Joint Discovery and Upgrading of Comparative Advantage:

Lessons from Korea’s Development Experience

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Korea’s Journey from Poverty to Prosperity: “The Face of Hope”

13th Largest Economy (2007): G7 + Spain + BRICs + Korea

Per Capita GDP (current US$)

OECD Member

Trade Volume (billion current US$)

US$ 728 bn ('07)

US$ 20,240 ('07)

Seven 5-Year Economic Development Plans

Economic Crisis
## Comparative Growth Experience, 1960-2004

<table>
<thead>
<tr>
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<tbody>
<tr>
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<td>412</td>
<td>1,440</td>
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<tr>
<td>Mozambique</td>
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<td>Senegal</td>
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<td>Sri Lanka</td>
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Note: Brazil, Malaysia, Mozambique, Senegal and Thailand’s latter per capita GDP figure is for 2003.
Source: Penn World Table 6.2  (Variable: Real GDP Per Capita (Chain))
## Economic Growth by Region, 1960-1990

<table>
<thead>
<tr>
<th>Regions and Countries</th>
<th>Output</th>
<th>Labor</th>
<th>Physical Capital</th>
<th>Human Capital</th>
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<tr>
<td></td>
<td>GDP</td>
<td>GDP per Worker</td>
<td>Number of Workers</td>
<td>Total Physical Capital</td>
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<tr>
<td>East Asia</td>
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<td>3.27</td>
<td>0.85</td>
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<td>4.51</td>
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<td>Middle East</td>
<td>5.14</td>
<td>2.71</td>
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<td>6.43</td>
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<tr>
<td>South Asia</td>
<td>4.10</td>
<td>2.02</td>
<td>2.08</td>
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<td>Sub-Saharan Africa</td>
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<td>0.81</td>
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<td>3.64</td>
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<td>Developed Countries</td>
<td>3.56</td>
<td>2.38</td>
<td>1.17</td>
<td>4.62</td>
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<td>Malaysia</td>
<td>6.86</td>
<td>3.71</td>
<td>3.14</td>
<td>9.43</td>
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<td>Indonesia</td>
<td>5.92</td>
<td>3.74</td>
<td>2.18</td>
<td>7.91</td>
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<td>2.90</td>
<td>12.93</td>
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<td>Korea</td>
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<td>5.93</td>
<td>2.56</td>
<td>11.90</td>
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<td>Japan</td>
<td>6.17</td>
<td>5.03</td>
<td>1.14</td>
<td>9.35</td>
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</tbody>
</table>

Note: Regional averages are weighted by each country’s average GDP between 1960 and 1990.

Korea’s Exports, Imports, and Investment Relative to GDP

Bank of Korea, *National Account.*
Sectoral Composition of Korea’s GDP

Source: Bank of Korea, National Account.
Competing Explanations

◆ Neoclassical vs. Statist Perspectives
  ● Neoclassical Perspectives: Focus on Market-Oriented Reform
  ● Statist Perspectives: Focus on Industrial Policy

◆ “Long and Perhaps Not Entirely Fruitful Debates”
  ● Was Korea outward oriented or protectionist? Export promotion policy suggested outward oriented, while import protection suggested protectionist.
  ● Was Korea government led or market friendly? Examination of the mechanics of government direction of the economy, government allocation of credit, and promotion of specific industries suggested government led; the use of the private sector (versus parastatal firms or government agencies) as the instrument of investment and the role of business councils suggested market friendly.
  ● Was Korea’s growth Big Push or private sector and productivity led? This issue sparked generations of debate about Korea’s total factor productivity (TFP)—whether it was low, about that of the OECD countries, or fast….
  ● These debates were often less about what Korea actually did than about what label to apply to Korea and then sell to other nations eager to emulate Korea’s success (emphasis added).

Conceptual Framework: Development Challenge

**Development: Centrality of Innovation and Coordination Externalities**
- Development is conceptualized as the result of synergies between enhanced human capital and new knowledge, involving complementary investments in physical and social capital. Innovation and coordination externalities are central.
- The fundamental policy challenge is for the state to work with non-state actors and markets to address innovation and coordination externalities while minimizing negative government externalities.
- A solution to this challenge should include an incentive system that uses markets and institutions to provide rewards based on individuals’ contributions to society in a competitive setting. Multiple solutions are possible.

**Innovation**
- Public Good: Non-Excludability and Non-Rivalry
- Evolving Organism: Autonomy, Diversity, and Experiment

**Coordination**
- Transaction Costs and Complementarities
- Capacity of the State, Non-State Actors, and Markets

**Performance-Based Reward System**
- Equality of Opportunity
- Protection of Property Rights
Respective Roles of the State, Non-State Actors, and Markets

- The development of markets reduces at least some of innovation and coordination externalities over time and facilitates specialization as well, and the importance of autonomy, diversity, and experiment in sustaining growth also places normative restrictions on the extent and mode of state intervention.
- These restrictions should be shaped by three factors: 1) the development of markets to coordinate productive activities; 2) the level of state capacity (competence and integrity) to address externalities; and 3) the availability of non-state actors (e.g., business groups) to internalize externalities.

Dynamics and Transition

- As the capacity of the state, non-state actors, and markets changes over time, their respective roles and the normative restrictions on the extent and mode of state intervention should also change.
- However, path dependence, involving historical and political economy factors, may affect this dynamics and create a problem of transition.
National-Level Coordination:
Government, Business Groups, and Markets
Firm- or Group-Level Coordination: Internal Hierarchy and External Market
Alternative Views on Development

◆ **Endowment View**
  - Economies with appropriate endowments (cultural values, institutions, “investment climate”) grow. Those lacking such endowments do not.
    - Examples: Protestant ethic, common law, and colonial legacies
  - How precisely can “the essential endowments” be defined? How easily can these endowments be developed or imported (cf. functional equivalent to the Protestant ethic: form vs. function)

◆ **Evolutionary View**
  - Initiating growth does not require state-of-the-art institutions. The challenge is not so much getting growth to start by implementing big-bang reforms, as to sustain it by devising search networks to detect and mitigate constraints as they emerge.
  - The cumulative reinforcement of successful experiments through the feedback mechanism of performance-based rewards can lead to dramatic changes over time.
  - While a regime that facilitates resource mobilization can be effective in a catch-up phase of development, an institutional platform that fosters autonomy, diversity, and experiment is critical to sustained productivity-led growth.
Three Challenges for Development

◆ **Performance-Based Reward System (Insecurity / Expropriation)**
  - Solution: Responsive, Effective, and Accountable Government

◆ **Coordination (Uncertainty / Transaction Costs)**
  - Problem: Identification of Demand and Coordination of Supply
  - Solution: “Big Push” (Complementing Market Mechanism)

◆ **Innovation (Upgrading / Appropriability)**
  - Problem: Provision of Knowledge-Related Public Goods (Creation, Dissemination, and Utilization)
  - Solution: Public-Private Collaboration and Search Networks (Collective Problem-Solving) and Public Support for Education, R&D, and Information Infrastructure (cf. World Bank’s Four Pillars of the Knowledge Economy)
Korea’s Response to Three Challenges

◆ Performance-Based Reward System
  ● Not State-of-the-Art, But Serviceable Institutions (Authoritarian but Responsive)
  ● Strengthened to Deal with State-Investor and Investor-Investor Problems after Democratization

◆ Coordination
  ▶ Outward-Oriented Big-Push Partnership
    • Government: National-Level Coordination (Indicative Planning and Monitoring)
    • Business Groups: Group-Level Coordination (Entrepreneurship)
    • Reduction of Domestic Investment Risks through Public-Private Consultation
    • Reduction of Foreign Credit Risks (e.g., Government Guarantees on Repayment)
    • International Trade as Investment Coordinating Mechanism
    • Containment of Corruption: Meritocracy, Performance-Based Reward, and Monitoring

◆ Industrialization: Downstream-to-Upstream Approach
  • Timing: Projected Domestic and International Demand and Technical Capability
  • Scale: Minimum Efficiency Scale and Exportability
  • Industrial Organization: From Monopoly Regulation to Competition

◆ Innovation
  ▶ Learning by Exporting—Change in Mindset
  ▶ Conscious Efforts to Develop Human Capital in Conjunction with Industrial and Trade Policy (Complementarities): Upgrading Comparative Advantage
Part-02  Initial Conditions
The suspiciousness and indolent conceit, and the servility to his betters, which characterize the home-bred Korean have very generally given place to an independence and manliness of manner rather British than Asiatic.... There are many chances for making money, and there is neither mandarin nor yang-ban to squeeze it out of the people when made, and comforts and a certain appearance of wealth no longer attract the rapacious attentions of officials, but are rather a credit to a man than a source of insecurity....

In Korea I had learned to think of Koreans as the dregs of a race, and to regard their condition as hopeless, but in Primorsk I saw reason for considerably modifying my opinion. It must be borne in mind that these people, who have raised themselves into a prosperous farming class... were not exceptionally industrious and thrifty men. They were mostly starving folk who fled from famine, and their prosperity and general demeanor give me the hope that their countrymen in Korea, if they ever have an honest administration and protection for their earnings, may slowly develop into men.

-- Isabella Bird Bishop(1897), Korea and Her Neighbours, after visiting Korea and a Korean settlement in Primorsk
Initial Conditions: Aid-Dependent Near-Autarky

◆ Post-Liberation Challenges

◆ Korea as a “Transition Economy” in 1945
  - Assign property rights / Privatize (re: industrial properties formerly owned by the Japanese during the colonial rule (1910-1945)).
  - Establish trade links.
  - Attract foreign capital and technology.

◆ National Division and War (1950-1953)

◆ Policy Responses

◆ Rent-Seeking and Crony Capitalism
◆ Half-Hearted Import-Substituting Industrialization
◆ Overvaluation of the Korean Currency: Aid Maximization

  – Foreign aid financed approximately 70 percent of total imports between 1954 and 1961. It was equivalent to nearly 8 percent of GNP. Korea was regarded as “a bottomless pit.”
Children Drinking Aid Milk (Daegu, 1954)
Resource Endowment and Institutional Infrastructure: Historical Hindsight SWOT Analysis

- **Market Economy with Structural Distortions**
  - Birth and Growth of Businesses
  - Entry Barriers and Import Restrictions

- **Lack of Capital**
  - Low Domestic Savings
  - Limited Access to FDI and Foreign Loans

- **Egalitarian and Cohesive Society: Implications for HRD**
  - Cultural and Ethnic Homogeneity
  - Land Reform and War

- **Abundance of Cheap Educated Labor**
  - High Level of Education Relative to Income: Equivalent to Education Level in Countries with 2 or 3 Times Korea’s Per-Capita Income
    - Primary Enrollment Rate: Under 30% (pre-1945) → 95% (1959)
    - High-School Enrollment Rate: 3% (1951) → 20% (1959)

- **Geopolitical Uncertainty**
  - Communist Threat
  - Korea as “Too Important to Fail” during the Cold War?

- **Rapidly Expanding and Integrating Non-Communist Market**
## Origin and Evolution of the Chaebol

<table>
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<tr>
<th>Decade</th>
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<th>Unrelated Diversification</th>
<th>Vertical Integration</th>
<th>Subtotal</th>
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<td>1940s</td>
<td>1 (33.33)</td>
<td>2 (66.67)</td>
<td>-</td>
<td>3</td>
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<tr>
<td>1950s</td>
<td>8 (23.53)</td>
<td>23 (67.65)</td>
<td>3 (8.82)</td>
<td>34</td>
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<tr>
<td>1960s</td>
<td>21 (23.60)</td>
<td>44 (49.44)</td>
<td>24 (26.97)</td>
<td>89</td>
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<td>1970s</td>
<td>83 (36.09)</td>
<td>105 (45.65)</td>
<td>42 (18.26)</td>
<td>230</td>
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<td>1980s</td>
<td>106 (43.98)</td>
<td>100 (41.49)</td>
<td>35 (14.52)</td>
<td>241</td>
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<td>1990s</td>
<td>175 (51.78)</td>
<td>117 (34.62)</td>
<td>46 (13.61)</td>
<td>338</td>
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<tr>
<td>Total</td>
<td>394 (42.14)</td>
<td>391 (41.82)</td>
<td>150 (16.04)</td>
<td>935</td>
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</table>

Source: Lim (2003), based on the individual corporate histories of the largest chaebol as of 2000

Note: The numbers in parentheses are percentage shares for the given decade.
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<td>Samho</td>
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<td>Samsung</td>
<td>Daewoo</td>
<td>Samsung</td>
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<td>LG</td>
<td>Hyundai</td>
<td>Daewoo</td>
<td>Samsung</td>
<td>Daewoo</td>
<td>LG</td>
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<td>4</td>
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<td>Daehan</td>
<td>Hanjin</td>
<td>LG</td>
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<td>Hanjin</td>
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<td>9</td>
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<td>Panbon</td>
<td>Dong Ah Construction</td>
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<td>Hanil Syn. Textile</td>
<td>Daelim</td>
<td>Lotte</td>
<td>Lotte</td>
<td>Ssangyong</td>
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</tbody>
</table>

Universal primary education greatly increased the number of enrolled students at all levels, but did not raise per capita income until complementary developments in industrial and trade policy took place.
Despite advances in HRD, Korea had an unemployment rate of 8 percent in the early 1960s, with significant underemployment in rural areas. Investing in people by itself was not enough. Korea had to create jobs through trade and industrial development.
Part-03 Korea’s Big Push: Export Promotion, Industrial Upgrading, and Human Resource Development
Transition to State-Led Outward-Oriented Economic Development

- **Changed Political Economy**
  - 1960 Student Revolution: Blow to Crony Capitalism
  - 1961 Military Coup: Focus on Economic Modernization (Responding to the Threatening Presence of North Korea, Mobilizing Nationalist Sentiments)

- **Export Promotion and Import-Substituting Industrialization**
  - Currency Devaluation (1961)
  - L/C-Based Export Financing (1961): Fund Available without Collateral
  - KOTRA (1962): Not Embedded in Embassies (Focus on SMEs)
  - 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

- **Nationalistic Response to Secure Independence**
  - Export promotion as a means of obtaining hard currency, pursuing industrialization, and securing economic and political independence
Birth of Korea’s Big-Push Partnership

- **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, Monitoring, and Feedback
  - Nationalization of Commercial Banks

- **Adjustment of Macroeconomic Variables**
  - Devaluation of the Korean Currency (KRW/USD: 130 → 255 in 1964)
  - Adjustment of the Interest Rates (15% → 30% in 1965)

- **“Distortion” of Microeconomic Incentives**
  - Export Promotion: Support Contingent on Performance in Competitive Markets
  - 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 the owner-managers of these Korean firms, but subsequent developments in the 1970s blurred this distinction.
Financing for Development: Investment and Savings in Korea, 1962-81

<table>
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<td>Annual GNP Growth</td>
<td>7.9</td>
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<td>10.2</td>
<td>5.7</td>
<td>8.4</td>
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<tr>
<td>Investment / GNP</td>
<td>16.3</td>
<td>25.4</td>
<td>29.0</td>
<td>31.0</td>
<td>25.4</td>
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<tr>
<td>Domestic Savings / GNP</td>
<td>8.0</td>
<td>15.1</td>
<td>20.4</td>
<td>25.5</td>
<td>17.3</td>
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<td>Foreign Savings / GNP</td>
<td>8.6</td>
<td>10.0</td>
<td>6.7</td>
<td>5.6</td>
<td>7.7</td>
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<tr>
<td>Foreign Savings / Investment</td>
<td>52.8</td>
<td>39.4</td>
<td>23.1</td>
<td>18.1</td>
<td>30.4</td>
</tr>
</tbody>
</table>

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 international-domestic interest rate differential and be the residual claimant on its investments. Foreign direct investment played a relatively minor role in Korea.
Planning and Implementation: Multi-Year Plan, Monthly Meeting, and Ad Hoc Meeting

- **Multi-Year Plan: Long-Term Vision**
  - A multi-year plan provides a blueprint and helps people to understand where the government wants to take the nation for the long term.
  - To be effective, a multi-year plan must establish priorities and have flexibility to adapt to changing conditions.

- **Monthly Meeting: (Mundane Art of) Implementation**
  - A monthly meeting between the government and private sector provides an opportunity to secure sustained attention from top political leadership, monitor progress on the long-term vision, and identify emerging problems and devise solutions together.

- **Ad Hoc Meeting: Much Ado About Nothing**
  - An ad hoc meeting between the government and private sector often degenerates into a one-shot event where the government pretends to listen to business leaders issuing a long list of “help wanted” items, but does nothing afterwards.
## Frequency of Monthly Meetings

<table>
<thead>
<tr>
<th>Year</th>
<th>Economic Trends Meetings</th>
<th>Export Promotion Meetings</th>
<th>Total</th>
</tr>
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<td>11</td>
<td>5</td>
<td>16</td>
</tr>
<tr>
<td>1966</td>
<td>10</td>
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<td>8</td>
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<td>18</td>
</tr>
<tr>
<td>1977</td>
<td>8</td>
<td>10</td>
<td>18</td>
</tr>
<tr>
<td>1978</td>
<td>7</td>
<td>9</td>
<td>16</td>
</tr>
<tr>
<td>1979</td>
<td>4</td>
<td>6</td>
<td>10</td>
</tr>
</tbody>
</table>
Monthly Export Promotion Meetings

- **Period:** 1963-1979 (Total of 177 Meetings)

- **Membership**
  - President (since Jan. 1966)
  - Prime Minister, Deputy Prime Minister, Key Ministers
  - Bank of Korea, KOTRA, KorCham, Korea Int’l Trade Association
  - Federation of Korean Industrialists, Co-Ops

- **Agenda**
  - Comprehensive Plan for Export Promotion (Annual)
  - Progress Report by the Minister of Commerce and Industry
  - Briefing on Overseas Markets by the Minister of Foreign Affairs
  - Identification of Bottlenecks and Constraints
  - Policy Recommendations and Responses

- **Institutional Innovations**
  - Export Insurance
  - General Trading Companies
  - Regulatory Reform
  - Export Promotion Special Account Fund
Monthly Export Promotion Meetings
Traditionally at the bottom of the social hierarchy, merchants were now presented as patriotic entrepreneurs contributing to the nation’s modernization.
Beyond Export Promotion: Priorities of the Second Five-Year Economic Development Plan (1967-71)

(1) To achieve **self-sufficiency of food, forestation, and maritime development**
(2) To lay the foundation of industrialization by promoting **chemical, steel and machinery industries**, and to double the industrial production
(3) To achieve **an export target of 700 million dollars** and improve the balance of payments through **import substitution** (i.e., filling the missing links in the domestic value chain, up the quality ladder)
(4) To increase **employment**, to suppress population growth through **birth control**
(5) To achieve considerable increases in people’s income, in particular **farmers’ income through farming diversification**
(6) To enhance technical level and productivity by promoting **science, technology and management** and **cultivating human resources**
Saemaul Undong (New Community Movement) and Rural Development

◆ Background
  ● Widening Urban-Rural Income Gap
  ● Failure of Previous Rural Development Programs: “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
  ● 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
  ● Green Revolution and White Revolution: New Varieties and Greenhouses
  ● Dual Grain Price System
Industrial Upgrading and Domestic Linkages: Outward Orientation Is Not Enough

- The main policy challenge for small, middle-income countries is not only to attract new investment in high-productivity sectors but also to increase linkages between the new sectors and the rest of the economy so as to maximize positive spillovers.

  - In the Dominican Republic, FTZ value added was remarkably stable at around 30% from 1980 until the mid-1990s, and then increased substantially from 31% in 1996 to 39% in 2002.
  - In Costa Rica, FTZ value added has amounted to less than 25% for 10 of the 17 years during 1986-2002.
  - By comparison, FTZ value added in Masan, Korea, was 52% already in 1979, up from 28% in 1971.

- Coordinated and continuous investment in infrastructure and human resource development is key to success.

- Free Economic Zones (FEZs) are a second-best policy, but they may serve as a stepping stone to general economic reform if integrated into the overall national development plan.

- The insistence on achieving better market access to the US and other developed countries through free trade agreements is unlikely to move them in that direction; instead it may limit the policy autonomy to expand the level of productivity of domestic firms.
Revealed Comparative Advantage: CA-Conforming or CA-Defying or Something More?

- **Dominican Republic**
  - 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)

- **Korea**

- **Thailand**

- **Japan**

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)
The Dominican Republic had a large and increasing comparative advantage in sugar in the early 1970s, when its per capita GDP was on par with Korea’s. Its garment exports began to take off in the 1980s thanks to free trade zones, but the domestic value-added was limited.
Korea had a strong \textit{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.
Thailand had a strong comparative advantage in rice and other raw materials in the early 1970s. It subsequently developed the garment and electronics industries, taking part in the regional division of labor in Asia.
Japan had a significant but declining comparative advantage in light industries in the early 1970s. It upgraded its comparative advantage in sophisticated industries with high value-added.
Heavy and Chemical Industry Drive

Incentives
- Tax
- Financing
- Interest Rate
- Tariff
- Trade Protection
- Price Control

Government Expenditures
- Technology Development
- Research & Analysis
- Education
- Investment
- Manpower Training
- Export Promotion
- Resource Policy

Government

Export Target

Plan

Private-Sector Decision-Making (re: Investment, Production, Sales)

Indicative Plan

Multi-Stage Plan
- Inter-Sectoral Balance

HCI Plan
- Export Plan
- Investment Plan
  - Choice of Optimal Technology
  - Construction of Ind. Complexes
  - Investment Timing
  - Investment Scale

Heavy Industries

Chemical Industries

Energy Sector

Investment
- Energy
- Capital Goods
  - SOIC
    - Transportation
    - Water

Investment Requirement
- SOC Investment Plan
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.
Question circa 1970: “To raise the share of the domestic value-added in exports and stay ahead of late-developing countries, Korea must upgrade its industries, but do the Korean people have the right national character to succeed in sophisticated industries?”

Policymakers had initial doubts, but these young students showed the answer was positive.
Training Skilled Workers and Engineers

- **Kum-Oh National Technical High School**
  - Top middle-school graduates from poor families were actively recruited and provided with a full scholarship.
  - State-of-the-art equipment for practical training was imported from Japan, and Japanese teachers with technical know-how were recruited between 1972-76.

- **Technical Licensing and Certification System**
  - A system modeled after Germany was established.

---

Korea excelled in International Vocational Training Competition (Vocational Olympics), placing first nine times in a row during 1977-1991.
Gumi National Industrial Complex

- Established in 1969 to promote the electronics industry in Korea (not an FEZ)
- Inland transportation center close to an international airport, with ready access to major expressways and railroads
- **Coordinated and continuous investment** in infrastructure and human resource development (Kum-Oh Technical High School and National Institute of Technology)
- 2008 Figures: 1,751 Companies (Samsung, LG, and other local companies as well as major companies from 11 foreign countries), 82,912 Employees, $34.2 bil. of Exports

<table>
<thead>
<tr>
<th></th>
<th>1st Complex</th>
<th>2nd Complex</th>
<th>3rd Complex</th>
<th>4th Complex</th>
<th>5th Complex</th>
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</thead>
<tbody>
<tr>
<td>Area (thou. sq. m)</td>
<td>10,420</td>
<td>2,275</td>
<td>5,086</td>
<td>6,785</td>
<td>9,920</td>
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<tr>
<td>Number of Companies</td>
<td>574</td>
<td>83</td>
<td>227</td>
<td>263</td>
<td>500</td>
</tr>
</tbody>
</table>
Masan Export Processing Zone

- Established in 1970 to promote foreign direct investment (FDI) and exports
- Export Processing Zone Authority given wide powers to approve foreign investment and supervise back-up services for enterprises
- Resident companies **exempted from the application of various regulations and provided with tax incentives** (cf. tariff exemption on imported components and machinery extended to the rest of the country through the duty drawback system)
- Resident companies allowed to outsource processing and establish **linkages with local companies outside the Export Processing Zone** (since 1974).

<table>
<thead>
<tr>
<th>Year</th>
<th>Investment ($ mil., stock)</th>
<th>FDI Share (%)</th>
<th>Employment</th>
<th>No. Companies</th>
<th>Exports ($ mil.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1971</td>
<td>5.3</td>
<td>93</td>
<td>1,248</td>
<td>22</td>
<td>1</td>
</tr>
<tr>
<td>1973</td>
<td>82.8</td>
<td>95</td>
<td>21,240</td>
<td>115</td>
<td>70</td>
</tr>
<tr>
<td>1980</td>
<td>112.9</td>
<td>83</td>
<td>28,532</td>
<td>88</td>
<td>628</td>
</tr>
<tr>
<td>1985</td>
<td>125.9</td>
<td>77</td>
<td>28,983</td>
<td>79</td>
<td>809</td>
</tr>
<tr>
<td>1990</td>
<td>215.8</td>
<td>84</td>
<td>19,616</td>
<td>72</td>
<td>1,405</td>
</tr>
<tr>
<td>1995</td>
<td>235.3</td>
<td>77</td>
<td>14,736</td>
<td>73</td>
<td>2,401</td>
</tr>
<tr>
<td>2000</td>
<td>251.4</td>
<td>77</td>
<td>14,415</td>
<td>78</td>
<td>4,442</td>
</tr>
</tbody>
</table>
Expansion of Export Destinations and Products

- Number of export partners
- Number of commodities (among 1018 product group in SITC 4 dig)


Legend:
- Export destination
- Export products
## Korea’s Top 10 Exports: Evidence on Industrial Upgrading

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Iron Ore</td>
<td>Textiles</td>
<td>Textiles</td>
<td>Electronics</td>
<td>Semiconductors</td>
</tr>
<tr>
<td>2</td>
<td>Tungsten Ore</td>
<td>Plywood</td>
<td>Electronics</td>
<td>Textiles</td>
<td>Computers</td>
</tr>
<tr>
<td>3</td>
<td>Raw Silk</td>
<td>Wigs</td>
<td>Iron and Steel Products</td>
<td>Footwear</td>
<td>Automobiles</td>
</tr>
<tr>
<td>4</td>
<td>Anthracite</td>
<td>Iron Ore</td>
<td>Footwear</td>
<td>Iron and Steel Products</td>
<td>Petrochemical Products</td>
</tr>
<tr>
<td>5</td>
<td>Cuttlefish</td>
<td>Electronics</td>
<td>Ships</td>
<td>Ships</td>
<td>Ships</td>
</tr>
<tr>
<td>6</td>
<td>Live Fish</td>
<td>Fruits and Vegetables</td>
<td>Synthetic Fibers</td>
<td>Automobiles</td>
<td>Wireless Telecommunication Equipment</td>
</tr>
<tr>
<td>7</td>
<td>Natural Graphite</td>
<td>Footwear</td>
<td>Metal Products</td>
<td>Chemicals</td>
<td>Iron and Steel Products</td>
</tr>
<tr>
<td>8</td>
<td>Plywood</td>
<td>Tobacco</td>
<td>Plywood</td>
<td>General Machines</td>
<td>Textile Products</td>
</tr>
<tr>
<td>9</td>
<td>Rice</td>
<td>Iron and Steel Products</td>
<td>Fish</td>
<td>Plastic Products</td>
<td>Textile Fabrics</td>
</tr>
<tr>
<td>10</td>
<td>Bristles</td>
<td>Metal Products</td>
<td>Electrical Goods</td>
<td>Containers</td>
<td>Electronics Home Appliances</td>
</tr>
</tbody>
</table>
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.
Exposed to global competition, private-sector companies came to realize that innovation was key to their prosperity and dramatically increased their R&D expenditures.
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.
Korea’s transition toward a knowledge economy was intimately linked to export promotion, industrial upgrading, and human resource development, and institution-building was largely complete by the end of the 1980s.

<table>
<thead>
<tr>
<th>Development Stage</th>
<th>Industrial Policy</th>
<th>S&amp;T Policy</th>
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</thead>
<tbody>
<tr>
<td>1960s</td>
<td>Factor-Driven</td>
<td>- MOST/KIST</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- S&amp;T</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Promotion Act</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Five-Year Economic Plan Including S&amp;T</td>
</tr>
<tr>
<td>1970s</td>
<td>Investment-Driven</td>
<td>- Government Research Institutes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Technical and Vocation Schools</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- R&amp;D Promotion Act</td>
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<tr>
<td></td>
<td></td>
<td>- Daeduck Science Town</td>
</tr>
<tr>
<td>1980s</td>
<td></td>
<td>- National R&amp;D Plan</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Private Sector Initiatives in R&amp;D</td>
</tr>
<tr>
<td>1990s</td>
<td>Innovation-Driven</td>
<td>- Informatization</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- E-Government</td>
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<tr>
<td></td>
<td></td>
<td>- GRI Restructuring</td>
</tr>
<tr>
<td>2000s</td>
<td></td>
<td>- U-I-G Linkages</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Universities’ Leading Role</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Efficient NIS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- RIS and Innovation Clusters</td>
</tr>
</tbody>
</table>
Problem of Transition from a Developmental State to a Market Economy: How to end the Big-Push Partnership
- Government Control of Investment (Overall Cap and Sectoral Entry Restrictions)
- Government Protection Against Large Bankruptcies, Systematic Underestimation of Default Risks, Potential for Excessive Risk-Taking (Moral Hazard)
- Credible Signal for a Regime Change: How to end “Too Big to Fail”

Liberalization and Democratization
- Entry Barriers vs. Exit Barriers
- Money Politics vs. Civil Society
- Labor Relations: Increased Labor Rights and Social Security in Exchange for Increased Labor Market Flexibility?

Explosive Combination: De-Control Without De-Protection
- Weakening of Government Control
- Continued Expectations for Government Protection Against Large Bankruptcies
Korea had three major debt crises: in the early 1970s (3 August 1972 moratorium on curb loans), early 1980s (aftermath of the HCI drive), and at the end of 1997 (“the IMF crisis”). Asymmetric liberalization and financial globalization proved a lethal combination in 1997. Corporate investment behavior changed dramatically in the wake of the 1997 crisis.
External Debt and International Reserves

An import cover of three months, the old rule of thumb for the appropriate level of international reserves, proved woefully inadequate in the age of financial globalization. The 1997 crisis made Korea become aware of the fundamental asymmetry between reserve-currency and non-reserve-currency countries and led Korea to accumulate foreign reserves and insure itself against sudden capital flow reversals.
Korea recovered from the 1997 crisis by making swift (and painful) macroeconomic adjustments. While compressing domestic demand, Korea used its robust industrial base to increase its exports. A small but consistent current-account surplus has helped Korea, a non-reserve currency country, to insure itself against capital flow reversals.
Part-04  Lessons from Korea’s Experience
Lessons from Korea’s Experience

- **Compelling Vision and Leadership: Rapid, Shared Growth**
  - Vision that Imparts a Shared Sense of Purpose
  - Broad-Based Growth: Beyond Enclaves and Dual Economy
  - Appeal to Nationalism, Legitimation of Political Power Through Economic Modernization (after 1960 and 1961), Inter-Korean Competition
  - Sustained Personal Attention from Top Leadership: Combination of Multi-Year Plans and Monthly Meetings

- **Evolutionary Approach: Pragmatism and Feedback**
  - No Ready-Made Model to be Taken off the Textbook: “Big Push” / Import-Substituting Industrialization, Taiwan’s Export-Led Industrialization, Japan’s Spillover Industry Promotion
  - Indicative Planning: No Use for Sophisticated, Rigid Plans Without Correct Information and Incentives
  - “We can make mistakes as long as we can correct mistakes. We can get feedback from the global market.”
Lessons from Korea’s Experience

- **Big-Push Partnership: Information and Risk Sharing**
  - Information, Incentive, and Decision-Making Shared by the Government and the Private Sector
  - Controlling Corruption and Rent-Seeking
  - Developmental State: Autonomy from Particularistic Interests and Responsiveness to Popular Pressure
  - Problem of Transition: Danger of De-Control without De-Protection

- **Export Orientation: Market Test for Government Policy and Corporate Performance**
  - Less Prone to Political Influence and Manipulation: Reward Based on Performance in a Competitive Setting
  - Exploiting Scale Economies and Overcoming the Limits of Domestic Market
  - Learning by Exporting: Upgrading Mechanism
Lessons from Korea’s Experience

◆ **Conventional Industrial Policy**
  - Promote upstream industries with large spillovers (“Big Push” through coordinated domestic industrialization).
  - Go top-down. Disregard feedback.
  - Problem: Insufficient Demand, Suboptimal-Scale Plants, Higher Costs, Monumental Projects

◆ **Korean Approach: Integrated Engineering Approach**
  - Go from downstream to upstream. Start with what you have. Exploit comparative advantage (“Big Push” through trade). Wait until domestic and export demand becomes large enough to justify the construction of optimal-scale plants. Insist on international competitiveness from the outset.
  - Accumulate skills. Make a transition from imitation to innovation.
  - Set up public-private search networks to address emerging problems
Successful government intervention requires extensive public-private consultation to share information and incentive mechanism to control corruption.

- Establish correct price signals (e.g., exchange rate) to allow firms to discover promising areas.
- Set up various information-sharing mechanisms (e.g., regular public-private consultation meetings, export idea bank, etc.).
- Base rewards on performance in competitive global markets so as to minimize the potential for corruption.

Selective intervention should not automatically focus on a few “fancy” or “monumental” projects, but rather carefully consider the nation’s dynamic comparative advantage and coordinate investment and HRD.

- Provide enabling public infrastructure such as electricity and IT.
- Provide support for the provision of knowledge-related public goods.
- Move into higher value-added areas along the value chain by making complementary investments in human capital and infrastructure.
- Use limited resources to create centers of excellence and gradually improve the overall skill level of the workforce.
Epilogue on Export-Oriented Industrialization

• Export promotion was a critical component of Korea's strategy to secure economic and political independence.

• For Korea, export development— for which the nation has continuously 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.

• Trade helped Korea to discover its comparative advantage and alleviate coordination failures; overcome the limits of its small domestic market and exploit scale economies; learn from best practice around the world and upgrade its economy; and run a market test for its government policies as well as corporate strategies and devise performance-based reward schemes.

• Close consultation between the government and the private sector to discover and upgrade Korea's comparative advantage was essential to Korea’s sustained development.