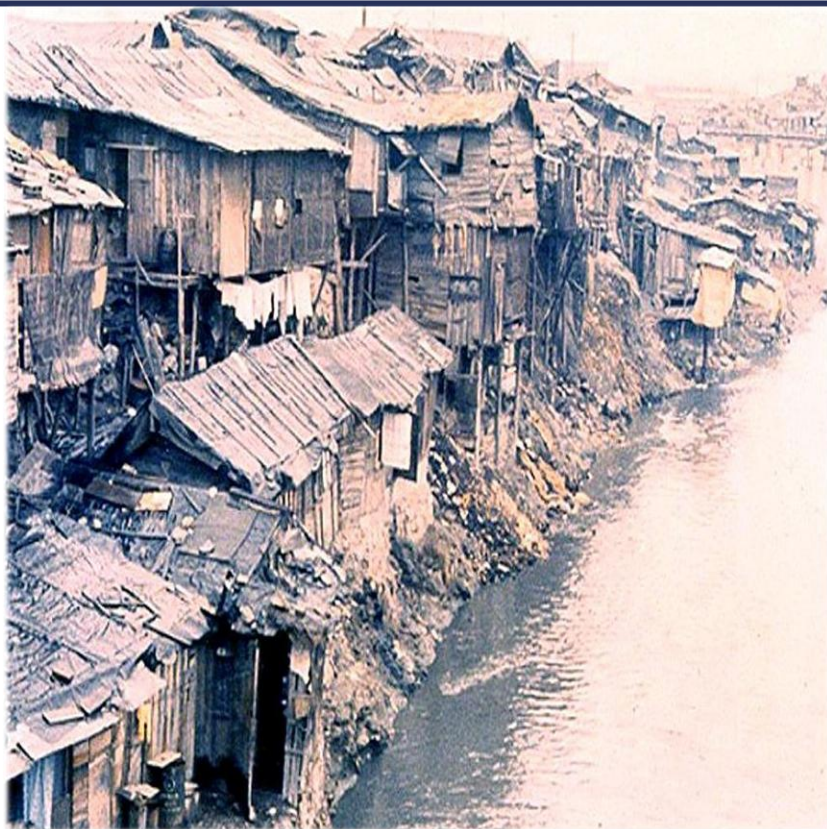
1996. Ending of the 7th 5 Year Plan

1996. Joining the OECD

**2010. Joining the OECD DAC
(Official transformation to Aid Donor)**

Modern Korea, Then and Now

Seoul in 1960 and in 2010: Cheongye Stream



Continued Economic Growth

Korea transformed from a poor country to a globally leading industrial producer just in one generation

GDP Per Capita (\$, Current)

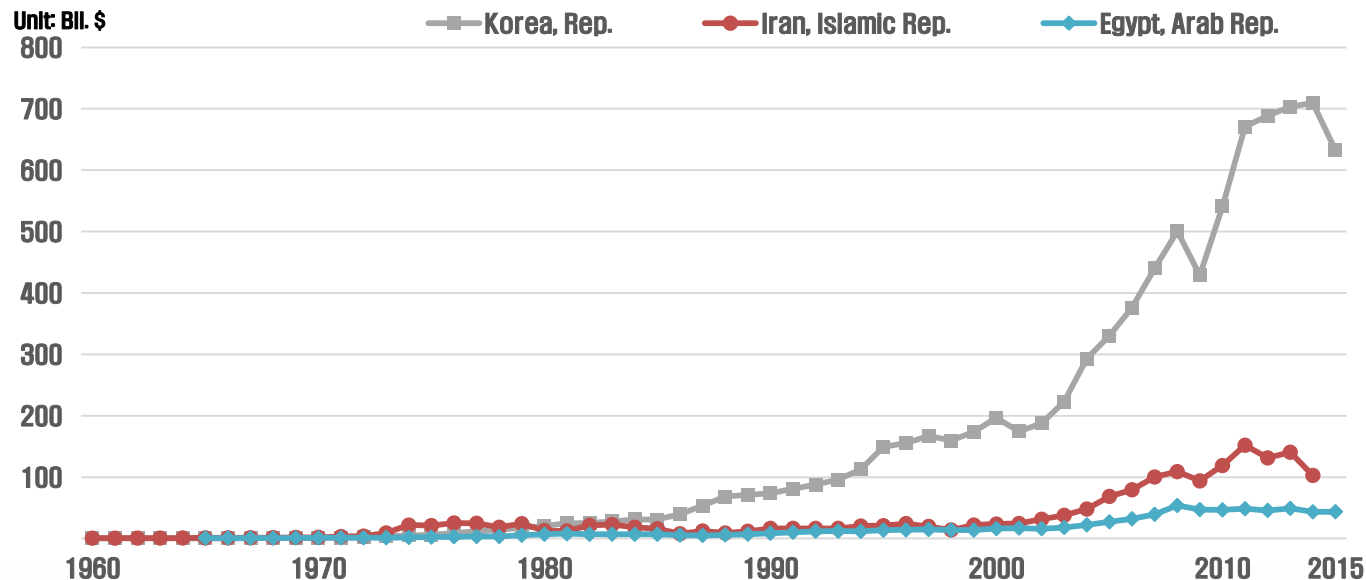
1960 (A)	1970	1980	1990	2000	2005	2015 (B)	B/A
87	270	1,810	6,000	9,790	15,830	27,195	313

Exports : the World' s 6th as of 2015 (\$billion, current)

1960(A)	1970	1980	1990	2000	2005	2015(B)	B/A
0.3	1.2	20.5	73.7	209.0	284.7	526.7	1,605

Historical Comparison with Developing Countries

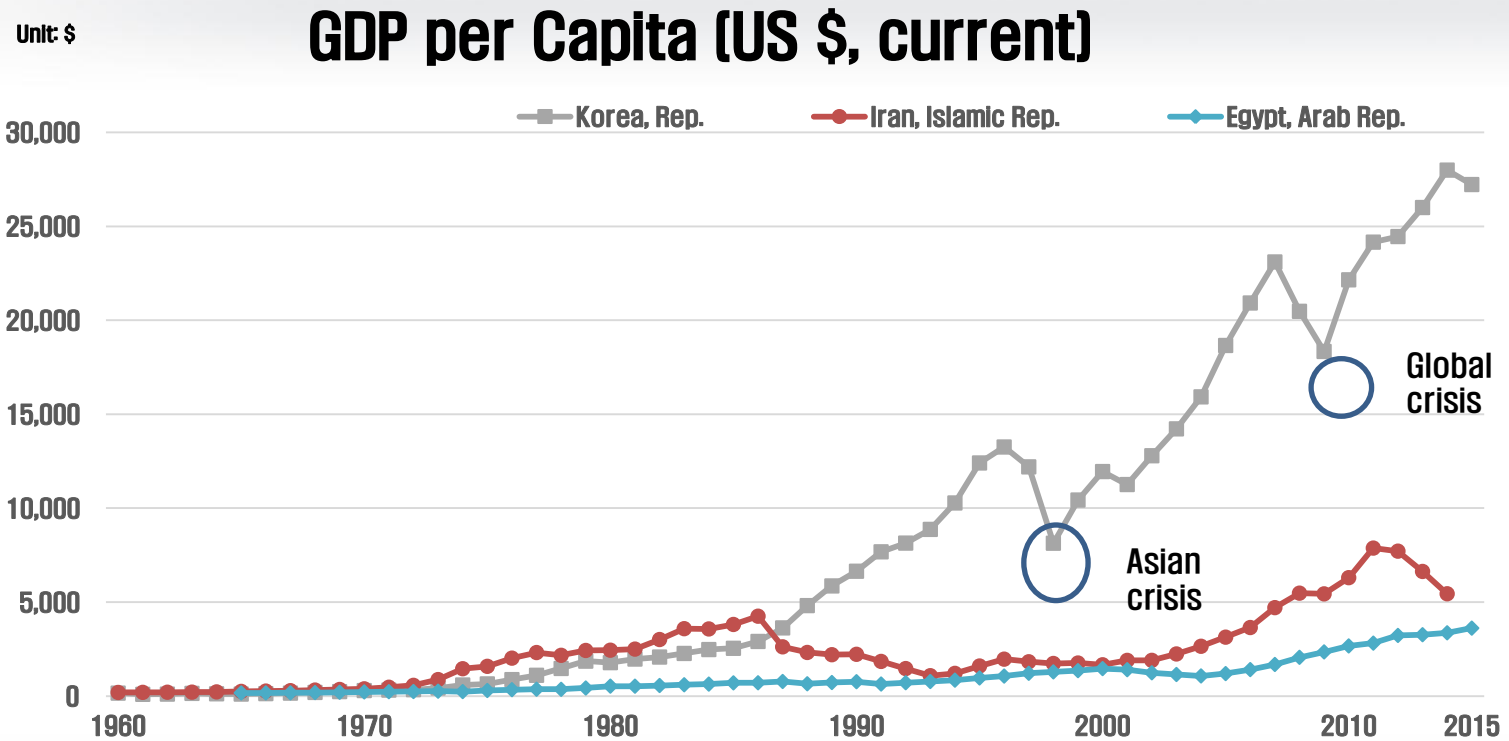
Exports (\$billion, current)



Country	1960	1970	1980	1990	2000	2010	2015
Korea	0.12	1.21	20.47	73.74	196.62	540.90	632.46
Iran	0.58	2.03	12.96	16.57	23.53	118.82	-
Egypt	-	1.09	6.99	8.65	16.17	46.73	43.69

Source: World Bank Data

Historical Comparison with Developing Countries



Country	1960	1970	1980	1990	2000	2010	2015
Korea	156	292	1,778	6,642	11,948	22,151	27,222
Iran	192	385	2,440	2,222	1,664	6,300	-
Egypt	-	221	528	765	1,461	2,668	3,615

Source: World Bank Data

Korea as a Globally leading Industrial Producer

Global Ranking of Korean industries by Market Share

Industry	2000	2010	2020
Shipbuilding	1	1	1
Digital TV	-	1	1
Display	2	1	1
Petrochemicals	4	5	6
Automobile	5	5	4
Iron and steel	6	6	6
Communication Equipment	5	2	1
Semiconductor	3	3	2
General Electronics	12	8	6
Aerospace	20	14	7

Source : KIET

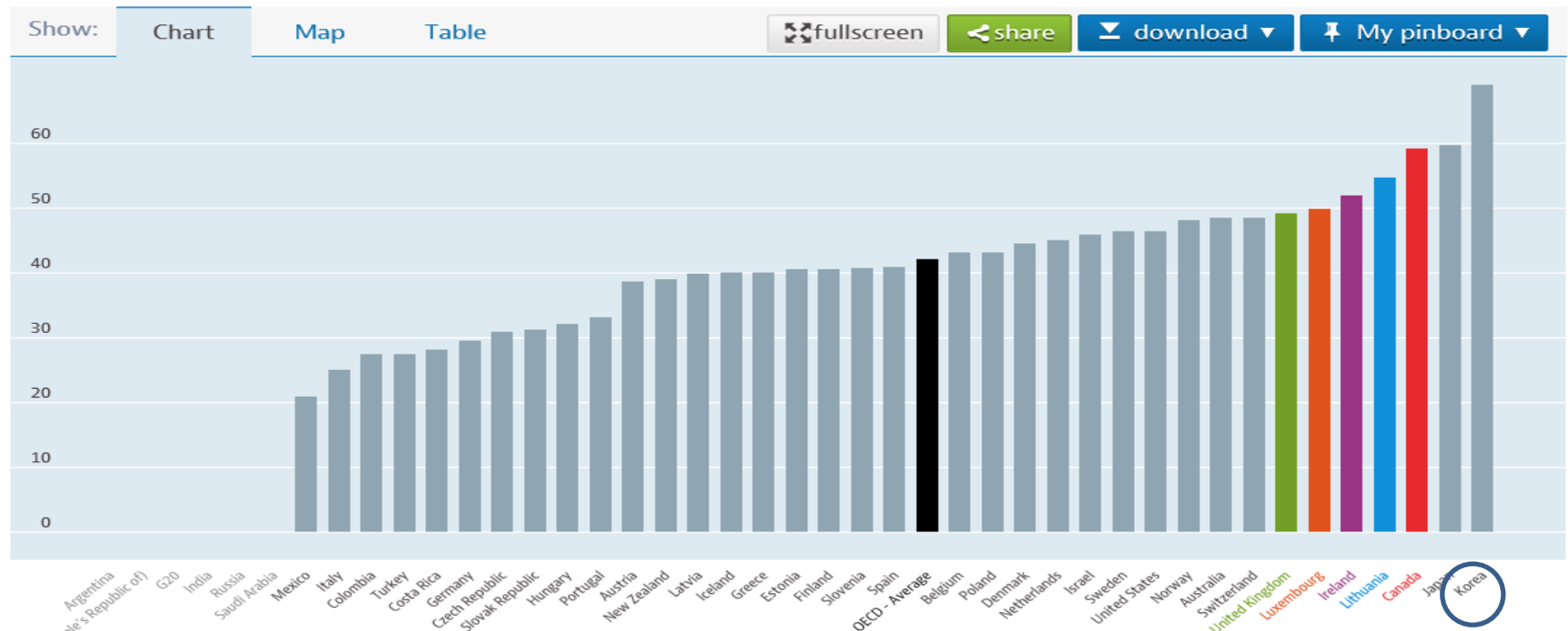
Social Development Accompanied Economic Growth

With the rise of income, the society itself has largely changed from a poverty-ridden underdeveloped one to a prospering mass-consumption society with highly-educated people.

College Education level among Age Group 25–34 is the top in the World:
Korea 69%, Japan 60%, USA 47%, **OECD Average 42%** (2015)

Population with tertiary education 25–34 year-olds, % in same age group, 2015

Source: Education at a glance: Educational attainment and labour-force status



<https://data.oecd.org/eduatt/population-with-tertiary-education.htm>

II. Import Substitution: 1945–1959

Initial Conditions for Industrial Development

- ◆ **Small land with Agrarian Economy**
- ◆ **Poor Capital and Technology**
- ◆ **Virtually No Natural Resources**
- ◆ **Relatively abundant Human Resources**
- ◆ **Legacies of Colonization**
 - **Longtime–exploited, uneducated, poor people**
- ◆ **Impacts of the Cold War:**
 - **Division of the Nation into South and North Korea in 1945**
 - **70% of industrial facilities located in North Korea**
 - **Electric power supply was cut off from North Korea in 1948**
 - **Korean War 1950–53**

Colonial Rule 1910–45



- ◆ Japanese Police executing Korean loyalists and protesting Korean people
 - from a recent Korean Drama and a real picture of the days



1945. Independence and the Division of Nation

- At the end of the WW2, USA and USSR advanced into the Korean Peninsula to end the Japanese rule, which brought division of the nation and the Cold War conflict.

1948. Republic of Korea established

- The ROK established Private Property and Market Economy system, while the North followed the Soviet style Communist economic system
- Distribution of industrial facilities formerly owned by the colonial Japanese authority and immigrants formed the basis of modern enterprises.
- 1949, Land Reform Act: Distribution of Land to Farmers

1950–53. Three Years of WAR with the Communist North

- Almost all the land, houses and industrial facilities destroyed or abandoned

Korean War 1950–53



With her brother on her back, a war weary Korean girl

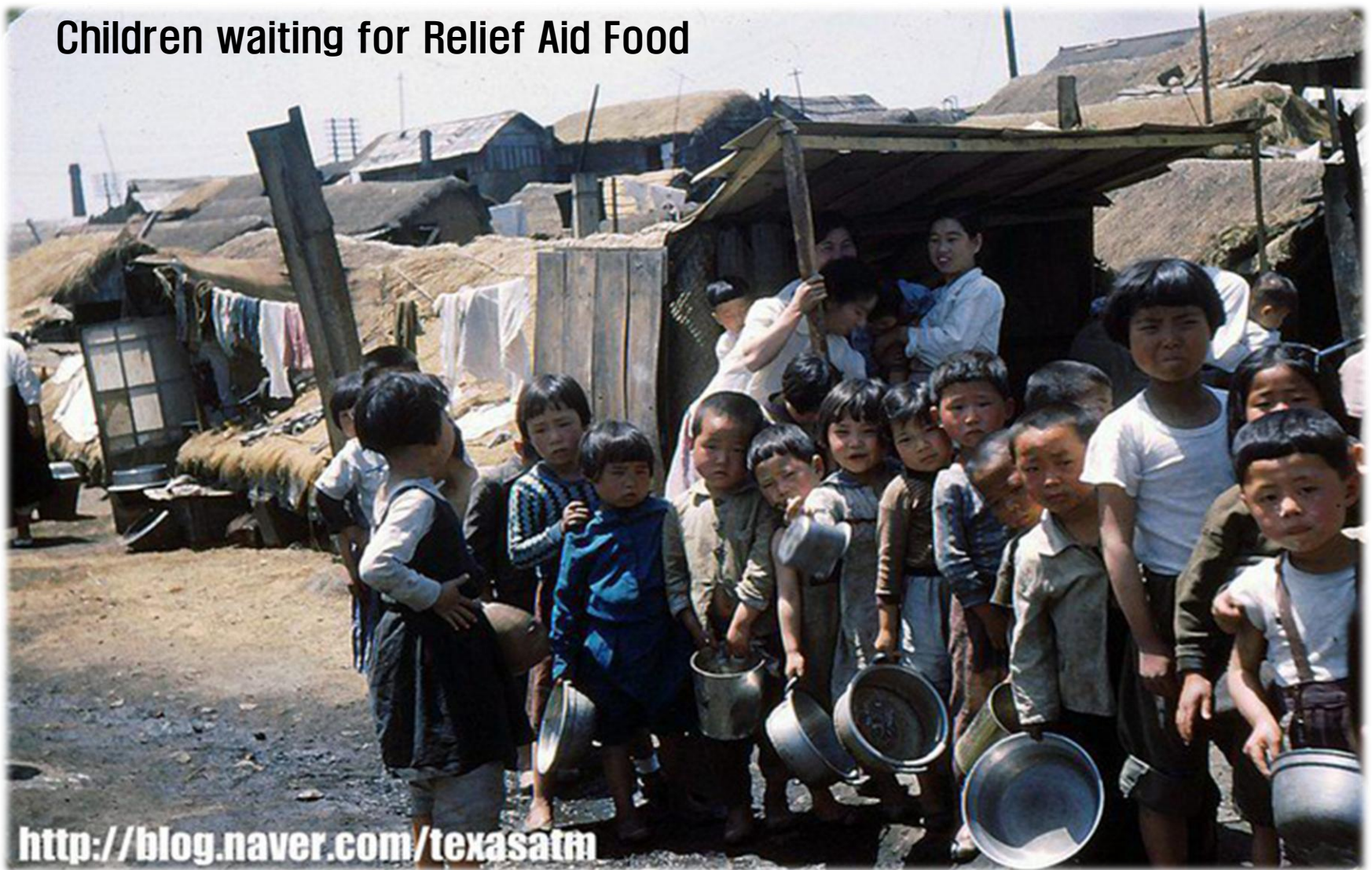
About 1 million deaths, 2 million injuries and missing from both sides

A refugee family



Korean Life 1954

Children waiting for Relief Aid Food



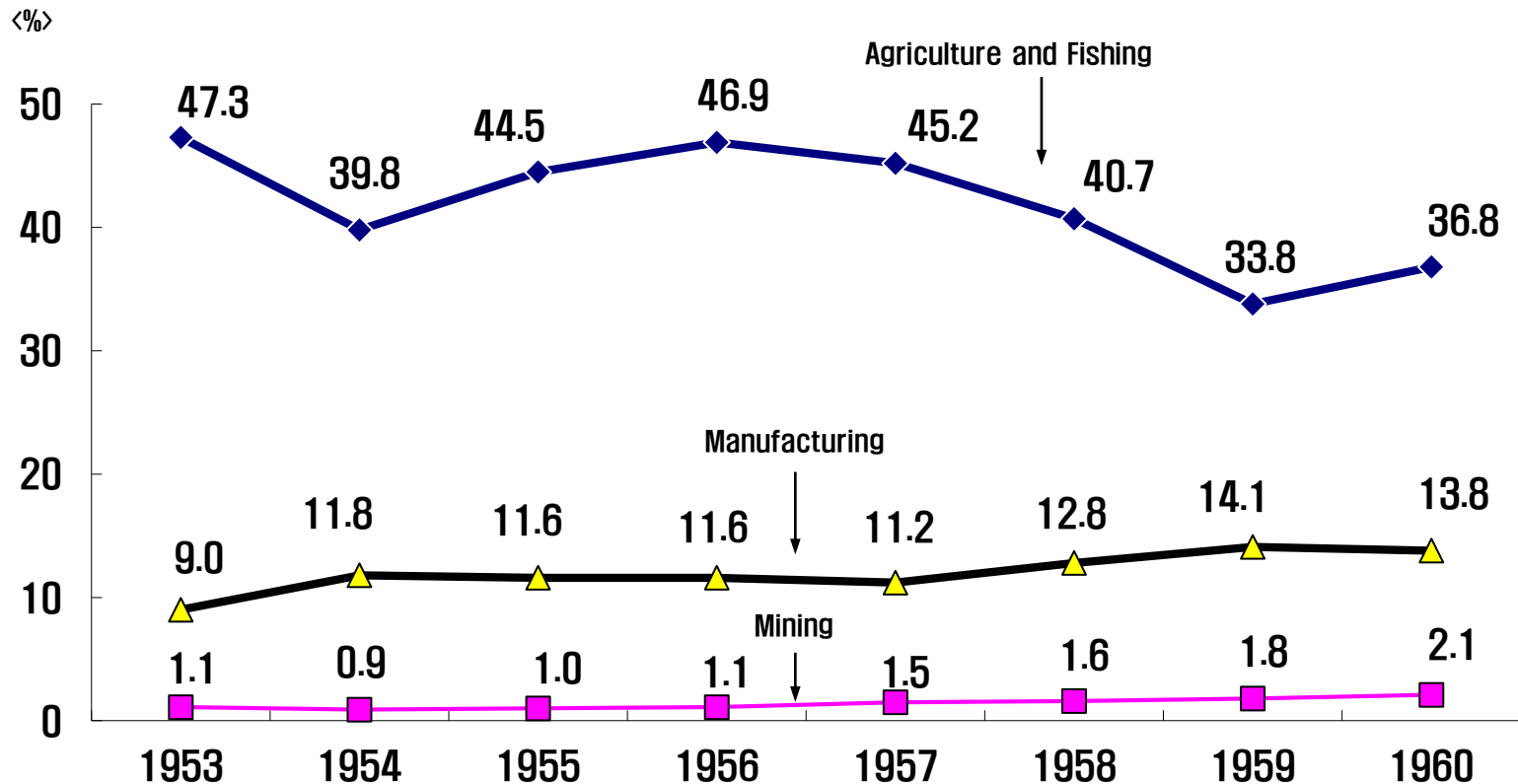
<http://blog.naver.com/texasatm>

Aid Economy and Import Substitution

- ◆ Foreign Aid was the main source of government finance and national economic activities
 - 1950.12. UNKRA (United Nations Korean Reconstruction Agency] established
 - ❖ 1955 Government Foreign Exchange Financing Plan: 73% Grant Aid, 7% Loan, 20% Other sources
- ◆ Based on the relief aid consumer goods delivery, some light industries processing aid materials were developed
 - 3 White Industries: Flour, Sugar, Cotton-weaving
 - 3 Powder Industries: Cement, Flour, Fertilizer
- ◆ Import Substitution was necessary to protect the consumer goods industries and to save the foreign exchanges
 - Massive trade deficit according to the imports of machineries
 - High tariff, import quota, import – export link system (license)

Slow Changes of Economic Structure

Industrial Structure 1953 ~ 1960 (% of GDP)



Source: National Statistic Office

Inflow of Foreign Capital by Periods

(Amounts and Weights, US\$ Million)

	1945-61	1962-65	1966-72	1973-78	1979-85	1986-92	Total
Public Loans	5	63	1,130	3,431	10,105	4,688	19,422
Commercial Loans		71	1,950	5,858	7,937	5,206	21,022
Bank Loans			205	1,226	14,881	10,296	26,608
Bonds by Private Firms					834	4,515	5,349
FDI		13	227	704	1,157	5,684	7,785
ODA (Grants)	3,117	739	763				4,619
Total	3,122	886	4,275	112,719	34,914	30,389	186,305

	1945-61	1962-65	1966-72	1973-78	1979-85	1986-92	Total
Public Loans	0.2%	7.1%	26.4%	3.0%	28.9%	15.4%	10.4%
Commercial Loans		8.0%	45.6%	5.2%	22.7%	17.1%	11.3%
Bank Loans			4.8%	1.1%	42.6%	33.9%	14.3%
Bonds by Private Firms					2.4%	14.9%	2.9%
FDI		1.5%	5.3%	0.6%	3.3%	18.7%	4.2%
ODA (Grants)	99.8%	83.4%	17.8%				2.5%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Assembled by the Author from Korea Development Bank (1993)

Ⅲ. Promoting Export-oriented Light Industry : 1961-1972

Background for Export-Oriented Policy

◆ Limits to Growth of Import Substituting Industries

- By the end of the 1950s, the light industries faced the limits of so small domestic market

◆ Cut down of Grant Aid

- The US government cut down foreign aid due to the budget deficit and growing defense budget

❖ 1954 \$383 million → 1961 \$199 million

◆ Growing Trade Deficit

- Owing to the imports of machineries and intermediary goods for the import substituting industries, trade deficit expanded

◆ Shortage of Foreign Exchanges

- Foreign Aid reduction and trade deficit led to the foreign exchange shortage

◆ Japan' s Success by Exports as a Role Model

Changes of Government

◆ Political Changes and President Park' s Regime

- 1960. 4. Peoples Revolution and Collapse of President Lee' s government
- 1961. 5. Military Coup led by General Park
- 1963. 12. General Park inaugurated as the 5th President
 - ❖ President Park' s rule lasted until his assassination in October 1979, which enabled strong and consistent implementation of policies
 - ❖ Conflicting views exist on his economic performance and dictatorship

◆ 1961. 7. Establishment of Economic Planning Board

- A Strong Ministerial Authority governing the Economic Planning and Implementation, Budget, Market monitoring
- 1963. The position of the EPB head was raised to Deputy Prime Minister
- 1971. KDI (Korea Development Institute) established to help the economic planning

Successive Five Year Plans and Industrialization

◆ 1962.1. The First 5 Year Economic Development Plan (1962–66)

- The Basic Goal was **Self-Sustaining Economy** to Escape from Aid-dependent Economic Structure. To stabilize daily lives of people, **Energy Supply** (Electric, Coal), **Agricultural Production** were set as the main target areas
- Also some basic industries and infrastructure were given priorities
 - **Fertilizer, Cement, Petroleum, Chemicals**
- **Liberalization and Export Promotion** were set as the Policy Direction.
- Financing for the Plan was still dependent on Foreign Capital
 - Foreign Aid 47%, Domestic Savings 34%, Foreign Loan 19%

◆ Labor-Intensive Export Industries Developed

- 1964.9. The First Export Industries Complex setup in Guro, Seoul
- **Textile, Footwear, Wigs, Plywood, Electronics** as the leading industries
 - Nylons: 1963 Hankuk Nylon (now Kolon), 1964 Hanil Nylon
- 1959 Gold Star (Now LG) produced Radios, 1966 produced BW TV sets

Successive Five Year Plans and Industrialization

◆ 1966.7. The Second 5 Year Economic Development Plan (1966–71)

- Basic Goal: Modernization of Industrial Structure
- Main Target Sectors: Export-oriented Labor-intensive industries and some Heavy Industries (Iron & Steel, Machinery, Chemicals) to substitute imports
 - ❖ Seven Specific Industries Laws: Textile, Machinery, Shipbuilding (1967), Electronics (1969), Petrochemicals, Iron & Steel (1970), Non-ferrous Metals (1971)
- Policy Direction: Industrial Advancement and Export Promotion

◆ Light Industries leading Exports

- Textile & Garments industries based on Synthetic fibers grew as the leading industry, which took up some 50% of the total export in the early 1970s.
 - ❖ 1967 Taekwang Acryl factory in Ulsan, 1968 Polyester factories by Daehan, Sunkyung, Samyang
- Footwear industry grew rapidly with the migration of Japanese producers to Busan
- 1971 Electronics Industry Complex in Gumi

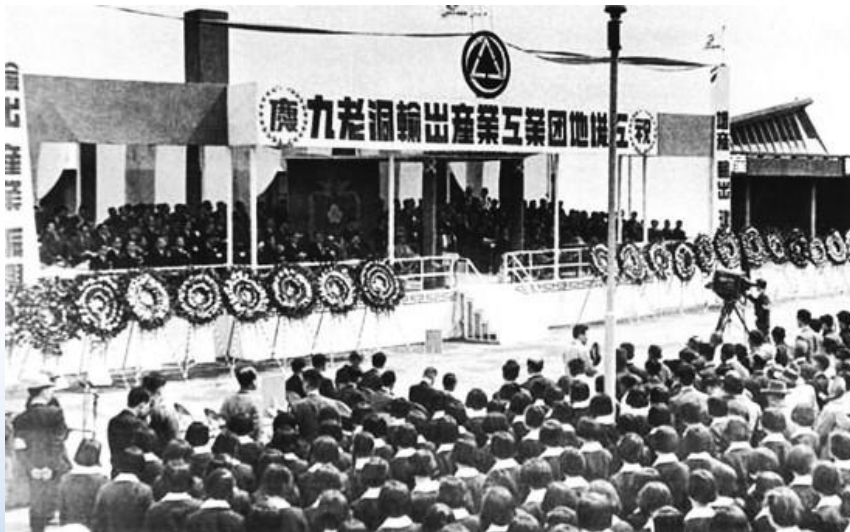
◆ Startup of Heavy Industries for Import Substitution

- The growing demands on machineries and intermediary goods from the light industries led to the expansion of trade deficit, so import-substitution was necessary
 - ❖ 1968 POSCO established

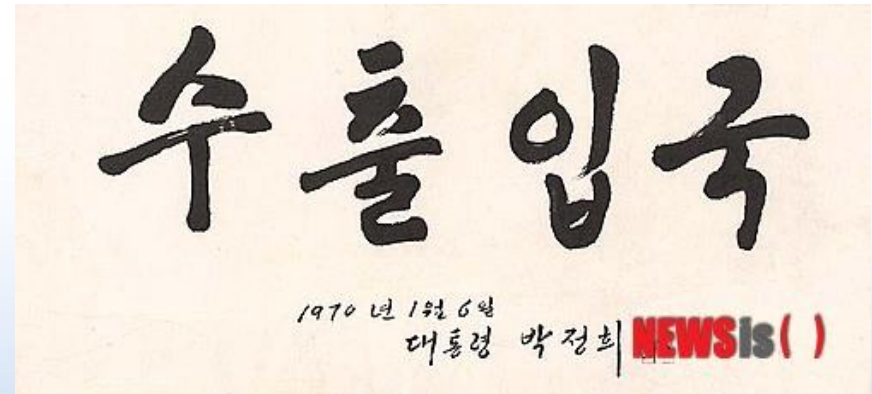
Export Drive: A Nation Standing on Export

◆ Overall Export Promotion Plan Setup on Annual Basis

- **Export Management by the Nation:** Export target were set for industrial sectors, major organizations and companies, and regionally
- **Export Diplomacy:** export target for every embassies abroad were also set from 1964 when the total export exceeded \$100 million
- The President checked the record on monthly meetings



1967 Guro Export Industries Complex in Seoul



“Export Country” – slogan of the Nation

Export Drive: A Nation Standing on Export

Expanded Meeting for Export Promotion



Export Promotion Policies

◆ A Series of Legislation to promote Export

- 1962. 3. Export Promotion Law
- 1962. 4. KOTRA (Korea Trade Promotion Agency) Law
- 1964.9. Export Industry Complex Development Law
- 1967. 1. Trade Law
- 1968. 12. Export Insurance Law
- 1969. 7. Korea Export-Import Bank Law

◆ Major Policy Tools: Tax and Finance

- Tax Concession and Customs Preferential Treatment for Exporters
 - ❖ Refund of Customs Tax for imports of raw materials
 - ❖ Tax concession on enterprises in export industry zones
- Financial support for exporters: preferential interest rates
 - ❖ Local L/C (Bank guarantee of Payment) to ensure the supply of raw and intermediary goods
- Preferential Treatment in Foreign Exchange control

Performance and Assessment

- ▶ Average Growth Rate 1960–72 was 8.5%
- ▶ Per capita GDP grew from \$87 in 1960 to \$304 in 1972
- ▶ Export grew vey fast while imports grew also fast

Exports and Imports Trends 1961–1969

Year	Exports (million USD)	Export growth (%)	Imports (million USD)	Imports growth (%)	Balance (million USD)
1961	40.878	24.5	316.142	–8.0	–275
1962	54.813	34.1	421.782	33.4	–367
1963	86.802	58.4	560.273	32.8	–473
1964	119.058	37.2	404.351	–27.8	–285
1965	175.082	47.1	463.442	14.6	–288
1966	250.334	43.0	716.441	54.6	–466
1967	320.229	27.9	996.246	39.1	–676
1968	455.400	42.2	1462.873	46.8	–1007
1969	622.516	36.7	1823.611	24.7	–1201

(source: KOTIS)

Performance and Assessment

International Comparison of Export growth

During the 1960s, Korea' s export growth was 3–4 times higher than global average

Exports and Imports growth rates 1962–1969

	Exports				Imports			
	Korea	Global	U.S.	Japan	Korea	Global	U.S.	Japan
1962	34.1	4.5	3.9	16.1	33.5	5.2	11.6	–3.0
1963	58.2	9.6	6.9	10.9	32.7	8.7	4.7	19.5
1964	36.9	11.8	14.5	22.4	–27.9	11.1	9.1	17.8
1965	47.1	8.8	3.9	26.6	14.6	8.9	14.2	2.9
1966	42.9	9.6	10.0	15.7	54.6	10.1	19.5	16.6
1967	28.0	5.0	5.3	6.8	39.1	4.6	3.8	22.5
1968	42.2	11.8	10.1	24.2	46.9	11.0	23.0	11.4
1969	36.7	14.3	9.6	23.3	24.7	13.8	8.6	15.7

(source: IMF, *International Financial statistics*, 1990 and April 1991)

Changes of Industrial Structure

Top 10 Export Items [%]

Rank	1961		1970		2000		2012	
	Item	Share	Item	Share	Item	Share	Item	Share
1	Iron ore	13.0	Textiles	40.8	Semiconductor	15.1	Petroleum products	10.24
2	Tungsten	12.6	Plywood	11.0	Computer	8.5	Semiconductor	9.2
3	Raw Yarn	6.7	Wigs	10.8	Automobile	7.7	Automobile	8.6
4	Coal	5.8	Iron ores	5.9	Petrochemical products	5.3	Vessel	7.3
5	Cuttlefish	5.6	Electronic goods	3.5	Vessel	4.9	LCD	5.7
6	Fish	4.5	Confectionery	2.3	Wireless telecom	4.6	Wireless telecom	4.2
7	Graphite	4.2	Footwear	2.1	Synthetic Resin	2.9	Parts of Automobile	4.5
8	Plywood	3.3	Tobaccos	1.6	Steel Plate-rolled Products	2.8	Synthetic Resin	3.6
9	Rice	3.3	Iron products	1.5	Garments	2.7	Steel Plate-rolled Products	3.6
10	Swine bristle	3.0	Metal products	1.5	Video Apparatus	2.1	Electronics	1.6

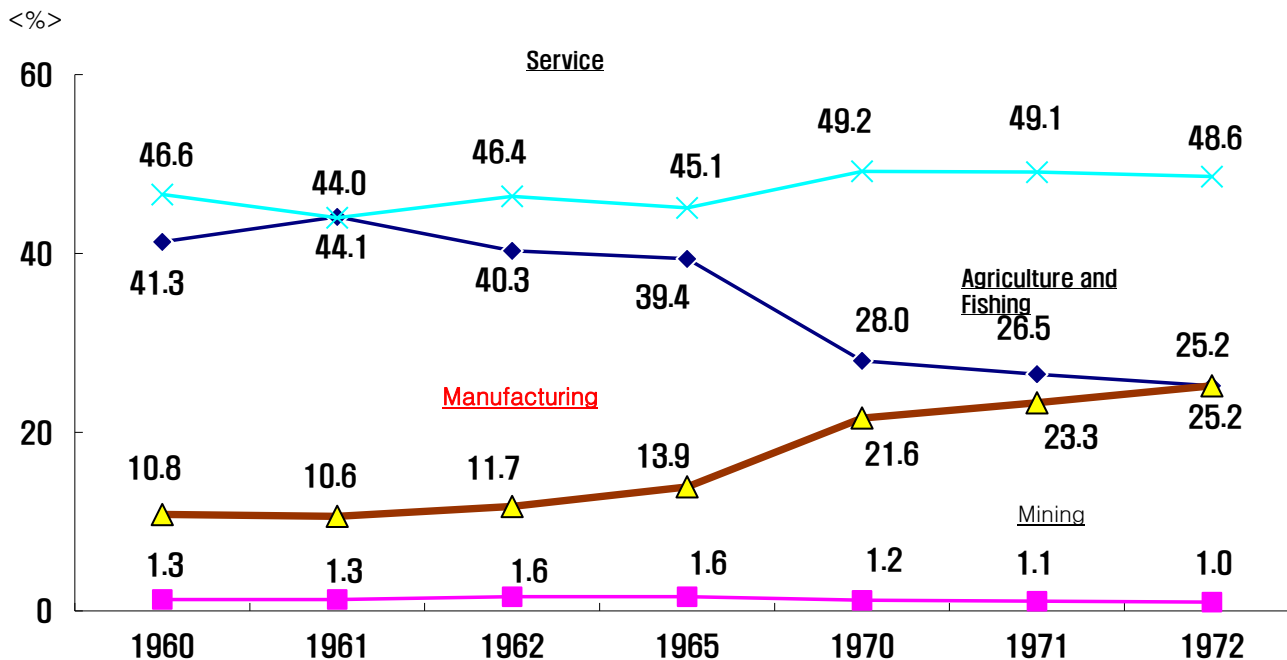
Source: KOTIS)

Changes of Industrial Structure

Dramatic change of industrial structure

- From a traditional agriculture-based economy to a manufacture-leading economy

Industrial Sector Trend 1960 ~ 1972 (% of GDP)



[source: Bank of Korea]

IV. Promoting Heavy & Chemical Industry for Export: 1973–1979

Background for Heavy & Chemical Industry Drive

◆ Industrial “Sequencing” : Demands from Industrial Structure

- Labor-intensive Export industries demanded materials and capital goods produced by heavy and chemical industries
- Such demands for Imports led to the rapid expansion of Trade Deficit
 - ❖ Textile and Apparel: Petrochemicals for Synthetic fibers
 - ❖ Electronics: Steel and Nonferrous Metals
 - ❖ All light industries: Industrial and Transportation Machinery
- Import substituting HCI faced the limits of small domestic market, so Export Orientation of HCI was necessary to overcome the limits to growth

◆ Confrontation with North Korea and Needs for Defense Industry

- HCI and Defense industry are basically the same one project. Weapons come from HCI. HCI factories produce industrial machinery during peace time, but produce weapons in emergency time.

✓[Oh Won-Chul, *Report to the President*, Jan. 1973]

Drive for Heavy & Chemical Industry Development

◆ The Third 5 Year Plan (1972–1976)

- Development of HCI and Reduction of Trade Deficit through Import substitution of Capital goods were given top priority

◆ 1973, 1. Declaration of HCI Drive by President Park

❖ Target: Export \$10 billion, Per Capita Income \$1,000 by 1980

- 1973. 3. Committee for HCI Drive with the Minister of EPB as the chair
- 1973. 5. Plan for HCI Development
- 1973. 12. Law for National Investment Fund

◆ The Fourth 5 Year Plan (1977–81)

- Balanced Development and Equality were raised as new issues, while Drive for HCI development continued

Plan for HCI Development

◆ Six Strategic Industries Targeted

❖ **2.8 trillion won (\$8.9 billion)** to be invested during 1973–81

➤ **64% of total manufacturing investment**

Industries	1973	1981	Location
Steel	1 million tons	10 million tons	2 nd POSCO
Shipbuilding	0.25 million tons	5 million tons	near Jinhae
Petrochemicals	100 thousand tons (ethylene)	800 thousand tons	Ulsan, Yecheon
Automobiles	30 thousands	500 thousands	Ulsan
Machinery		production \$4.8 billion	Changwon
Nonferrous Metals		zinc 80 th. Tons Aluminium 100 th	Onsan
Electronics		export \$2.5 billion	Gumi

❖ Automobiles were merged with Machinery

Drive for Heavy & Chemical Industry

- POSCO built its first Integrated Steel Mill with 1.03 Million Tons capacity in Pohang in 1973. Its second Mill in GwangYang was built in 1985. It built the world largest blast furnace with 6000 m³ in 2013.
- HYUNDAI HEAVY INDUSTRIES built 600m dock with 450 ton goliath crane in Ulsan in 1974, and appeared as the world largest shipbuilding company. Its subsidiary HMD (Hyundai Mipo Dockyard) built in 1975 also became the world largest company in the repair shipbuilding.



Establishment of Industrial Complexes

- ◆ Industrial sites and infrastructure were provided by Ministry of Construction and Transportation (MOCT) and local governments
- New industrial complexes were built for the HCI
- Roads, water, electricity, communication system, pollution control, and other facilities were provided by MOCT
- For public utility corporation, Korea Land Development Corporation, Water Resource Development Corporation, and Agriculture Promotion Corporation were established and mobilized
- KICOX (Korea Industrial Complex Corporation), which was established in 1964 with the first industrial complex in Guro, managed the industrial complexes

Establishment of Industrial Complexes

- ◆ Ulsan Industrial Complex was built from mid-1960s and continuously expanded to have 23 complexes with the size of 66 million m² as of 2013. With Hyundai Automobile, Hyundai Heavy Industries and their partner companies, Ulsan is nicknamed as “Hyundai City”.
- ◆ Ulsan has also Petrochemical complex. There are some world largest single factories in their business areas such as SK Energy and S-Oil
- ◆ Changwon Industrial Complex was built from 1973 as a Machinery industry site. As of 2013, has 2013 companies with Export record \$19.6 billion dollars.



Mobilization of Investment Funds

◆ Policy loans: Government's role for investments

- Credit allocation by the government through the banking system (industrial bank) was the most powerful means of supporting targeted industries
- Industrial Banks, practically owned by the government, were directed to allocate loans to targeted industries on a preferential basis
- During the latter half of the 1970s, the share of policy loans in domestic credit rose steadily from 40% to over 50%

Regulated and Market Interest rates[%]

Rates Year	General bank loan rate	Curb market rate	Average borrowing cost(manufacturing)	Consumer price inflation
1970	24.0	49.8	14.7	15.4
1975	15.5	41.3	11.3	25.4
1980	23.4	44.9	18.7	28.7
1985	11.5	24.0	13.4	2.5
1990	11.5	18.7	NA	8.6

(source: Bank of Korea)

Enhanced Export Drive

❖ Mobilization of the Whole State for Export

- **National Mentality: “Export only is our lifeline”**
 - National Awards by the President and Ministers to Exporters
 - To be an exporter was the fast way to be rich, so private entrepreneurs were active
- **KOTRA as the window for Export marketing**
 - Provided overseas market information and technical assistance to exporting SMEs
- **Role of KITA (Korea International Trade Association)**
 - Not Conventional Trader’ s Association but as an Instrument to promote export
 - Membership fee was obligatory (semi-tax)
- **Middle East Institute was established in 1976**
 - Responding to the Oil Shock and Construction boom in the Middle East, it was established as the first public think-tank studying overseas market information
 - In 1982, it was changed into present **KIET** specializing in industrial studies. The overseas market study was taken over by **KIEP** established in 1989.

Enhanced Export Drive

◆ General Trading Company System

- In 1975, GTC system was introduced by Ministry of Commerce and Industry with Japanese trading companies as a model (Mitsubishi, Mitsui)
- The GTC permit was annually revised, and the number of GTCs ranged from 7 to 13 : Samsung, Daewoo, Hyosung, Hyundai, etc.
 - Eligibility for GTC: export record \$0.2 billion and 20 overseas branches, etc.
- GTCs were given preferential tax and finance treatment to engage in export of every possible goods.

Enhanced Export Drive

◆ Manpower Training

- Establishment of vocational schools at various levels
 - High Schools and Colleges specializing in Agriculture, Fisheries, Technology, Commerce
- Establishment of KIST (1966) for Science and Technology development
- Trade department in Major Universities
- Language training for Businessmen and Officials
 - ❖ Special language training center was established in HUFS (Hankuk University of Foreign Studies) with boarding system for selected members living together with foreign teachers – fully funded by KITA

◆ Labor Dispute Control

- Strict control on labor disputes to take advantage of cheap labor

Performance of HCl Drive

Exports and Imports Trends 1971–1979

Year	Exports (million USD)	Export growth (%)	Imports (million USD)	Imports growth (%)	Balance (million USD)
1971	835.185	34.2	1983.973	8.8	-1148.79
1972	1067.607	27.8	2394.32	20.7	-1326.71
1973	1624.088	52.1	2522.002	5.3	-897.914
1974	3225.025	98.6	4240.277	68.1	-1015.25
1975	4460.37	38.3	6851.848	61.6	-2391.48
1976	5081.016	13.9	7274.434	6.2	-2193.42
1977	7715.343	51.8	8773.632	20.6	-1058.29
1978	10046.46	30.2	10810.54	23.2	-764.081
1979	12710.64	26.5	14971.93	38.5	-2261.29

(source: KOTIS)

Changes of Industrial Structure

Industrialization and Export Components Trends 1970–1980

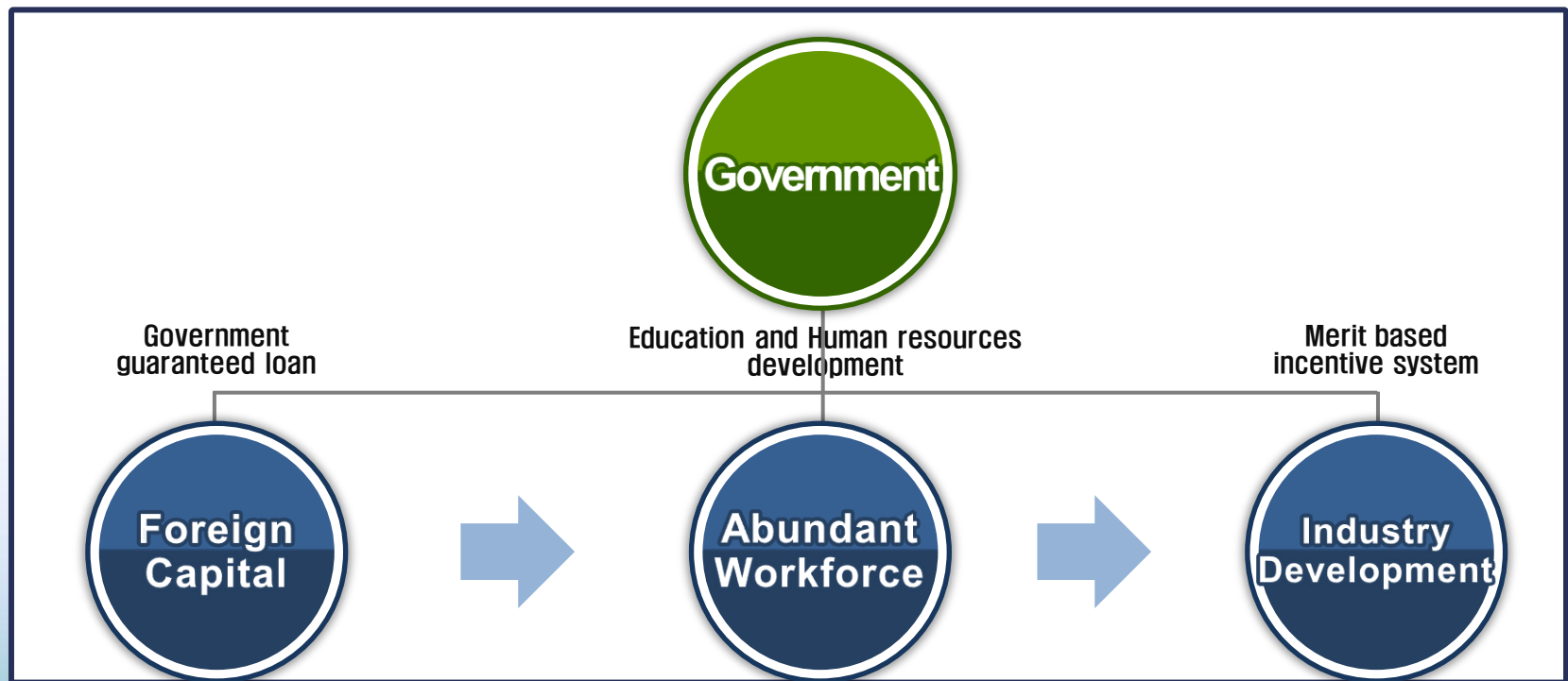
Year	Industrialization (%) ※		Exports (%)		
	HCI	Light	HCI	Light	Primary
1970	37.8	62.2	12.8	69.7	17.5
1973	40.5	59.5	23.7	63.4	12.9
1975	46.4	53.6	25.0	57.4	17.6
1976	46.8	53.2	29.1	58.8	11.8
1977	48.5	51.5	32.2	53.6	14.2
1978	48.8	51.2	34.6	45.5	10.9
1979	51.2	48.8	38.4	51.4	10.1
1980	52.6	47.4	41.5	49.4	9.1

※ Share of value-added in the manufacturing sector

(source: Bank of Korea, KOTRA)

Overall Assessment of Industrialization 1961–1979

- ◆ Combination of Government direction, active Private Entrepreneurs, diligent and cheap Labor plus Foreign Capital led to the world fastest Growth and transformation of Korea from an LDCs to an **NICs (Newly Industrializing Countries)**
- ◆ Exports growth accompanied imports growth and Balance of Payment problem, while dependence on Foreign Capital led to the Foreign Debt problem
- ◆ Unbalanced Industrial, Regional development and strict labor control brought social conflicts



V. Industrial Rationalization: 1980–1987

Background for Industrial Rationalization

◆ Problems ensued from Government Drive

- Intensive support and intervention by the government in HCI caused excess overlapped investment as private entrepreneurs hastened to get the government support without well-prepared business prospect.
- Massive investment with loan in longterm yielding industrial sectors caused the worsening of financial status for many companies.

◆ Aggravation of External Conditions

- The HCI drive plan did not take into consideration the sudden Oil Shocks in the 1970s and followed Stagnation of the World Economy
- Most of the HCI were highly energy-consuming industries, so Korea without any production of energy resources faced serious difficulties from the sudden oil prices rises.

Industrial Rationalization

◆ Rationalization of Structurally Depression Industries

- With the stagflation of world economy, some business sectors fell into deep depression
- **1983 Maritime Transportation Adjustment:** Government led the merge of small companies by tax and financial concession such as exemption of acquisition tax, delay of debt payment, etc
 - 66 companies merged into 17
- **1984 Overseas Construction Adjustment:** The decline of Middle East construction boom from the early 1980s led to the failure of many Korean companies
 - ❖The Government also led the merge and selling of companies through tax and financial incentives

◆ Industrial Development Act of 1986

- The government led the adjustment of over-invested HCI and some labor-intensive businesses losing competitiveness.

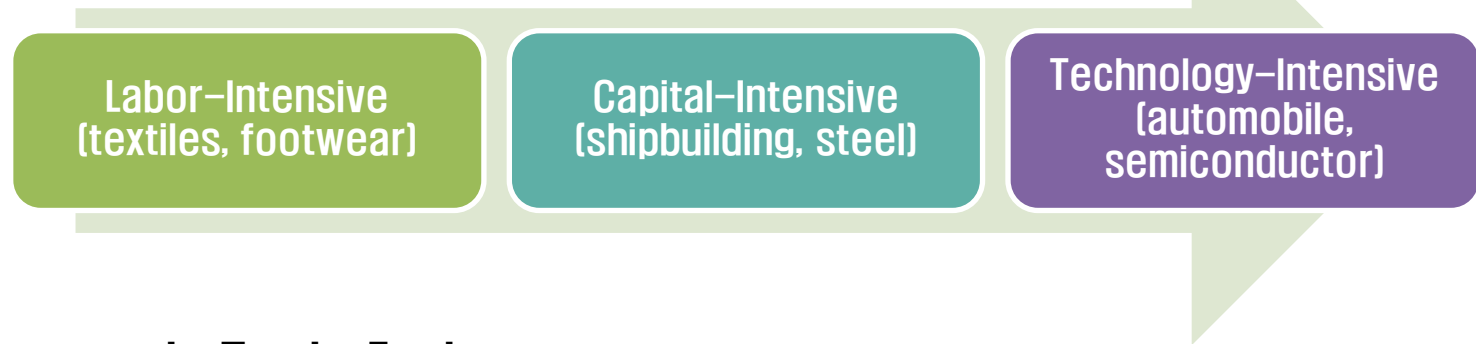
◆ Timely Change of Government Policy

- Despite the criticism on the failures of HCI drive, timely changes of government policies by Industrial Rationalization helped the Korean industries to survive the severe depression of the world economy and to grow continuously.
- Strong Government intervention combined with the Dictatorship of President Chun (1980–87) led to corruption and concentration issues
 - ❖ After the assassination of President Park in 1979, General Chun took a coup in 1980 and was inaugurated as the President.

***VI. Promoting High-Tech Industry
: 1987-1990s***

Emphasis on R&D

◆ Changes in Targeted Industries



◆ Changes in Trade Environment

- Technology protection reinforced by developed countries
- Intellectual property rights protection emerged as a major issues under WTO (TRIPS in 1994)

◆ Needs for structural change

- With rising labor costs, cost advantage were no longer as valid as before.
- Also, developed countries were increasingly checking Korea as competitor, and growth from imitation (reverse-engineering) were now facing decreasing return. Korea needed to transform its labor intensive industrial structure to that of technology intensiveness.

Technology Development

- ◆ Technology development strategies in industrial development
 - In 1960s, industrial development required absorbing “imported technologies”
 - In 1970s, promoting Heavy–Chemical industries required new advanced technologies
 - ❖ Numerous public research institute including KIST (Korea Institute of Science and Technology) was established for developing and absorbing newly demanded industrial technologies
 - In 1980s, focus was to catch–up advanced technologies
 - ❖ Government support of R&D activities in private sectors
 - ❖ Private–sector R&D investment increased substantially
 - (private vs. public, 36:64 in 1980 → 81:19 in 1990)
 - (private R&D centers: 53 in 1980 → 824 in 1989)

Technology Development

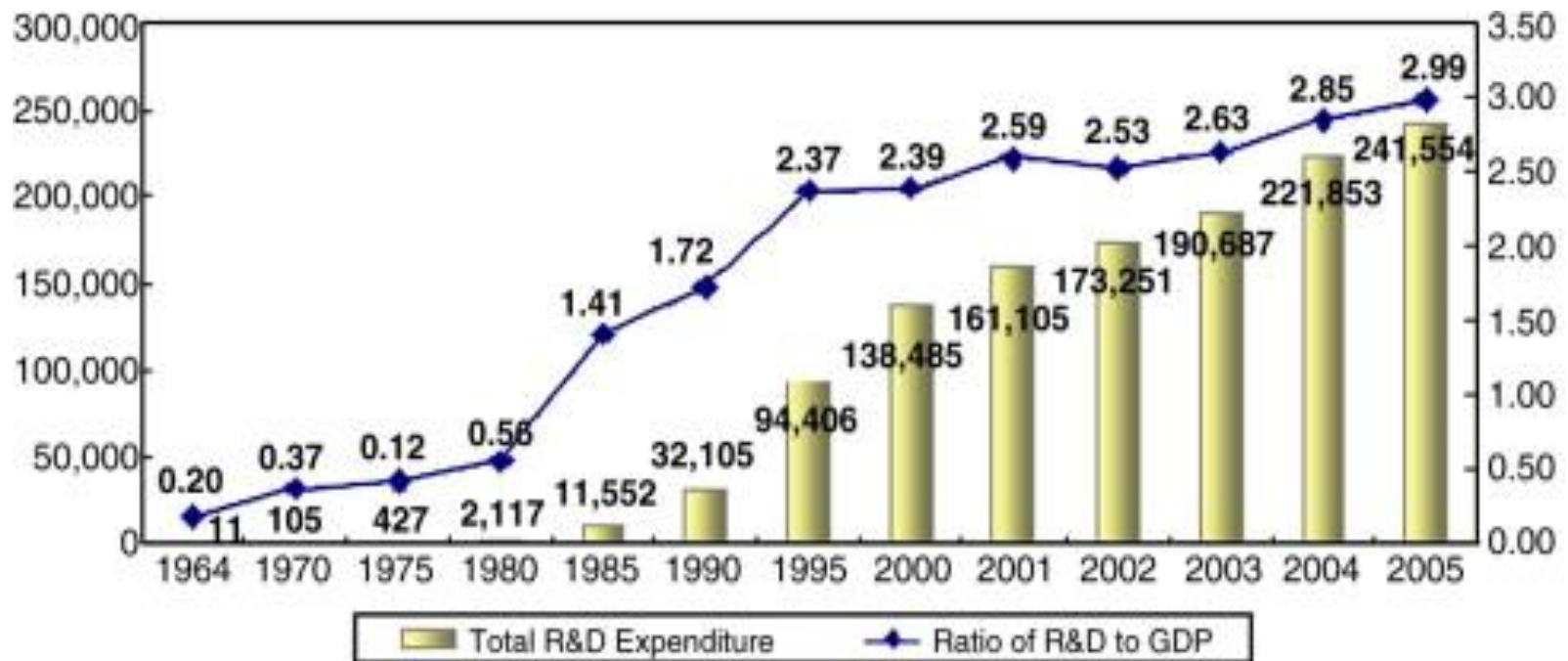
- ◆ Shift from Capital-Intensive to Technology-Intensive Policy
 - In 1990s, numerous projects enhancing technology infrastructure were launched
 - ❖ Leading technologies and mid-term foothold technologies
 - Private sector technology innovation system was reinforced

- ◆ Expanded Meeting for Technology Promotion
 - Regularly convened and presided by the President (similar to 'Enlarged meeting for Export Promotion')
 - Participated by relevant ministers, entrepreneur, and scientists.

Increasing R&D Expenditure

Trend of R&D expenditure and the ratio of R&D to GDP

(unit: hundred million Korean won)



(source: Ministry of Education, Science and Technology)

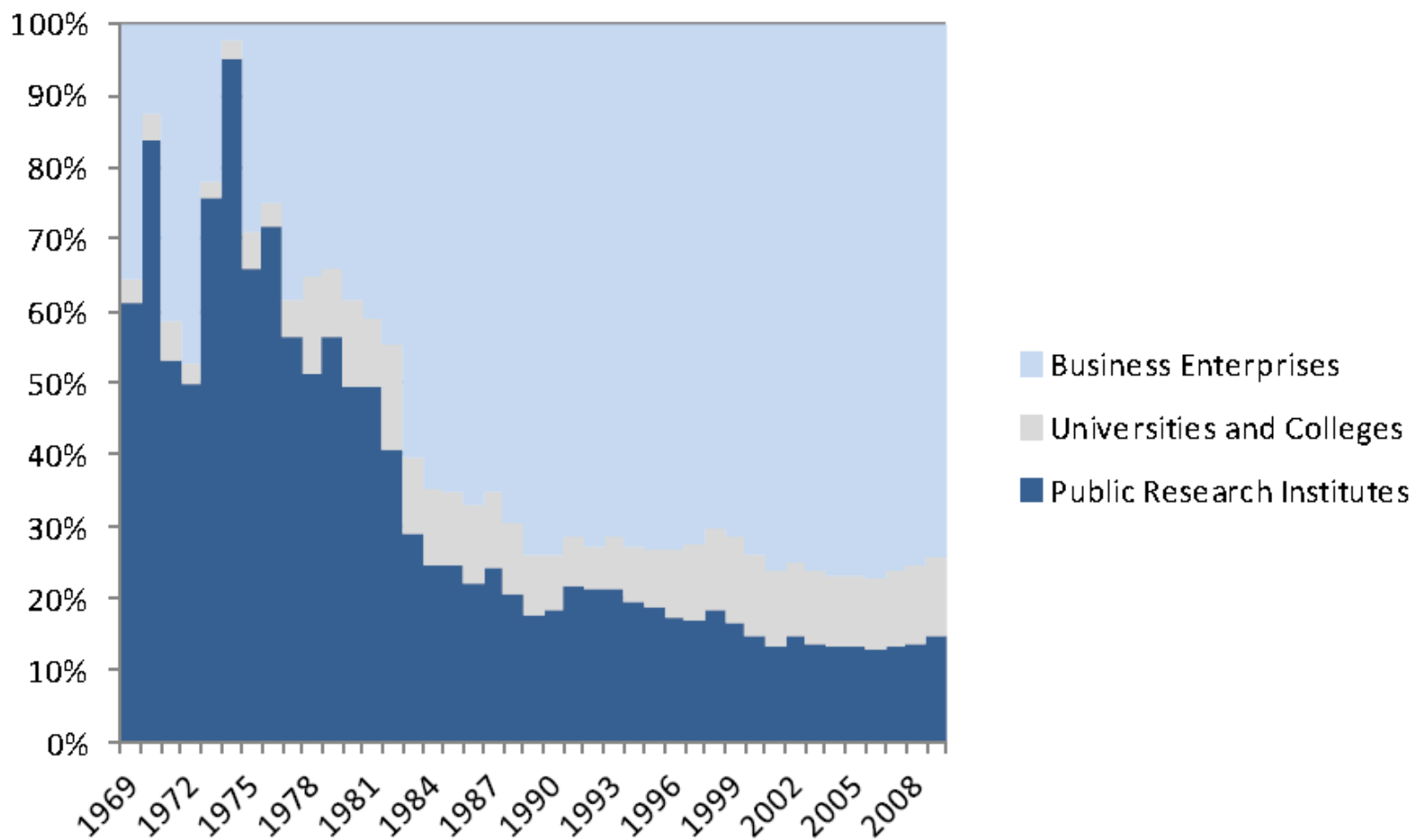
Process of Korea' s R&D Development

◆ Korean Model of R&D Development (catch-up)

- Initially lead by public research centers during 1960–70s
 - ❖ Science and Technology
 - Korea Institute of Science and Technology (1966)
 - Electronics and Telecommunications Research Institute (1976)
 - ❖ Economics
 - Korea Development Institute (1971)
 - Korea Institute for Industrial Economics and Trade (1976)
- Private R&D promoted by government assistance to SMEs during 1970–80s
 - ❖ Korea Productivity Center (KPC)
 - ❖ Small & medium Business Corporation (1981)
- Private R&D from Conglomerates since 1980s
 - ❖ LG R&D Center (1983)
 - ❖ Samsung Advanced Institute of Technology (1986)

Process of Korea's R&D Development

R&D Trend by Performer

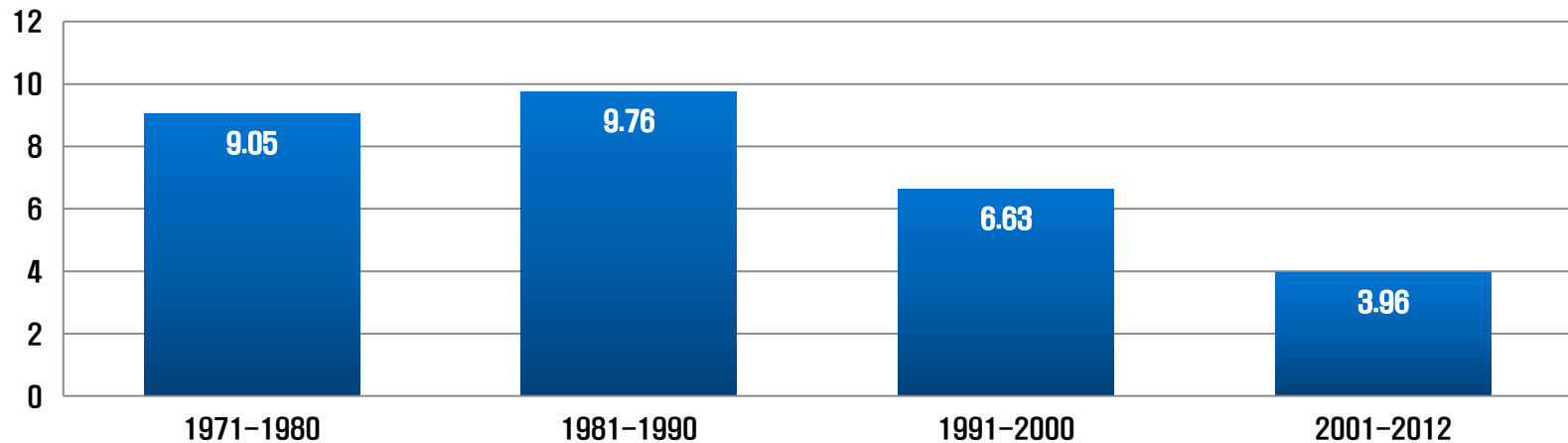


(source: KORIS, 2011)

VI. Exploring New Engines for Growth

◆ Sustainable Growth

Average GDP growth rate [%]



Source: National Statistics Office

As the size of the economy grows, the speed of the growth inevitably slows down. To explore new sources of sustainable economic growth is a new imperative

Sustainable Development

◆ Efforts to nurture higher value-added industries

- Since 2000s, Korean industrial economy have confronted by Increasing intensity of global competition and maturing of major industries
- In order to transform its existing industrial structure to higher value-added, the government have increased their supports in upstream and convergence technology development and nurturing material and component industry

◆ The Fourth Industrial Revolution based on Creative Industry

- Software, Artificial intelligence, Culture, Finance, Tourism as new engine of sustainable growth

◆ Coping with Climate change: Green Growth

- Green industry based on Renewable Energy and Eco-friendly materials

Korean Wave (Hallyu)

- ◆ Korean Wave, so-called K-Pop and Dramas are so popular throughout all Asian countries, replacing the Western Pop and movies
- ◆ Now Korea is associated not only with the images of construction workers, Samsung mobile phones, Hyundai cars, but with images of the tradition of 5,000 years history and advanced modernity

Korean Wave, combination of tradition and modernity



VII. Assessing Korean Economic Development

Performance of Economic Development Plans

	Period	GNP Growth Annual	Export Growth Annual
1 st	1962~1966	7.8%	38.6%
2 nd	1967~1971	9.6%	33.8%
3 rd	1972~1976	9.7%	32.7%
4 th	1977~1981	7.5%	11.1%
5 th	1982~1986	8.7%	12.6%
6 th	1987~1991	9.1%	7.7%
7 th	1992~1996	7.4%	16.1%

Assembled from Bank of Korea, IMF data

Changes of Industrial Structure

Top 10 Export Items [%]

Rank	1970		1980		1990		2000		2012	
	Item	Share	Item	Share	Item	Share	Item	Share	Item	Share
1	Textiles	40.8	Garments	16.0	Garments	11.7	Semiconductor	15.1	Petroleum products	10.24
2	Plywood	11.0	Steel Plate-rolled Products	5.4	Semiconductor	7.0	Computer	8.5	Semiconductor	9.2
3	Wigs	10.8	Footwear	5.2	Footwear	6.6	Automobile	7.7	Automobile	8.6
4	Iron ores	5.9	Vessel	3.6	Video Apparatus	5.6	Petrochemical products	5.3	Vessel	7.3
5	Electronic goods	3.5	Audio Apparatus	3.4	Vessel	4.4	Vessel	4.9	LCD	5.7
6	Confectionery	2.3	Man made filament fabrics	3.2	Computer	3.9	Wireless telecom	4.6	Wireless telecom	4.2
7	Footwear	2.1	Rubber Products	2.9	Audio Apparatus	3.8	Synthetic Resin	2.9	Parts of Automobile	4.5
8	Tobaccos	1.6	Woods & Wood items	2.8	Steel Plate-rolled Products	3.8	Steel Plate-rolled Products	2.8	Synthetic Resin	3.6
9	Iron products	1.5	Video Apparatus	2.6	Man made filament fabrics	3.6	Garments	2.7	Steel Plate-rolled Products	3.6
10	Metal products	1.5	Semiconductor	2.5	Automobile	3.0	Video Apparatus	2.1	Electronics	1.6
Total		81.1		47.6		53.4		56.6		58.5

(source: KOTIS)

Globally Diversified Export Destination

Top 10 Exports Countries [%]

Rank	1970		1980		1990		2000		2012	
	Country	%	Country	%	Country	%	Country	%	Country	%
1	U.S.	47.3	U.S.	26.3	U.S.	29.8	U.S.	21.8	China	24.5
2	Japan	28.1	Japan	17.4	Japan	19.4	Japan	11.9	U.S.	10.7
3	HongKong	3.3	SaudiArabia	5.4	HongKong	5.8	China	10.7	Japan	7.1
4	Germany	3.3	Germany	5.0	Germany	4.4	HongKong	6.2	HongKong	6.0
5	Canada	2.3	Hong Kong	4.7	Singapore	2.8	Taiwan	4.7	Singapore	4.2
6	Netherlands	1.6	Iran	3.5	U.K.	2.7	Singapore	3.3	Marshall	0.7
7	U.K.	1.6	U.K.	3.3	Canada	2.7	U.K.	3.1	Is Taiwan	2.7
8	Vietnam	1.5	Indonesia	2.1	Taiwan	1.9	Germany	3.0	Grmany.	1.4
9	Singapore	1.3	Netherlands	2.0	France	1.7	Malaysia	2.0	India	2.2
10	Sweden	0.9	Canada	2.0	Indonesia	1.7	Indonesia	2.0	Vietnam	2.9
Total		91.4		71.6		72.9		68.8		62.4

(source: KOTIS)

Assessing Korean Economic Development

◆ Government' s active role as an economic actor

- Government intervention was carried out on the basis of **belief that government's endeavor can lead to successful national economy**
 - ❖ During the succession of each 5-year Economic Development Plan, the government have implemented various measures and policies to promote exports, strengthen **national finance, and etc.**
- While respecting market economy, the government was able to conduct flexible response to rapidly changing economic environment
- However, excess government interventions are blamed for the undermined self-sustainability in financial industry, accumulated corporate debts, and yielding insolvent enterprises.

Assessing Korean Economic Development

◆ Export-Oriented Strategy

- Export-oriented policy is considered as the optimal choice of the period in response to Korea' s physical constraint, especially in lack of natural resources and small domestic markets
 - ❖ Export promotion on the basis of abundant labor force was rational decision and optimum method to achieve such high level of economic growth in short period of time
- However, high level of foreign dependency have increased vulnerability to external shocks
- Also, during the process of export-oriented policy, a structure demanding high dependency in Japanese intermediary and capital goods became permanent, which gave rise to trade deficit with Japan

Assessing Korean Economic Development

- ◆ **Active response to changing global economic environment**
 - Limited domestic markets and lack of natural resources have caused Korean economic structure to be more international-oriented, absorbing greater influences from change in global economic environment
 - From the early phase of economic development, Korea, in hopes to enlarge its export have participated in globalization movement

- ◆ **Human resources development**
 - Along with favorable socio-economic conditions, traditional Confucian value on educational ardor have contributed in rapid economic development
 - ❖ High educational level, and faithful, industrious and enthusiastic labors have contributed in economic growth

Assessing Korean Economic Development

◆ Efficient use of foreign resources

- Until 1962, foreign aid from US occupied most part of the national finance, and afterward, foreign loans were effectively utilized in promoting domestic industrialization
- Foreign aid → commercial loan → FDI

◆ Favorable international situation

- 1960s have witnessed global market expansion with stable growth of advanced economies and the liberal international trade under the GATT system
- Korea took advantage of these favorable international conditions by export drive, while almost all other developing countries were indulging in domestic market-oriented Import Substitution.

Assessing Korean Economic Development

- ◆ **Confucian Tradition:** The last Kingdom of Korea, Chosun dynasty (1392–1910) took Confucianism as its ideological foundation, which lasted for over 500 years and has become a strong tradition.
- **Confucian tradition as cause of success**
 - ❖ Loyalty to Nation, Respect for Seniors, Credibility in Relationships
 - ❖ Strong emphasis on Education
 - ❖ Honesty and Sincerity in Public Service
- **Confucian tradition as cause of failure**
 - ❖ Endless factional (party) strife
 - ❖ Strong emphasis on one' s position and honor
 - ❖ Hierarchical Social System

Assessing Korean Economic Development

◆ Economic concentration to Conglomerates (Chaebol)

- Lacking natural and financial resources, Korea have selected a good few industries and efficiently concentrated most of resources on these sectors, thereby allowing some conglomerates to grow rapidly
- Resources concentration problems arose where beneficiary of banks loans were monopolized by these conglomerates , leading to problem of inefficient distribution of resource
- Conglomerates' economic power → constraining fair competition
- Political Patronage and Moral hazard problems

New Challenges and Changing Policies

- ◆ **Increase of Income and Improved Standard of Life**
 - **Increase of Labor Cost and Rent**
 - **Production Automation and Outward FDI**
 - **Changes of Life style and Labor attitude in parallel with Upgraded Education level**
 - **Imports of foreign labor**
 - **Private sector-led industrial structure and Democratization**
 - **Direct government intervention difficult**

- ◆ **Intensified Competition in the Global Market**
 - **Innovation and Technology driven new products as imperative**
 - **Increase of R&D**

- ◆ **WTO regulations and New Global Standards**
 - **Direct subsidies and financial assistance impossible**
 - **Insurance, export credit, project financing expanded**

Industrial Vision and Strategy

◆ From a Fast Follower to Global Leader

- From Learning (Catch-up) to Innovation and Creation
- Technology and Knowledge-based Competitiveness :
- Importance of R&D and “Creative Economy”

◆ Open and Strong Industrial Welfare State

- Active Participation in FTAs and Global networks
 - The only country so far that concluded FTAs with EU and USA
- Respect for Global Standard and Regulation
- Social Development and Welfare
- Knowledge Sharing for Developing Countries
 - Significant increase of Foreign Aid (ODA) donation

Our mission

- ◆to explore new engines for sustainable growth
- ◆to provide insights for continued industrial development based on technology and innovation
- ◆to build-up human capacity for industrial development
- ◆to promote knowledge-sharing globally for common prosperity and poverty reduction, realizing the Sustainable Development Goals

Half Century of Korea – Iran Relationship



Thank You

Contact: djjoo@kiet.re.kr