

Korea's Development Experience: An Overview

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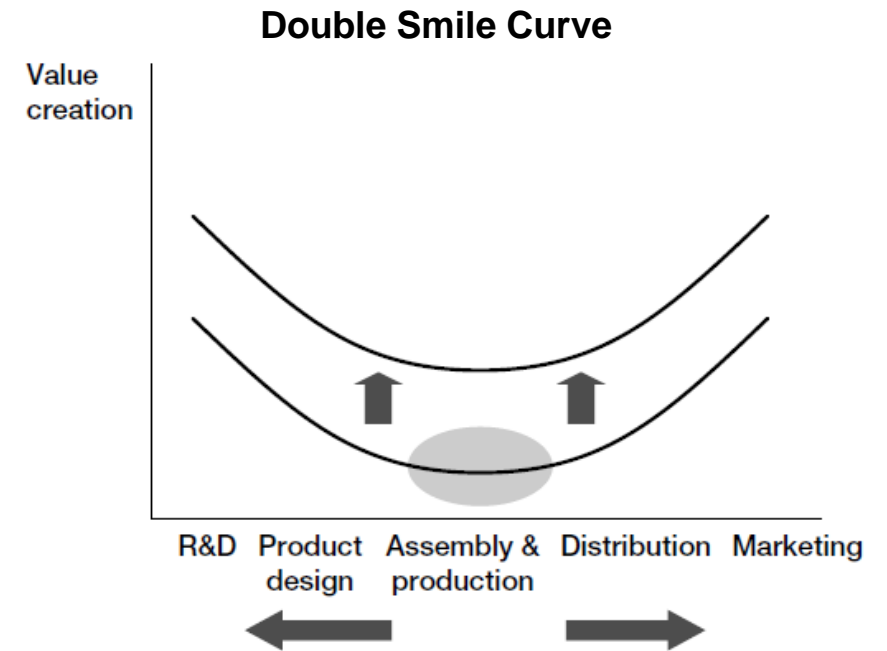
Conceptual Framework for Development: Innovation, Coordination, and Governance

◆ Development: Three Externalities

- Development is conceptualized as freedom to realize one's potential (Sen 1999), as a result of synergies between enhanced human capital and new knowledge in the local context. Coordination between education and industrialization is especially critical.
- The fundamental policy challenge is for the state to work with non-state actors and markets to address innovation and coordination externalities as well as governance externalities.

◆ “Modern Growth”: Three Breakthroughs

- Innovation: Emergence of a large group of people who absorb and assimilate knowledge to improve their human capital and in turn use their improved human capital to apply and generate knowledge to raise productivity (Lucas 2009)
- Coordination: Expansion of markets and hierarchies to facilitate specialization and coordinate productive activities, through the invisible hand (Smith 1776) and the visible hand (Chandler 1977) as well as the state
- Governance: Emergence of meritocracy (careers open to talent) and responsive and accountable governance (popular will and checks & balances), with varieties in political regime type



Source: Economic Planning Unit of the Prime Minister's Department, Malaysia (edited).

Developing countries typically start their industrialization in the assembly & production segment of the value chain, in labor-intensive manufacturing (e.g., garments). Only a few manage to move to higher value-added segments along the value chain (e.g., R&D and marketing) as well as climb up the ladder to higher value-added sectors or activities (e.g., machinery & equipment). Close consultation between the government and the private sector is key to solving information and incentive problems in this stage, through a coordinated development of human resources, industries, infrastructure, and institutions and a shift from technology adoption to innovation.

Korea's Natural Endowment

◆ Territorial Area

- Reunified Korea: 210,000 Km² (slightly smaller than Britain)
- South Korea: 99,000 Km² (similar to Portugal)

◆ Population

- Reunified Korea: 77 million (slightly larger than France)
- South Korea: 52 million (similar to Spain)

◆ Conditions for Development

- Unified nation-state since 936, with a dynastic change in 1392 (Goryeo-Joseon), forced occupation by Japan (1910-1945), and national liberation and division (1945-1948)
- No significant natural resources other than tungsten and limited arable land
- In a tough neighborhood in Northeast Asia: traditionally, nomadic vs. agricultural civilization; since the 19th century, multiple wars involving China, Japan, Korea, Russia, and Western countries
- In an increasingly integrated global economy, natural resource abundance is not as important for development as access to inputs at international prices; a nation's economic performance largely depends on its ability to enhance its relatively immobile factors of production (human resources, infrastructure, and institutions) to attract mobile factors of production (capital).



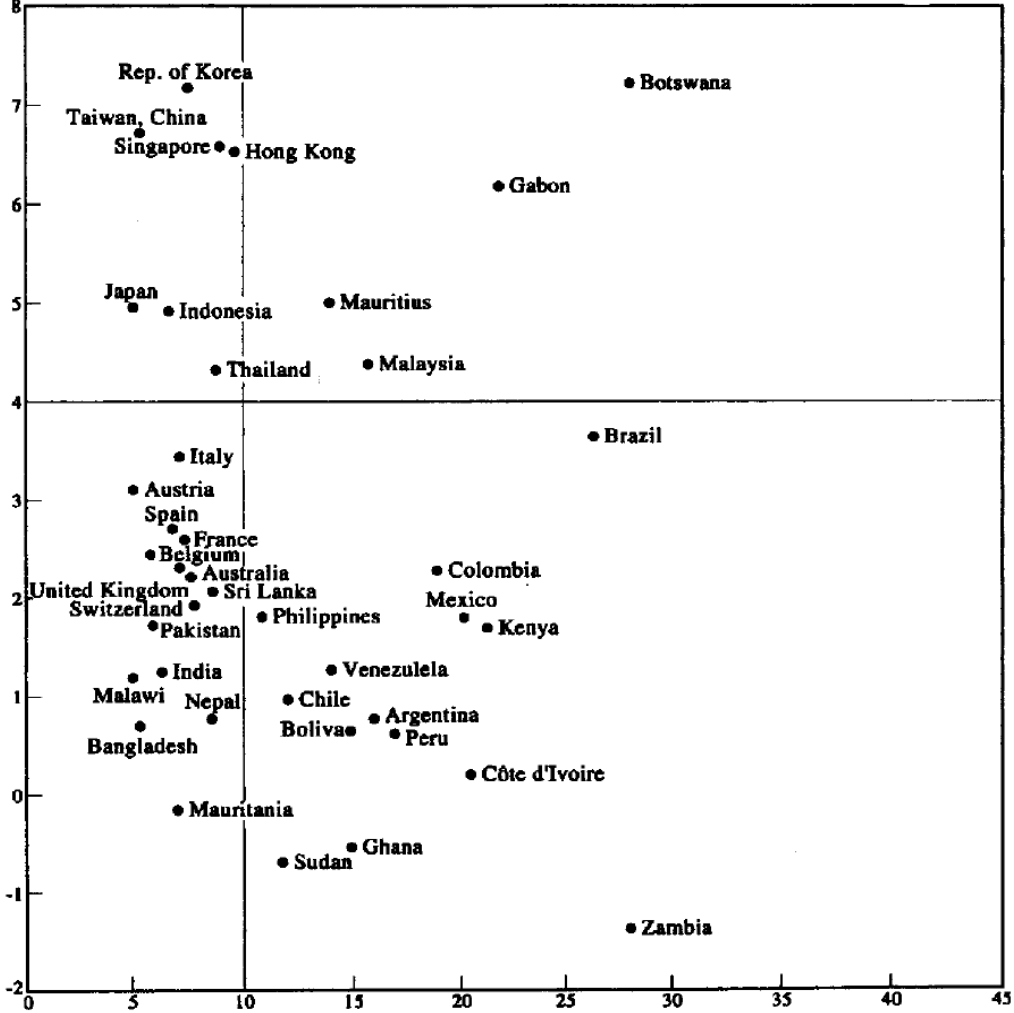
Korea's Per Capita GDP Growth in Comparative Perspective

Year	S. Korea's Per Capita GDP (1990 Geary-Khamis Dollars)	S. Korea / USA Ratio (%)	S. Korea / World Ratio (%)
1820	335	24.6	47.1
1870	337	13.8	38.1
1913	485	9.2	31.5
1940	893	12.7	41.0
1950	854	8.9	40.6
1960	1,226	10.8	44.4
1970	2,167	14.4	58.2
1980	4,114	22.1	91.2
1990	8,704	37.5	169.0
2000	14,998	52.3	247.6
2010	21,935	71.2	277.7

Source: Maddison Project Database (<http://www.ggdcc.net/maddison/maddison-project/home.htm>)

“Rapid, Shared Growth”

GDP Growth per capita (percent)



Income of the top 20 % / Income of the bottom 20%

Note: Average over 1965-1989.

Source: World Bank (1993), *The East Asian Miracle*, p.31.

Korea's Poverty Rate

	1965	1970	1976	1980	1984
Poverty Rate (%)*	40.9	23.4	14.8	9.8	4.5
Urban	54.9	16.2	18.1	10.4	4.6
Rural	35.8	27.9	11.7	9.0	4.4

Source: Suh (1979), Suh and Yeon (1986), re-cited from Choo, Bark, and Yoon (1996:89)

* The absolute poverty line is defined as KRW 121,000 (approximately USD 173 at the prevailing market exchange rate) per month in 1981 for a standard five-member family. This absolute poverty line is based on 2100 kcal per day per family member, with calories assumed to be derived from low-income households' food consumption basket in 1973. Engel's law is then applied to establish the relationship between food consumption expenditure and income.

Note: Korea's city household income and expenditure survey (CHIES), first conducted in 1963, excludes all non-farm households in non-city areas, where incomes are basically lower than those in cities. The farm household income and expenditure survey (FHIES) excludes those farm households cultivating less than 1 danbo (equivalent to 0.1 ha or 0.235 acres) and landless rural households. As a result, there is a downward bias in poverty rate estimates, especially in early decades (Choo, Bark and Yoon 1996: 96).

During 1965-1970, there was a dramatic poverty reduction in urban areas thanks to export-oriented industrialization focused on labor-intensive manufacturing, leading to an urban-rural income gap of about 33 percent by 1970.

During 1970-1976, there was a significant poverty reduction in rural areas thanks to rural development programs (including Saemaul Undong) and continued rural-to-urban migration, which raised the urban share of population from 41% to 50% over the same period.

Korea's Political Development

	1972			1980			1990			2000			2010		
	PR	CL	S	PR	CL	S	PR	CL	S	PR	CL	S	PR	CL	S
Korea	5	6	NF	4	5	PF	2	3	PF	2	2	F	1	2	F
Italy	1	2	F	1	2	F	1	1	F	1	2	F	1	2	F
Japan	2	1	F	1	1	F	1	1	F	1	2	F	1	2	F
Iran	5	6	NF	5	5	PF	6	5	NF	6	6	NF	6	6	NF
Ethiopia	5	6	NF	7	7	NF	7	7	NF	5	5	PF	6	6	NF
Zimbabwe	6	5	NF	3	4	PF	6	4	PF	6	5	PF	6	6	NF
Cambodia	6	5	NF	7	7	NF	7	7	NF	6	6	NF	6	5	NF

Note: Political Rights (PR) and Civil Liberties (CL) are measured on a scale from 1 to 7, with 1 being the best. Status (S) has three categories: Not Free (NF), Partly Free (PF), and Free (F).

Source: Freedom House (2011), Freedom in the World Comparative and Historical Data.

Improvement in political rights and civil liberties, especially since Korea's restoration of free and competitive elections (1987) and subsequent democratic consolidation in the 1990s, set the stage for the rise of the Korean Wave (Hallyu).

Korea's Development Experience in a Nutshell

◆ Critical Combination of State and Market

- Emergence of a state effective enough to maintain stability and address coordination and innovation externalities, through political upheavals and administrative changes
- Application of a performance-based reward and discipline mechanism

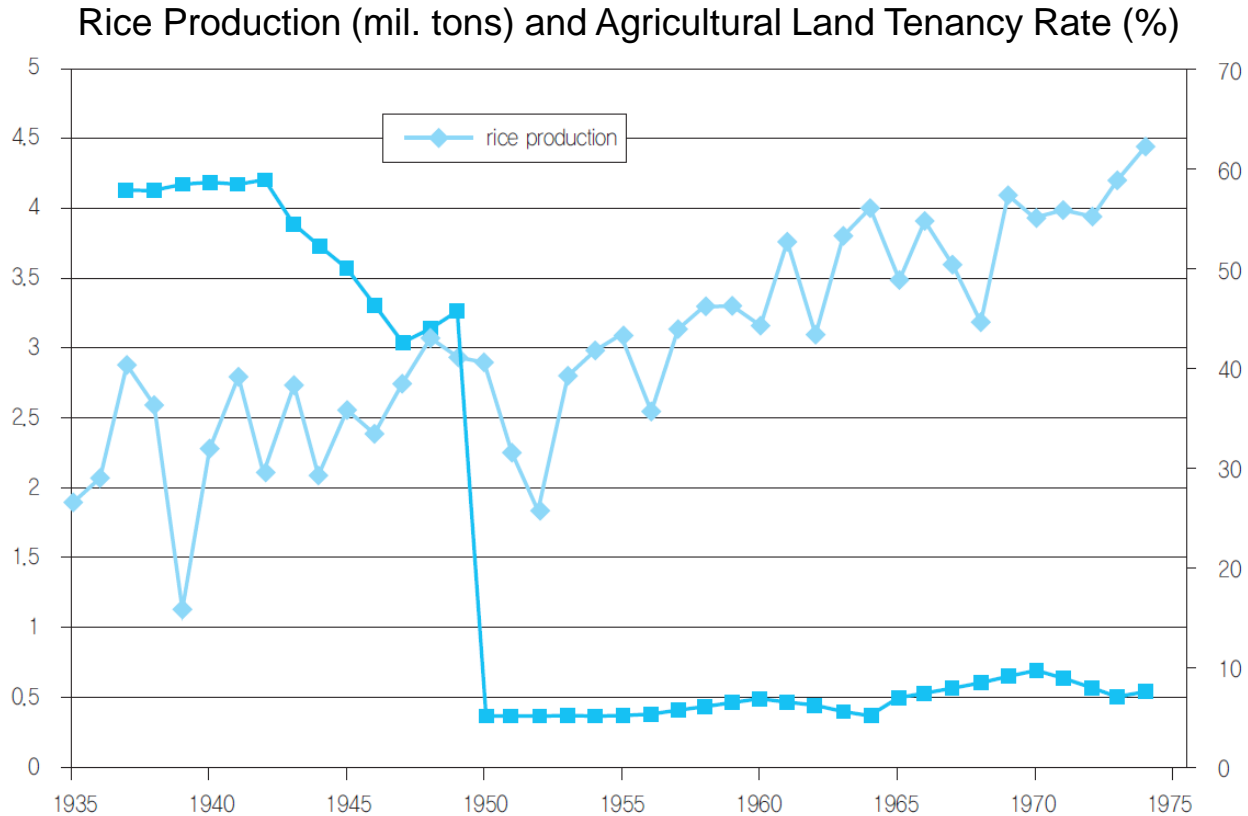
◆ Strategy for Growth and Structural Transformation

- Provide broadly equal opportunities, use international trade to relax critical constraints, develop capabilities in increasingly sophisticated sectors and activities, and positively reinforce successful experiments.

◆ Key Events and Policies

- Initial wealth redistribution to provide the basis for social mobility, amid some corruption and rent-seeking: collapse of traditional social hierarchy, land reform (1950), Korean War (1950-1953)
- Revolution in human resource development after Korea's liberation: universal primary education (1950)
- Political upheavals to make meritocracy more credible: 4.19 student revolution (1960) and 5.16 coup (1961)
- Shift to export-oriented industrialization (early 1960s)
- Complementary rural development (late 1960s onward): Saemaul Undong+
- Industrial upgrading and innovation (late 1960s onward): HCI drive+
- **Macro stabilization and liberalization without sufficient risk management (late 1970s onward)**
- **Democratization (1987) and democratic consolidation**
- **Economic crisis (1997) and structural reform**
- Social protection, while staying away from European-style welfare state: National Healthcare (1977), National Pension (1988), Employment Insurance (1995), National Basic Living Security Act (1999)

Land Reform



Politics of Land Reform

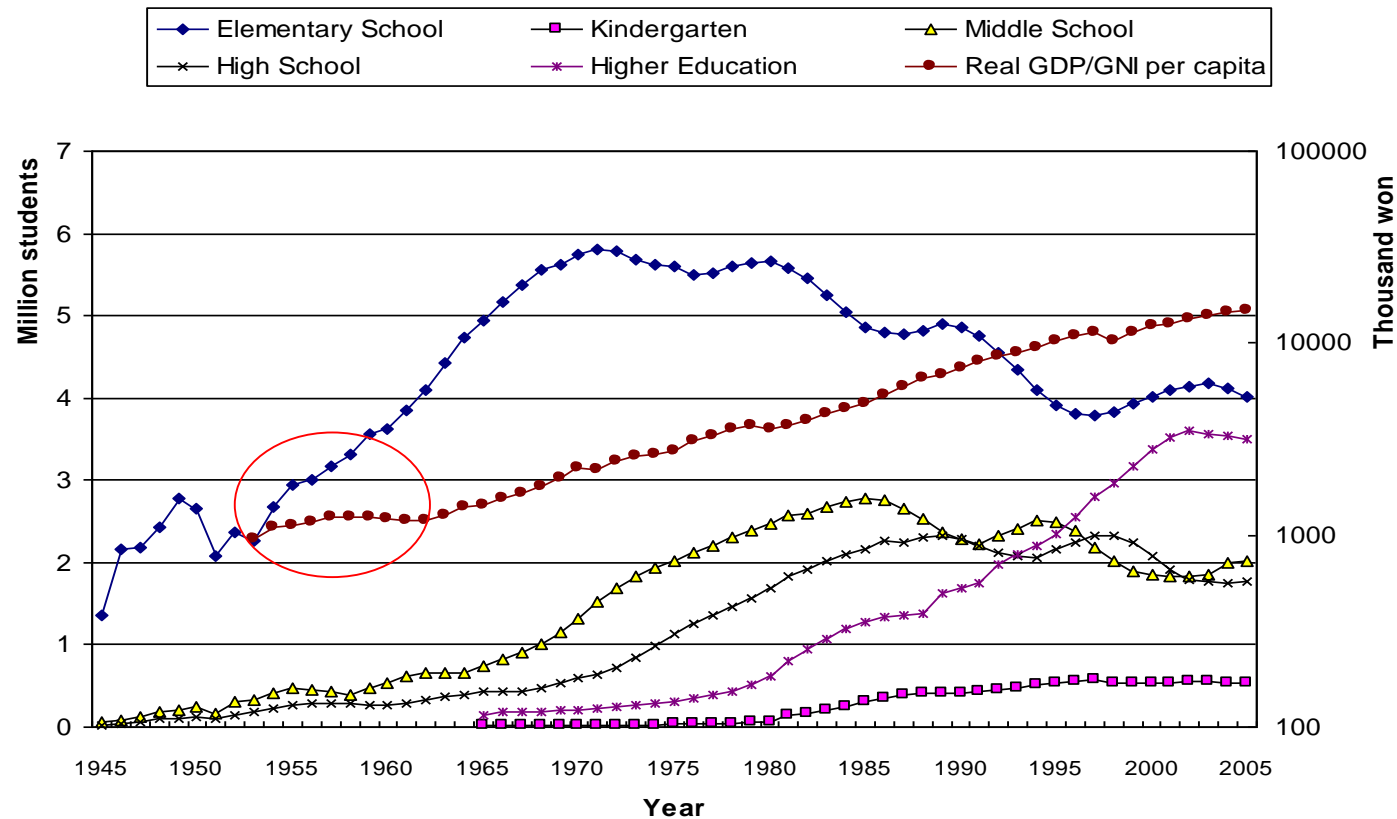
1. Domestic pressure from peasants
2. U.S. position on land reform: Japan vs. Philippines
3. North Korea's precedent (1946)
4. Syngman Rhee's political calculation
5. Opposition's acquiescence

Under the Agricultural Land Reform Amendment Act (ALRAA) of March 1950, only those who cultivate or manage agricultural land could own it, up to the ceiling of 3 jeongbo (approximately 3 hectares) per household. Most tenancy arrangements and land-renting activities were prohibited.

The payment by tenants and compensation to landlords were both set at 1.5 times annual crop output, but the government received the payment in kind (5 annual installments of 30% each) and gave the compensation in government bonds. The subsequent wartime inflation reduced the real value of this compensation.

Now possessing their own land, farmers put in more effort to increase agricultural production. However, further improvement in yields required agricultural infrastructure and inputs such as better seeds, fertilizers, machinery, and extension services. (cf. structure, attitude, incentives, infrastructure & inputs, and governance in the benefit-cost calculus for Saemaul Undong)

Human Resource Development



Source: Center for Education Statistic Information (<http://cesi.kedi.re.kr>)

At the time of its liberation from Japanese occupation in 1945, Korea's illiteracy rate was 78 percent. Land reform and the flattening of the traditional hierarchy created expectations for social mobility conducive to human resource development. Although Korea was quite poor, it invested in its people through adult literacy campaigns as well as formal education. Universal primary education was introduced in 1950, and the number of enrolled students increased at all levels. However, per capita income did not rise much until complementary developments in industrial and trade policy took place.

Korea's Big-Push Partnership: Government and Business Groups

- ◆ **Two-Tier Approach to Coordination and Innovation**
 - Government: National-Level Coordination and Innovation
 - Business Groups: Group-Level Coordination and Innovation
 - Big-Push Partnership: Information and Risk Sharing
- ◆ **International Trade as an Essential Component**
 - Coordination
 - Scale Economies: Overcoming the Limits of Domestic Market
 - Market Test and Reward Based on Performance in a Competitive Setting: Less Prone to Political Influence and Manipulation
 - Learning by Exporting: Dynamic Upgrading Mechanism
- ◆ **Containment of Corruption and Rent-Seeking**
 - Changes in Political Economy (1960-61)
 - Meritocracy, Monitoring, and Incentives

Financing for Development: Investment and Savings in Korea, 1962-81

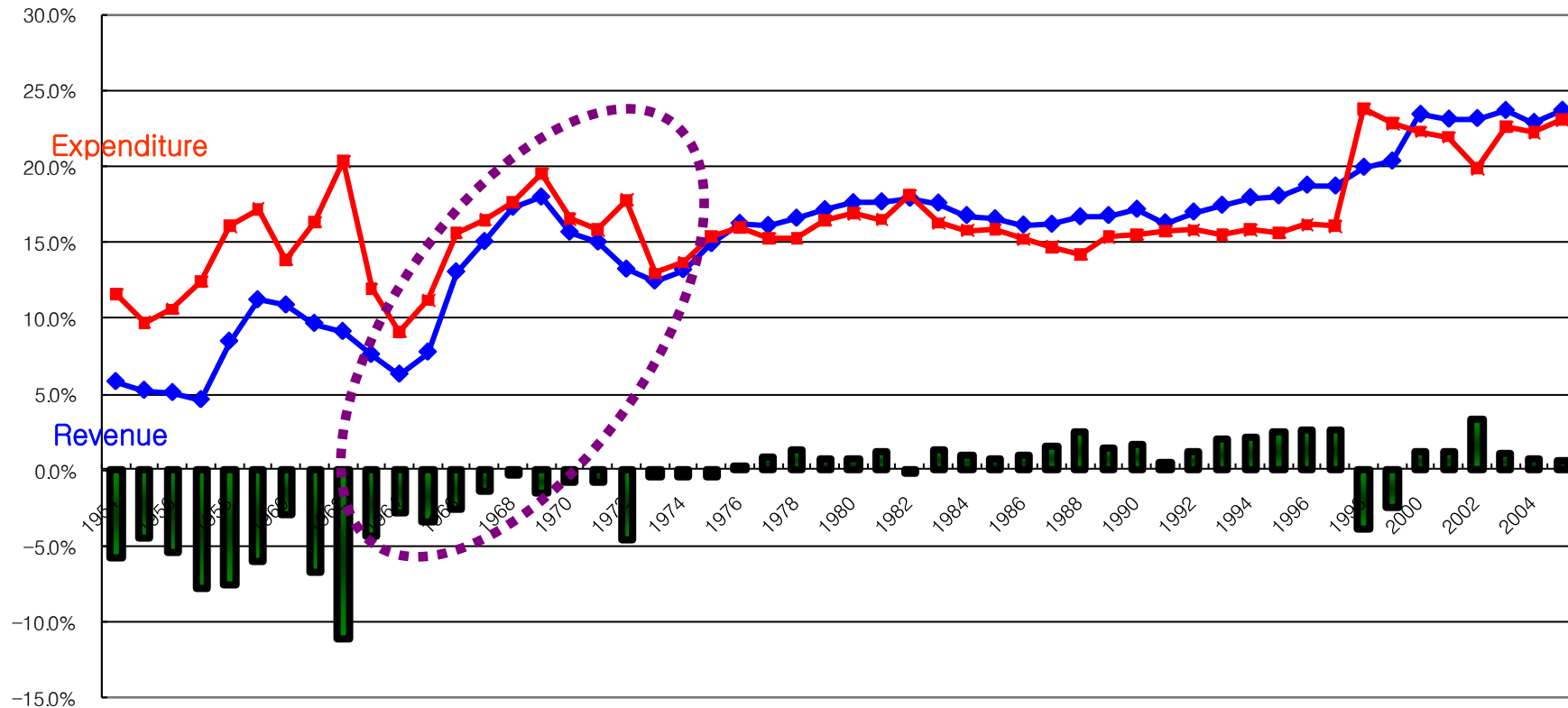
(unit: percent)

	1962-66	1967-71	1972-76	1977-81	1962-81
Annual GNP Growth	7.9	9.7	10.2	5.7	8.4
Investment / GNP	16.3	25.4	29.0	31.0	25.4
Domestic Savings / GNP	8.0	15.1	20.4	25.5	17.3
Foreign Savings / GNP	8.6	10.0	6.7	5.6	7.7
Foreign Savings / Investment	52.8	39.4	23.1	18.1	30.4

Korea had to rely heavily on foreign capital in the early stages of its development. Most of this foreign capital was in the form of loans, which allowed Korea to take advantage of the domestic-international interest rate differential and be the residual claimant on its investments. Foreign direct investment played a relatively minor role in Korea.

Domestic Resource Mobilization and Policy Space

< Government revenue, expenditure, and fiscal balance (% of GDP)>



Transition to Export-Oriented Industrialization

◆ Changed Political Economy

- 1960 Student Revolution: Break with Crony Capitalism
- 1961 Military Coup: Focus on Economic Modernization

◆ Export Promotion and Import-Substituting Industrialization

- Currency Devaluation (Jan. & Feb. 1961): Focus on productive activities
- Letter of Credit (L/C)-Based Export Financing (1961): Financing available without collateral for exporters
- KOTRA (1962): Trade promotion (cf. British Export Trade Research Organization (BETRO) and JETRO)
- Currency Reform and “Savings Mobilization” Scheme (1962): Controversy

◆ U.S. Demand for Economic Stabilization and Political Liberalization

- U.S. threat to withhold food aid unless “Savings Mobilization” scheme is scrapped *and* electoral regime is restored.

◆ Korean Response to Secure Independence

- Export-oriented industrialization as a means of obtaining hard currency, pursuing industrialization, and securing economic and political independence— on the basis of rapidly increasing light manufacturing exports with little policy support

Export-Oriented Industrialization: Secure Economic and Political Independence

◆ Centralization and Coordination of Economic Policymaking

- Establishment of the Economic Planning Board (EPB): Policy Coordination and Budgetary Powers with a Multi-Year Horizon
- Five-Year Plans and Monthly Meetings: Blueprint, Implementation, and Feedback
- Nationalization of Commercial Banks

◆ Adjustment of Macroeconomic Variables

- Devaluation of the Korean Currency (KRW/USD: From 130 to 255 in 1964)
- Adjustment of the Interest Rates (From 15% to 30% in 1965)

◆ Reinforcement of Experiments through Performance-Based Rewards

- Support Contingent on Performance in Competitive Markets (L/C-Based Financing)
- State Guarantee to Foreign Financial Institutions on Private-Sector Debt
 - This state guarantee became effective after Korea established a track record of earning hard currency through exports and paying back foreign loans.
 - The state guarantee was extended to foreign financial institutions providing loans to Korean firms, not to their owner-managers, but subsequent developments blurred this distinction.

Monthly Export Promotion Meetings

◆ Membership

- President (since Jan. 1966), PM, DPM, key ministers
- Bank of Korea, Korea Trade Promotion Corporation (KOTRA), KorCham, Korea Int'l Trade Association (KITA)
- Federation of Korean Industrialists, Co-Ops

◆ Mechanism

- Comprehensive annual plan for export promotion: indicative plan based on informed national targets by region and sector (at two-digit level SITC), not command-and-control plan: firm-level export targets proposed by large firms, collected by business associations, and adjusted by the Ministry of Commerce and Industry (Rhee et al. 1984)
 - Sectoral export outcomes often deviated from sectoral targets, but aggregate export outcomes met aggregate targets except for two years over the 1965-1979 period.
- Reward based on performance in competitive global markets (e.g., L/C-based financing)
- Monthly progress report by the Minister of Commerce and Industry based on customs data
- Monthly briefing on overseas markets by the Minister of Foreign Affairs
- Identification of bottlenecks and constraints
- Policy recommendations and responses
- Monitoring, evaluation, and feedback— month after month, not an annual review without any follow-up

◆ Institutional Innovations

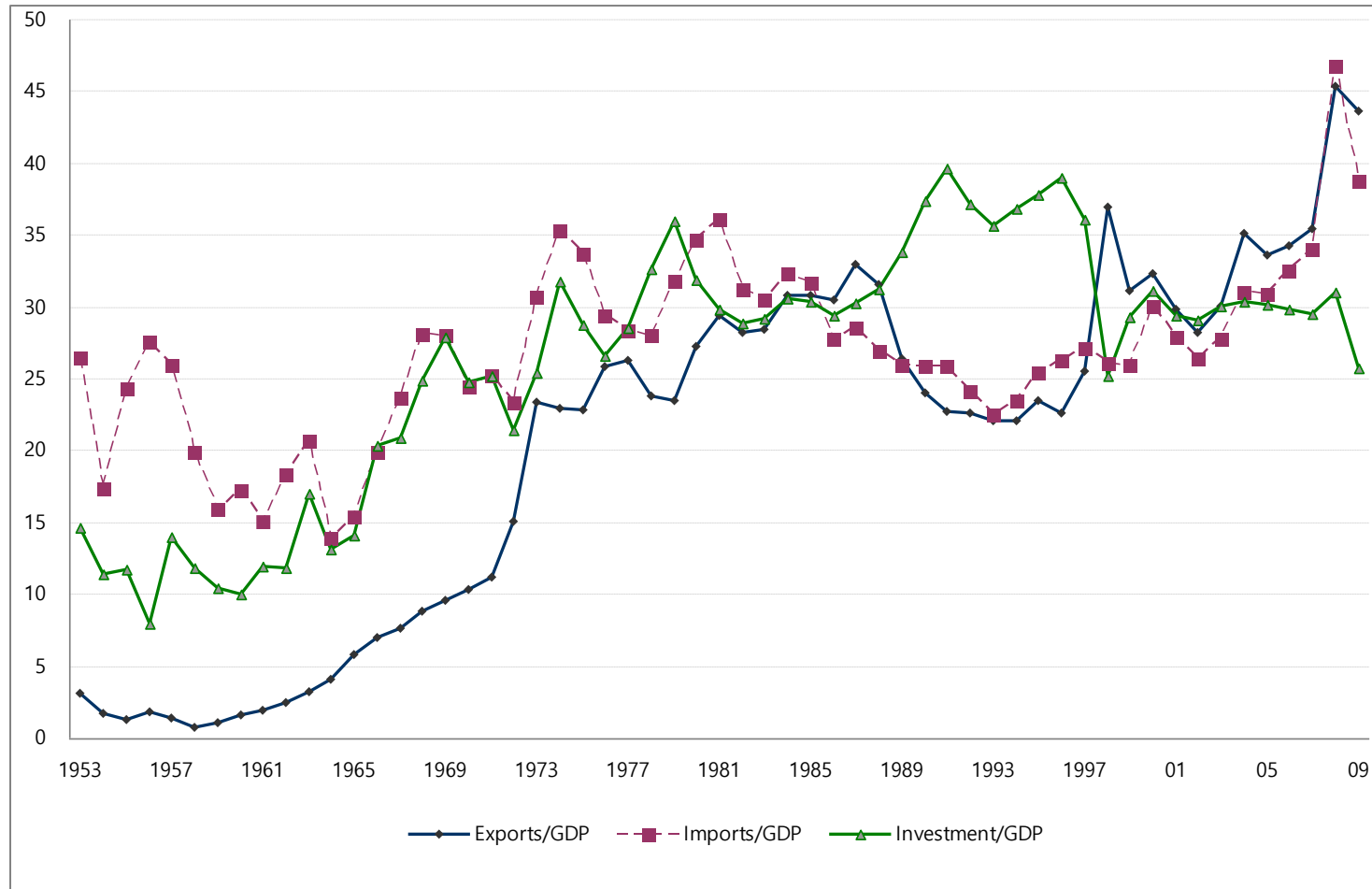
- Export Promotion Special Account Fund (import levies as funding source, for export quality improvement and PR, etc.)
- Export Insurance
- General Trading Companies
- Regulatory Reform

“Export Day” Award Ceremony: Promoting Export Culture



Traditionally at the bottom of the social hierarchy, merchants were now presented as patriotic entrepreneurs contributing to the nation's modernization. There were material incentives for high performers as well: exemption from collateral for tariffs, relief from tax inspection, and favorable consideration for business expansion (MCI 1988). In addition to social symbolism, real pecuniary incentives were important (cf. Banerjee and Duflo).

Export-Oriented Industrialization



Source: IMF, *International Financial Statistics* and Bank of Korea, *National Account* (<http://ecos.bok.or.kr>).

Korea lifted a large number of quantitative restrictions in the mid-1960s and joined the GATT in 1967. Although imported intermediate inputs were made available at international prices for exporters, tariff rates on final goods were set at high levels to protect infant industries and discourage conspicuous consumption. At least until the early 1980s, the government preferred to push domestic firms to excel in competitive global markets rather than bring foreign competition into the domestic market.

Complementary Rural Development: Saemaul Undong (New Village Movement)

◆ Background

- Widening Urban-Rural Income Gap: 33 percent by the late 1960s
- Previous Policy Failures: “Unless farmers develop a spirit of self-reliance, rural villages will be mired in poverty for another 5,000 years.”

◆ Core Elements

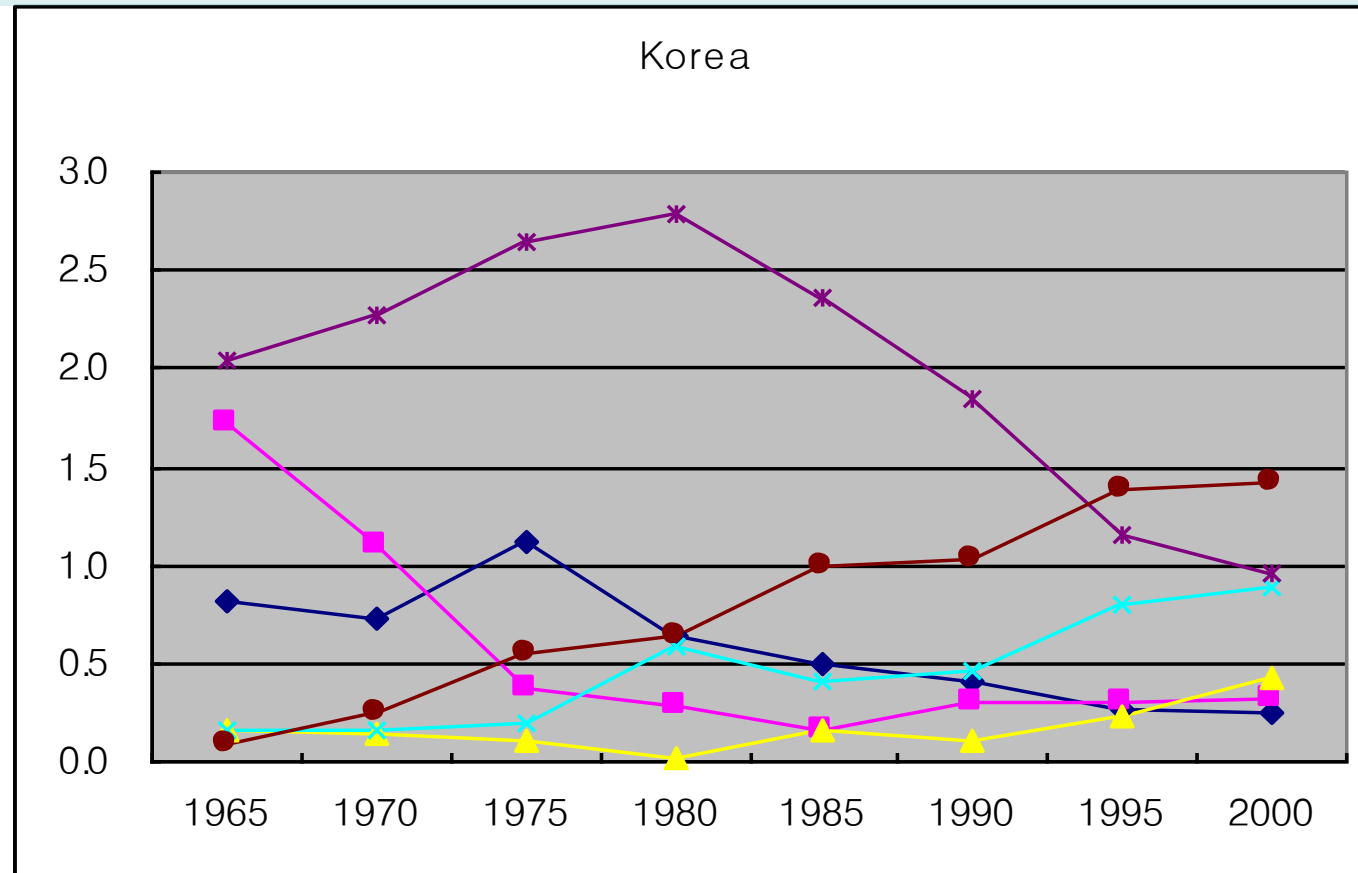
- Community Empowerment under “Diligence, Self-Help, and Cooperation”: Local Decision-Making on Community Projects and Voluntary Contributions
- Peer Inspiration: Learning from Other Villages with Similar Endowments Through Study Tours and Training Sessions (Basic, Self-Help, Self-Reliant)
- Performance-Based Support from the Government: Effective Scaling Up
 - In 1970, the government provided each of 33,000 villages with 335 bags of cement and let each village decide their best use for the good of the community.
 - In 1971, the government provided 500 bags of cement and 1 ton of reinforced steel to only those villages that had achieved good results in the first year.

◆ Linkage with Other Programs

- Agricultural Infrastructure: Multi-Purpose Dams and Rural Electrification
- Green Revolution and Silver Revolution: New Varieties and Greenhouses
- Dual Grain Price System: Procurement Price > Resale Price

Industrial Upgrading: Focus on Income-Elastic and Productivity-Increasing Sectors

Korea had a strong *and* increasing comparative advantage in light industries when it made its strategic gamble to promote heavy and chemical industries in 1973, after benchmarking advanced industrial nations with similar natural endowments as Korea's.



SITC 0, 1 (Food and Beverages), SITC 2, 4 (Crude Materials), SITC 3 (Mineral Fuels), SITC 5 (Chemicals), SITC 6, 8 (Manufactures), SITC 7 (Machinery and Equipment)

Heavy and Chemical Industry Drive: Increase Local Value-Added and Establish Defense Industry

	1972	1976	1981
GNP per capita	\$302	\$488	\$983
HCI Share in Manufacturing Value-Added	35.2%	41.8%	51.0%
HCI Share in Manufacturing Exports	27.0%	44.0%	60.5%

Targets: \$10 billion in exports and \$1,000 in per capita income by 1981

(million US dollars)

	Foreign Capital	Domestic Capital	Total	Percent Share
Iron and Steel	1,502	674	2,176	22.7
Non-Ferrous Metals	222	123	345	3.6
Machinery	1,049	1,137	2,186	22.8
Shipbuilding	416	352	768	8.0
Electronics	593	599	1,192	12.4
Chemicals	1,523	662	2,158	22.8
Sub-Total	5,305	3,547	8,852	92.3
Others	468	273	741	7.7
Total	5,773	3,820	9,593	100.0

Source: HCI Promotion Planning Board, cited in K. Kim (1988).

Instead of setting up armories or factories for specific weapons, Korea established dual-use industrial complexes, with a target production ratio of 70 percent civilian and 30 percent military in peacetime.

“Exportization of All Industries” and Heavy and Chemical Export Promotion



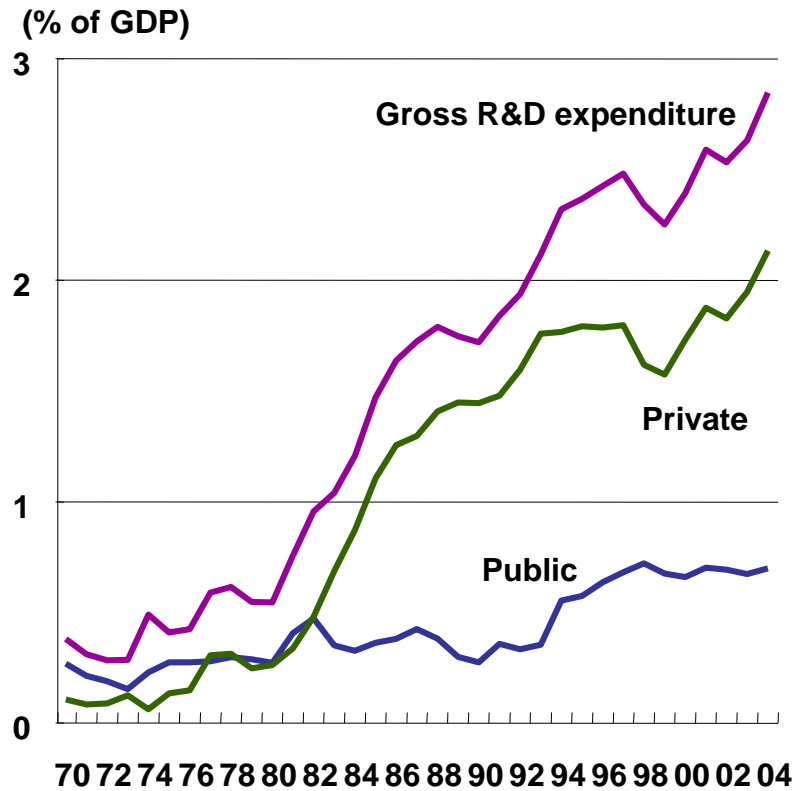
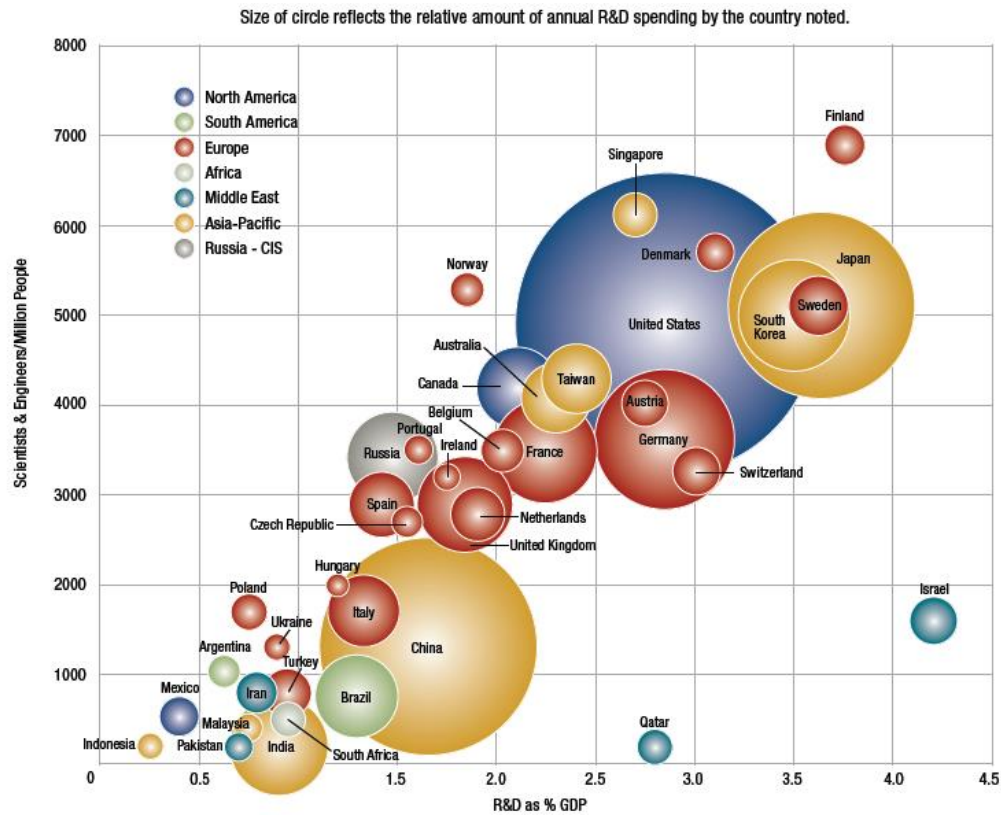
For Korea, export development-- for which the nation continuously has had to measure itself against global benchmarks-- has been the engine of growth and the organizing principle under which industrial upgrading, infrastructure development, and human resource development could be pursued. Korea promoted heavy and chemical industries with a view toward securing international competitiveness from the outset; they were not just for domestic demand.

“Scientification of All People”: Projected Demand and Supply of Technicians

(Unit: Thousands)

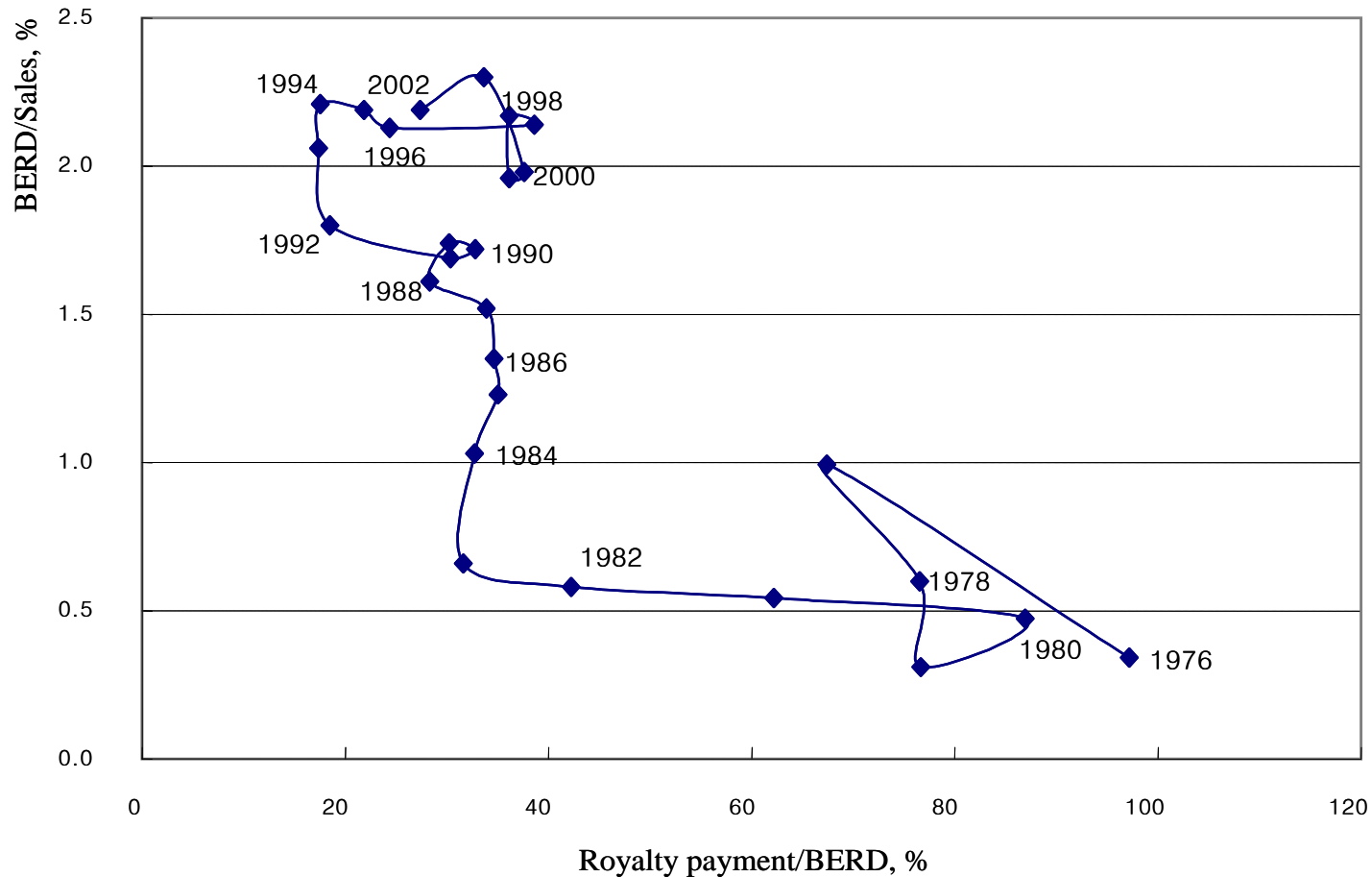
Category		Year	1977-81	1977	1978	1979	1980	1981
		Demand				1,179	1,280	1,412
Supply Needed	Total	843	158	147	161	179	198	
	1. High-Quality Technicians	280	49	48	54	61	68	
	2. Technicians	280	49	48	54	61	68	
	3. Basic Technicians	283	60	51	53	67	62	
Supply Method	1. High-Quality Technicians							
	Technical High Schools	259	46	52	52	53	53	
	Vocational Training	77	14	15	15	16	17	
	Sub-Total	336	63	67	67	69	70	
	2. Technicians							
	Vocational Training	365	59	54	72	79	81	
	3. Basic Technicians							
	On-the-Job Training	283						

Korea's R&D in Comparative and Historical Perspective



Exposed to global competition, private-sector companies came to realize that innovation was key to their prosperity and dramatically increased their R&D expenditures.

Business Expenditures on R&D: From Assimilation to Innovation



Source: Suh (2007), p.39.

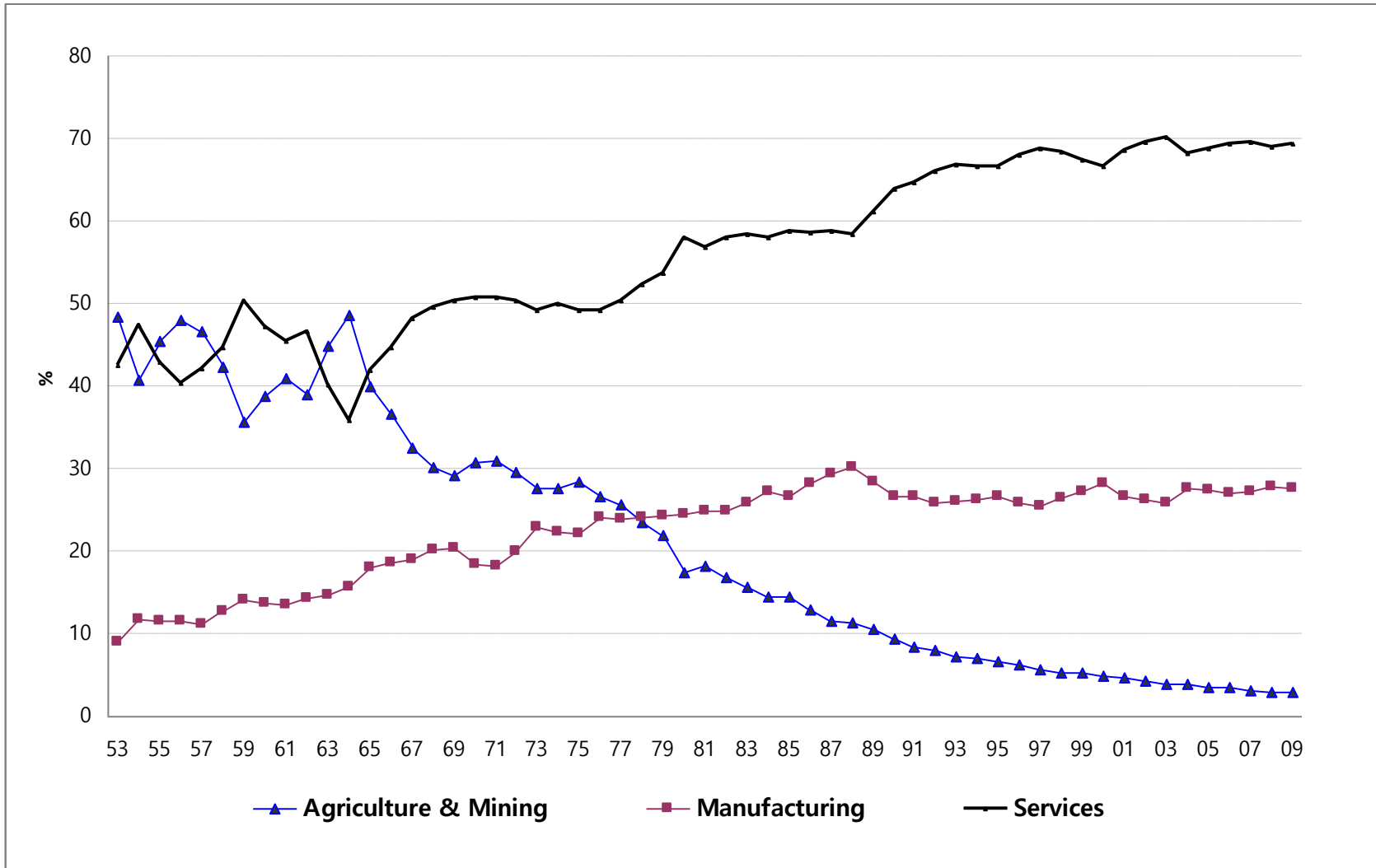
Not only did Korean firms increase BERD as a share of sales, but they also increasingly conducted their own R&D instead of just relying on technology licensing. As a result, royalty payment as a share of BERD tended to decrease over time.

Diversification into High Value-Added Areas: LG Story

- My father and I started a **cosmetic cream** factory in the late 1940s.
- At the time, not one company could supply us with **plastic caps** of adequate quality for cream jars, so we had to start a plastics business. Plastic caps alone were not sufficient to run the plastic molding plant, so we added **combs, toothbrushes, and soap boxes**.
- This plastics business also led us to manufacture **electric fan blades and telephone cases**, which in turn led us to manufacture **electrical and electronic products and telecommunications equipment**.
- The plastics business also took us into **oil refining**, which needed a **tanker shipping** company.
- The oil refining company alone was paying an insurance premium amounting to more than half the total revenue of the largest insurance company in Korea. Thus, an **insurance** company was started.
- This natural step-by-step evolution through related businesses resulted in the Lucky-Goldstar (LG) group as we see it today.

The chaebol and state-owned enterprises (SOEs) served as centers of local capacity development and external interaction. They were willing to pursue vertical integration and related diversification on their own, but usually worked in conjunction with government policy when they ventured into unrelated industries.

Korea's Structural Transformation: Sectoral Share of Nominal Value Added



Source: Bank of Korea, *National Account* (<http://ecos.bok.or.kr>).

Transformation of Korea's Top 10 Exports

	1960	1970	1980	1990	2000	2010
1	Iron Ore	Textiles	Textiles	Electronics	Semiconductors	Semiconductors
2	Tungsten Ore	Plywood	Electronics	Textiles	Computers	Ships
3	Raw Silk	Wigs	Iron and Steel Products	Footwear	Automobiles	Phones
4	Anthracite	Iron Ore	Footwear	Iron and Steel Products	Petroleum Products	Petroleum Products
5	Cuttlefish	Electronics	Ships	Ships	Ships	Automobiles
6	Live Fish	Fruits and Vegetables	Synthetic Fibers	Automobiles	Wireless Telecommunication Equipment	Liquid Crystal Devices
7	Natural Graphite	Footwear	Metal Products	Chemicals	Synthetic Resins	Auto Parts and Components
8	Plywood	Tobacco	Plywood	General Machines	Iron and Steel Products	Plastic Products
9	Rice	Iron and Steel Products	Fish	Plastic Products	Textiles	Org. & Inorg. Compounds
10	Bristles	Metal Products	Electrical Goods	Containers	Video Devices	Electronic Appliances

Reversal of Big Ideas: 1962 vs. 1982—what now?

<i>Area</i>	<i>Ideas prominent in 1962</i>	<i>Ideas prominent in 1982</i>
Government	Plays a central role; acts as the driving force behind development	Plays a central role, but acts as the main obstacle to development.
Accumulation	Is central to development process; coordination and scale problems require government involvement	Is central to development process; private sector investment is the key.
Trade and integration	Has no particular advantage beyond the import of capital goods and the purchase of necessary inputs	Exports bring dynamic advantages; import competition is necessary for disciplining domestic producers
Foreign capital	FDI is to be avoided, but government borrowing is acceptable, preferably from foreign sources	Government borrowing is to be avoided, but FDI is encouraged
Development assistance and the role of multilaterals ^a	Provide project-based lending of investable foreign exchange and resources to governments	Quick disbursing; policy-based lending to establish conditions for FDI and domestic investment.

a. Primarily the International Monetary Fund (IMF), the World Bank, and the Inter-American Development Bank (IDB).

Source: David L. Lindauer and Lant Pritchett (2002), “What’s the Big Idea? The Third Generation of Policies for Economic Growth,” *Economia* (Fall): 1-28, Table 2.

Korea's Position on Big Ideas

Area	Korea's Position
Government	Government can play a central role in addressing coordination and innovation challenges, but state capacity for competence and integrity cannot be assumed. The technical dimension of the problem is much easier to solve (e.g., making trains run on time) than the political dimension of the problem (e.g., making meritocracy credible through a transition from limited access order to open access order).
Accumulation	Accumulation of physical and human capacity requires solutions to coordination and innovation externalities through public-private interaction. Creating a good "investment climate" is not enough.
Trade	Exports can provide scale economies; imports can mitigate coordination problems; and both bring dynamic effects through learning and performance-based rewards in a competitive setting.
Foreign Capital	The choice of inbound foreign capital (grants, loans, FDI) affects the country's investment return-risk profile and, ultimately, ownership of the development process.
Development Assistance	Development assistance should be phased and structured in such a way to enable the receiving country to exit from aid.

Korea retained the ownership of its development and progressively built up its capacity to add value and manage risks even as it actively learned from, and engaged with, the outside world.