



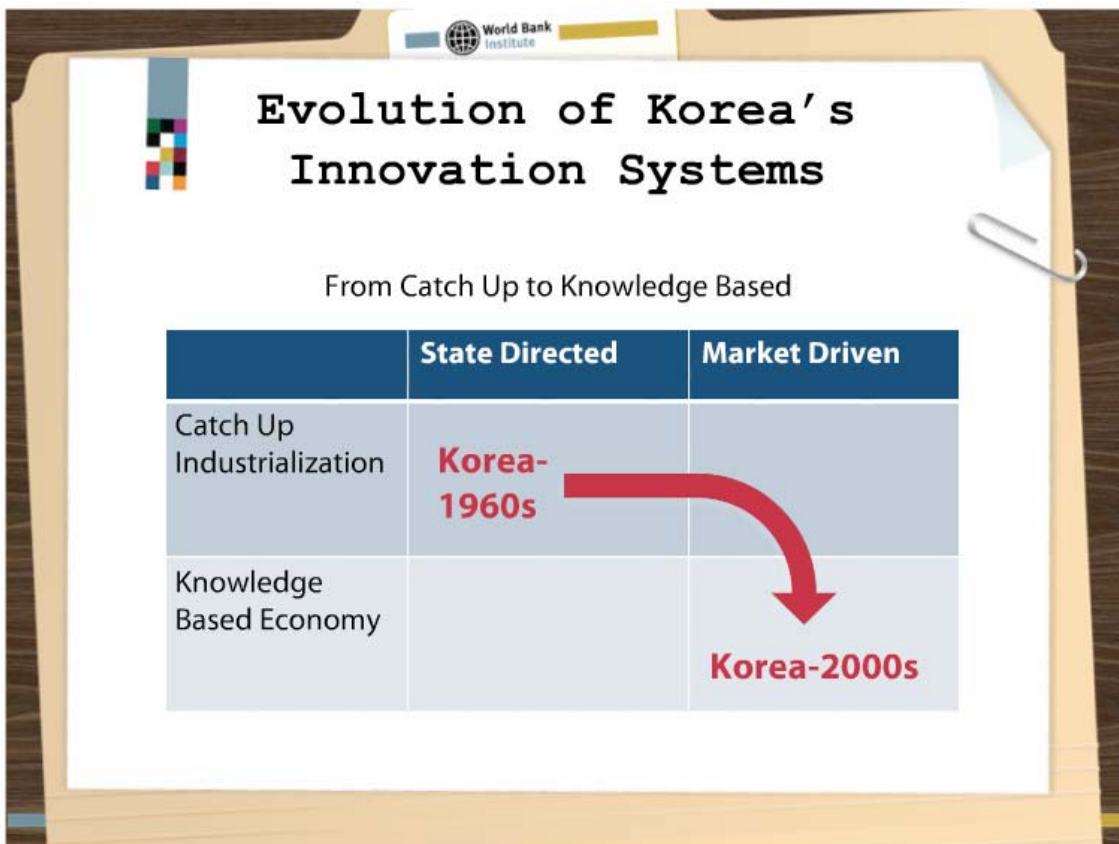
Introduction to Innovation Policy for Developing countries

Module 02: Case Study

Evolution of Korea's Innovation Policies



Screen 2

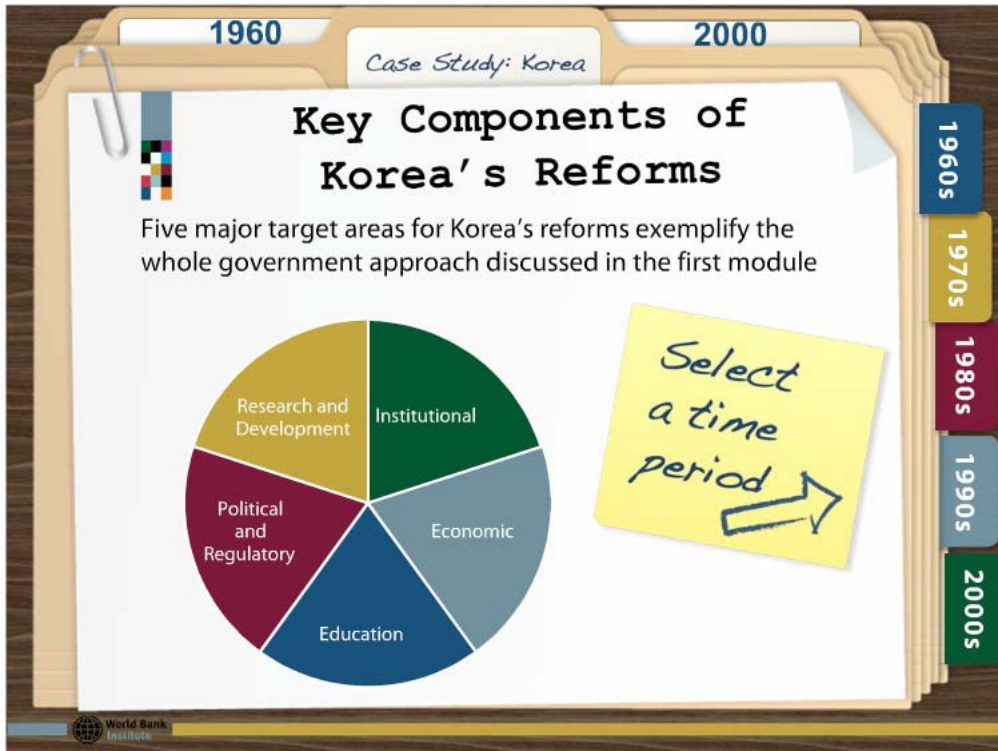


Korea's development process can be generally categorized as a transition from "catch-up", **state directed** industrialization to a **market driven**, knowledge based economy. The road to a Knowledge Based Economy for Korea however is not a smooth one. Constant adjustments were made throughout each phase of economic reform, and previous policies thought to be long-standing were often abandoned quickly as a result of changing economic realities.

Nonetheless, despite its many policy swings, Korea managed to gradually transform itself into a knowledge based economy. Let us now examine the steps Korea took in its journey.



Screen 3



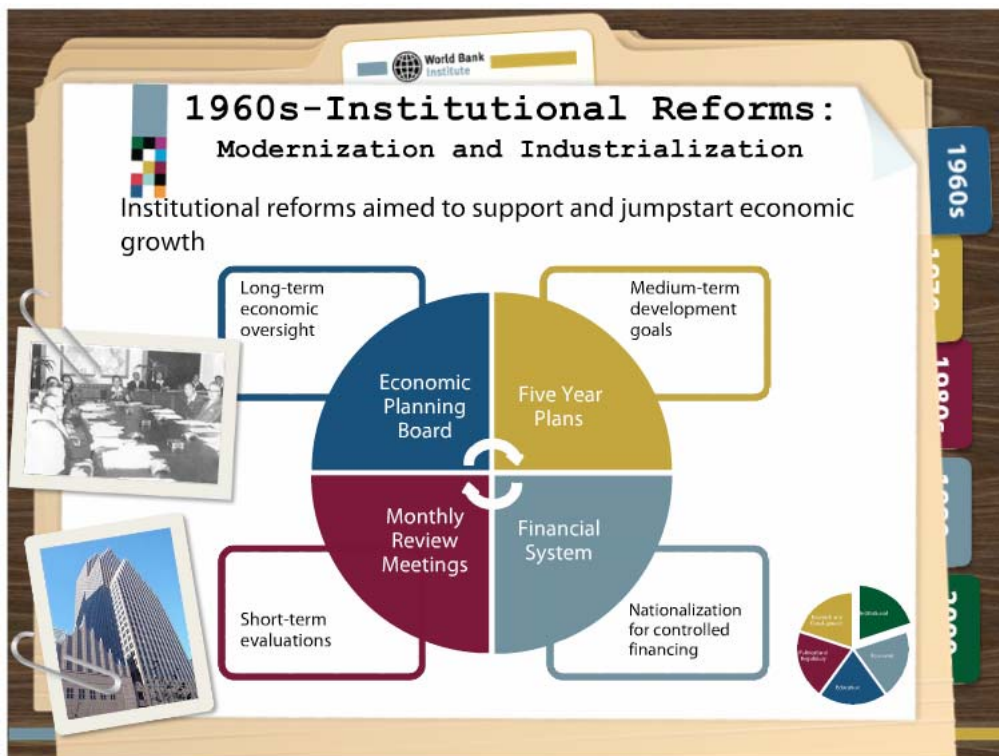
Why was Korea so successful? How did Korea approach its innovation policy? We will examine Korea's approach to adopting pragmatic and effective innovation policies through the lenses of the government as the gardener, but with specific attentions focused on Korea's institutional economic, political and regulatory, education, and research and development reforms during each era of Korea's development process.

While we briefly introduced some basic reforms Korea undertook in the previous module, this presentation will go into more depth on the reforms and their impacts on Korea's development.

Click on a time period to begin your journey.



Screen 4



The institutional reforms of the 1960s were concerned with creating the governmental support structures needed for the country's ambitious economic reform programs. To demonstrate political commitment and formulate stable governance for economy reform, the Korean government created the **economic planning board** as well as initiating the first of many **five year plans**.

In combination with **monthly economic review meetings**, these measures all gave the Korean government means to evaluate and adjust its long, medium and short-term goals for growth and development.

Institutional reforms also took shape in the **financial sector**, where to counter the ineffective financing scheme in place at the time, the government created a national financing regime through nationalizing commercial banks and controlling the flow of finance throughout the economy.



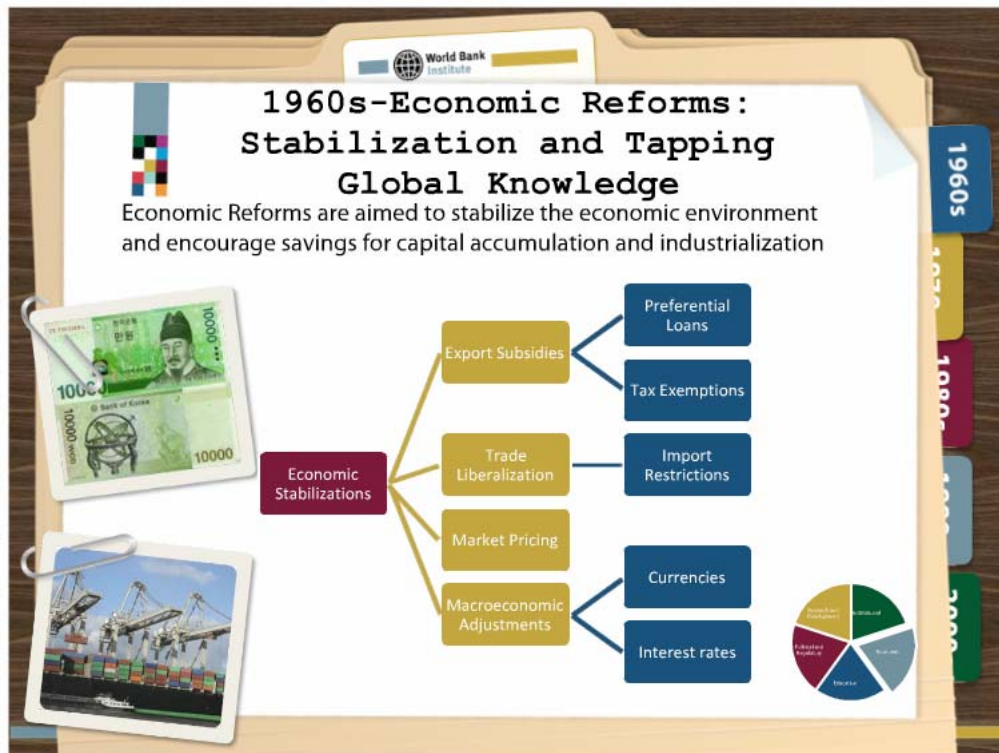
Screen 5



Aside from stabilizing the institutional support structures for reform, Korea tackled some of the deep-rooted problems in its governance system. The old ruling **government was reorganized** by the military into one that supported economic reform and offered greater **transparency** and political responsiveness. Additional **market regulation** efforts to curb rent-seeking crony capitalism of the 1950s also took shape in the new government as it attempted to battle corruption that plagued the Korean economy.



Screen 6



The systematic transformation of the 1960s also included extensive economic reform. The new government's economic stabilization efforts targeted macroeconomic policies as well as efforts to internationalize the country's industries based on competitive advantage at the time.

Realizing that the country lacked capital but is labor abundant, Korea's policies at the time targeted labor-intensive light industries and export subsidies were used to encourage growth. In addition, to bring in foreign technology and capital, extensive trade liberalization took place and import restrictions were reduced.

On the macroeconomic front, efforts to stabilize the economy included currency and interest rate reforms, and market pricing was introduced in place of government price controls. These macroeconomic changes transformed the Korean economic landscape and brought much needed price stability into the economy.



Screen 7



Education during the 1960s conformed with the economic demands of the time. Faced with a large pool of poor, unskilled population, Korea's only choice was to improve skill development of the workforce through vocational and skill training facilities. At the same time, efforts to improve basic education also took shape, and universal primary education became a reality at that time.

While innovation and scientific research at the time were not on top of Korea's agenda, as the economic goal was largely focused on low-tech light industries, the government still planted the first seed of indigenous research through establishing the ministry of science and technology, which oversees the research initiatives in the nation.



Screen 8



Reviewing the policies of the 1960s, we observe that the main coordinating body among all the players and policies was the Economic Planning board, whose main targets included education, governance, trade, macroeconomic factors, and supporting institutions.

At the same time however, Korea also established mechanisms to focus the direction with which the economic planning board conducted its policies through monthly review meetings and 5 year economic plans. In essence, the monthly review meetings help the economic planning board to constantly readjust its policies so that the direction with which reforms are being carried out is in line with the overall development goal outlined in the 5 year economic plans.



Screen 9

1970s-Institutional and Economic Reforms: Catch-up Industrialization

Institutional and economic reforms of the 1970s began to concentrate focus on industrial policy for state directed industrialization

- Selective Export Subsidies
- Foreign Investments
- Industrial Targeting:
 - Heavy Industries
 - Chemicals

1960s
1970s
2000s

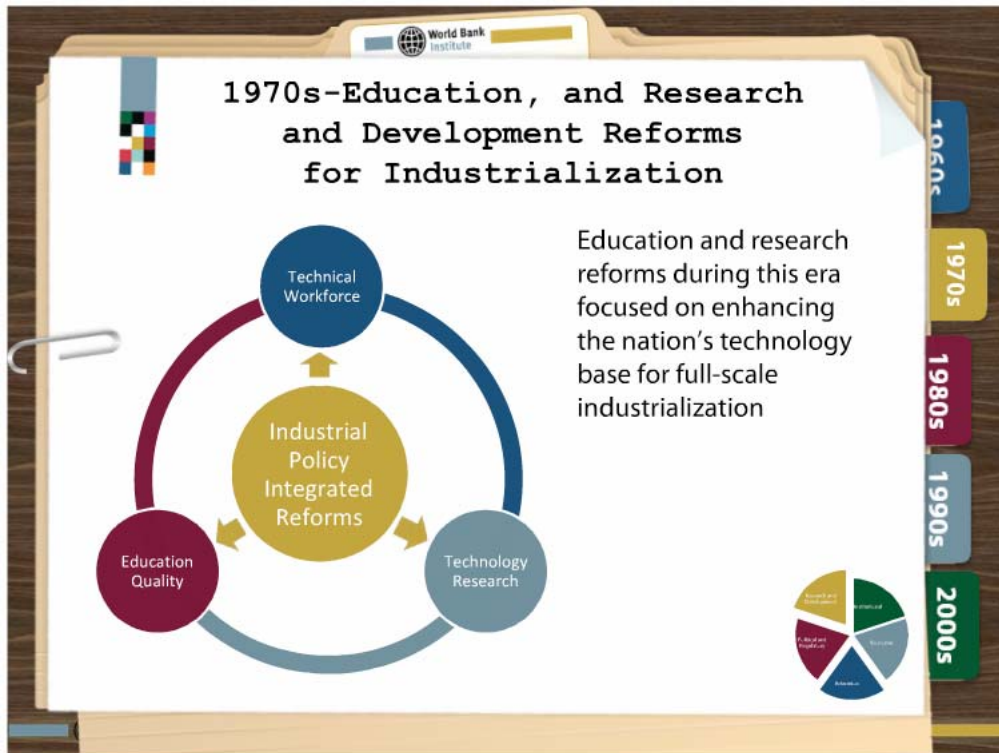
Manufacturing
Services
Agriculture
Natural Resources

By the 1970s, Korea had already enjoyed almost a decade of rapid economic growth, and the institutional and economic reforms instituted during the 1960s began to show their limits. With the country growing increasingly indebted to foreign lenders, and price stability becoming increasingly volatile as a result of the unbalanced growth caused by previous decade's reform, Korea's policy makers began to redesign the framework with which growth was generated.

Among the reforms, top priorities were given to industrial policies that aimed to correct previous imbalances in the economy. Instead of the broad subsidies that Korea provided to all light industries, the 1970s industrial policies specifically promoted high tech heavy and chemical industries.



Screen 10

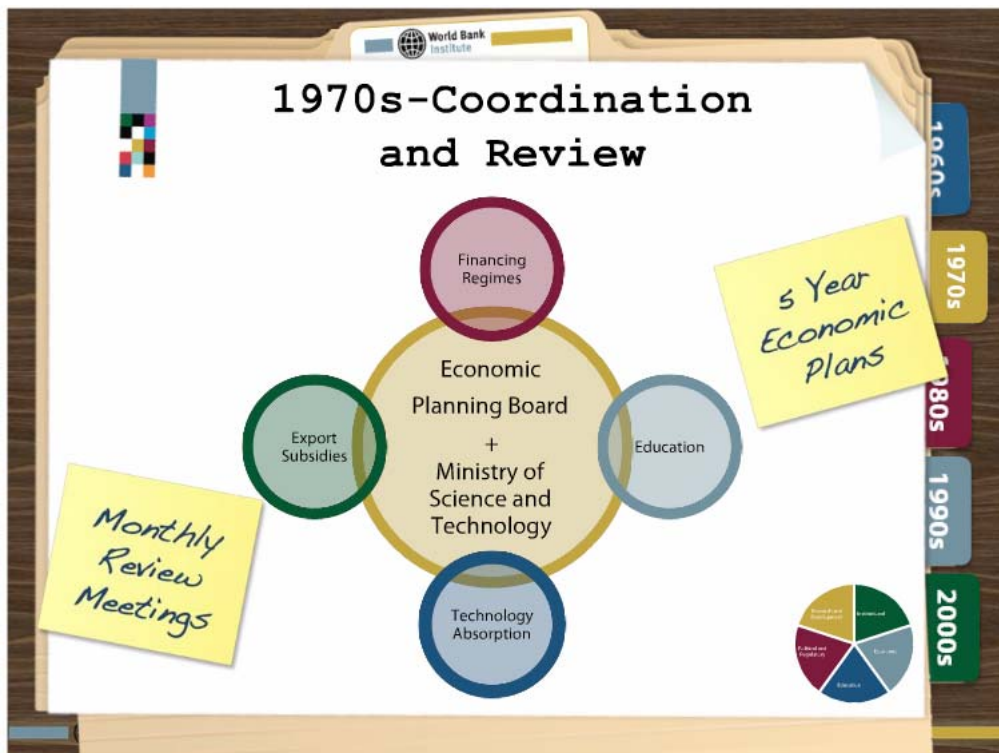


In line with the industrial policies of the 1970s, education and research directives at the time promoted Korea's move towards more technology intensive manufacturing, as well as capital intensive industrialization. The country moved away from focusing solely on basic and vocational education, and began to develop means for training a technical work force through improvements in education quality and preparing a technical workforce.

In addition, in order to jumpstart industrialization in high tech products, the country began to push applied technology research in areas such as heavy machineries, and chemicals.



Screen 11

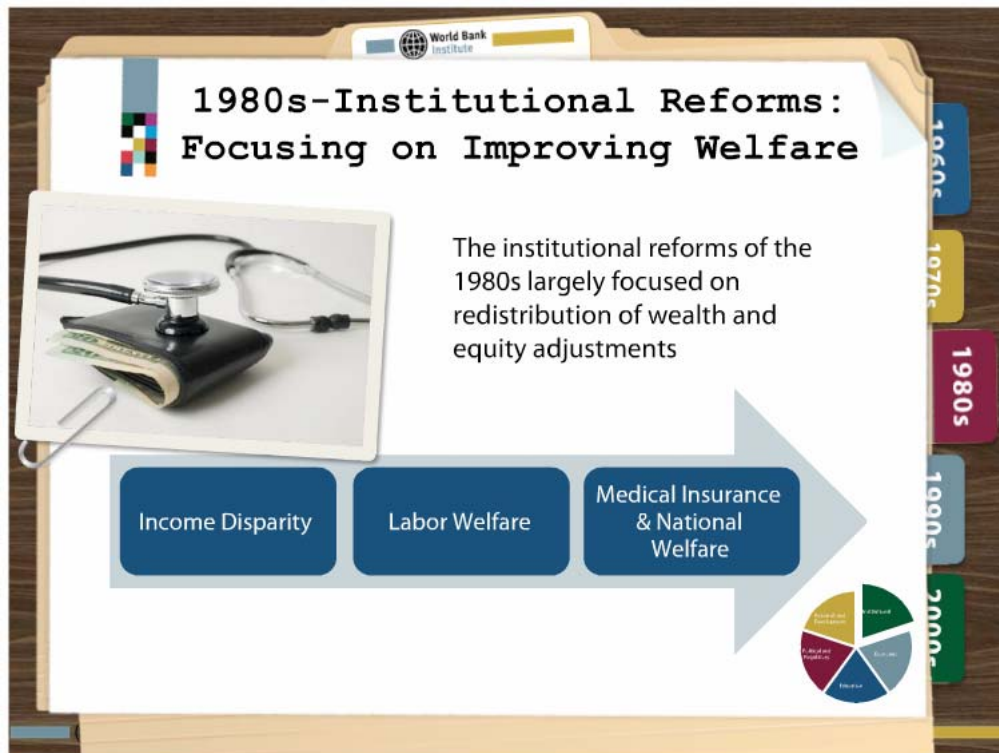


In the 1970s, coordination efforts became more complex as efforts to push for technology driven and capital intensive industrialization made education and research and development more relevant to policy makers. Hence, aside from the economic planning board, the ministry of science and technology also took on the increasing role in the overall innovation system. At the same time however, as Korea's initial piloting stage came to an end, its policy became much more selective, and most of the coordination efforts conducted by the economic planning board were concentrated on promoting a selected few industries that were in line with the development goals outlined in the 5 year economic plans.

Despite these changes, Korea still maintained its monthly review meetings and 5-year economic plans, both of which helped to refocus development policies and initiatives that various coordinating bodies were carrying out.



Screen 12



As the Korean economy matured during the 1980s, existing institutions in place since the 1960s and 70s began to show signs of weakness in handling the surging social and economic changes in the country. Decades of government directed growth left problems such as high-income inequality, regional growth disparities, and structural issues with the composition of the economy. Moreover, social progress remained stagnant while the economic growth soared.

To address these issues, social reforms became a key aspect of institutional changes during the 1980s. Efforts to address income and regional growth disparities took shape during this era. In addition, measures to protect workers' rights, which included rights to unionize, were also implemented. Lastly, national welfare plans, such as medical insurance, were also adopted to increase the quality of living for the Korean people.



Screen 13

World Bank Institute

1980s-Political and Regulatory Reforms: Democracy on the Rise

The 1980s saw rapid changes in political and regulatory environment in Korea as the economy began to mature

Democratic Governance

Fair Trade & Competition Regulations

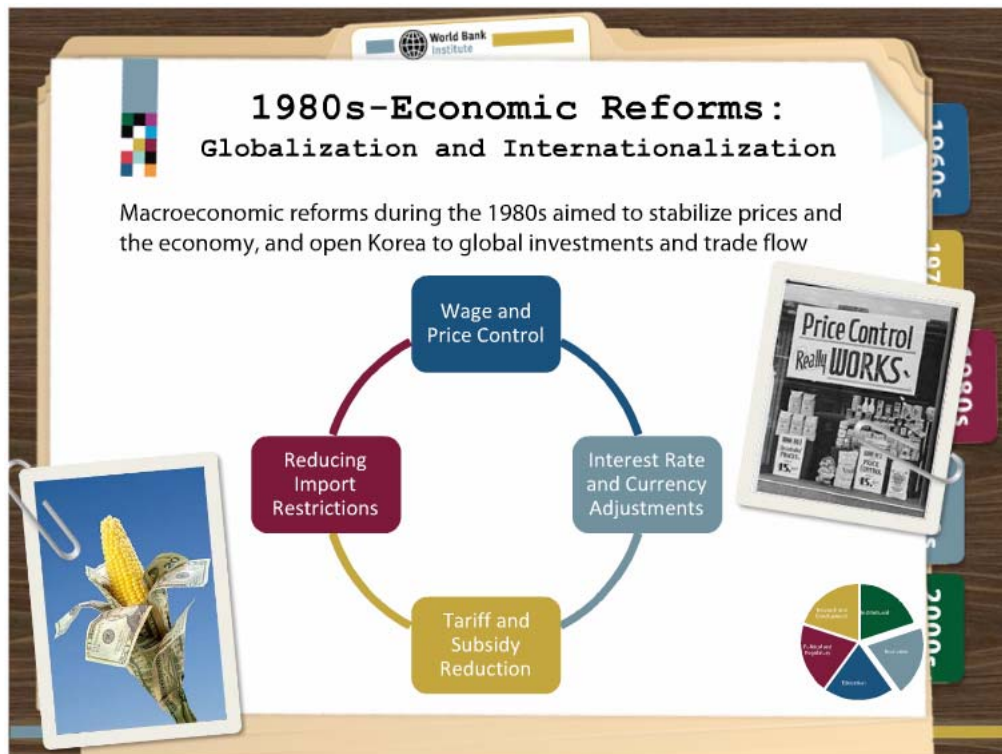
1960s 1970s 1980s 1990s 2000s

Health and Environment, Education, Economic, Social, Political

Institutional reforms of the 1980s were accompanied by massive political changes that occurred throughout the decade, finally culminating in the transition to democracy in 1987. Democratic governance and subsequent reforms to strengthen democratic rule in the country increased transparency and accountability dramatically. Regulations to promote fair trade and competition also took shape during this time, as the newly transformed government battled corruption prevalent throughout the first two decades of reform.



Screen 14



The 1980s also saw a wide range of economic reforms taking place as the economy matured. Distortions due to government intervention during the previous two decades of reform left significant structural imbalances in the economy that resulted in high inflation, increasing account deficits, and a lack of consumption and imports despite high export volumes.

To resolve these problems, the government **regulated wages, and prices**, and adjusted **interest rates** and currency regimes in order to shift consumption and growth patterns in the economy. In addition, efforts to become more integrated with the global economy also took shape as **tariff barriers**, export subsidies, and **import restrictions**, particularly on manufactured products, were reduced in favor of market pricing.



Screen 15

1980s-Education and Research and Development Reforms: Capacity Development

Focus on developing indigenous technology and improving higher education

Research

- Government sponsored research institutes
- Private sector research programs
- Absorb foreign technology
- National Research and Development programs

Education

- Developing university education and enrollment

World Bank Institute

1980s

1960s

1970s

1990s

2000s

World Bank Institute

1980s

1960s

1970s

1990s

2000s

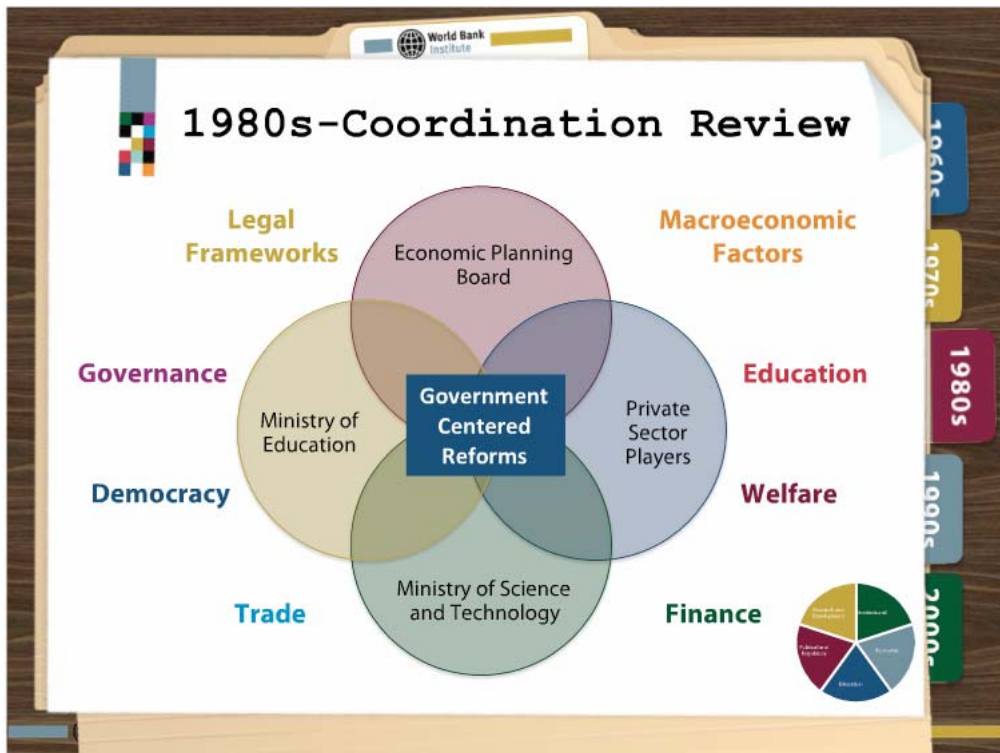
Education policies during the 1980s also sought out to resolve structural problems created by earlier reforms. The 1980s was Korea's first attempt at systematic efforts to boost knowledge base of the economy.

Government and private sector spending on research and development both increased rapidly and support for public and private research institutes blossomed during this time. Trade and investment liberalization during the 1980s also allowed Korean firms to absorb foreign technologies at a rapid pace, adding to the speed at which technical capacities were developed during the era.

On the education front, the focus shifted to higher education, as the drive to improve technical capacity required human resources that could not be fulfilled with basic and vocational education.



Screen 16

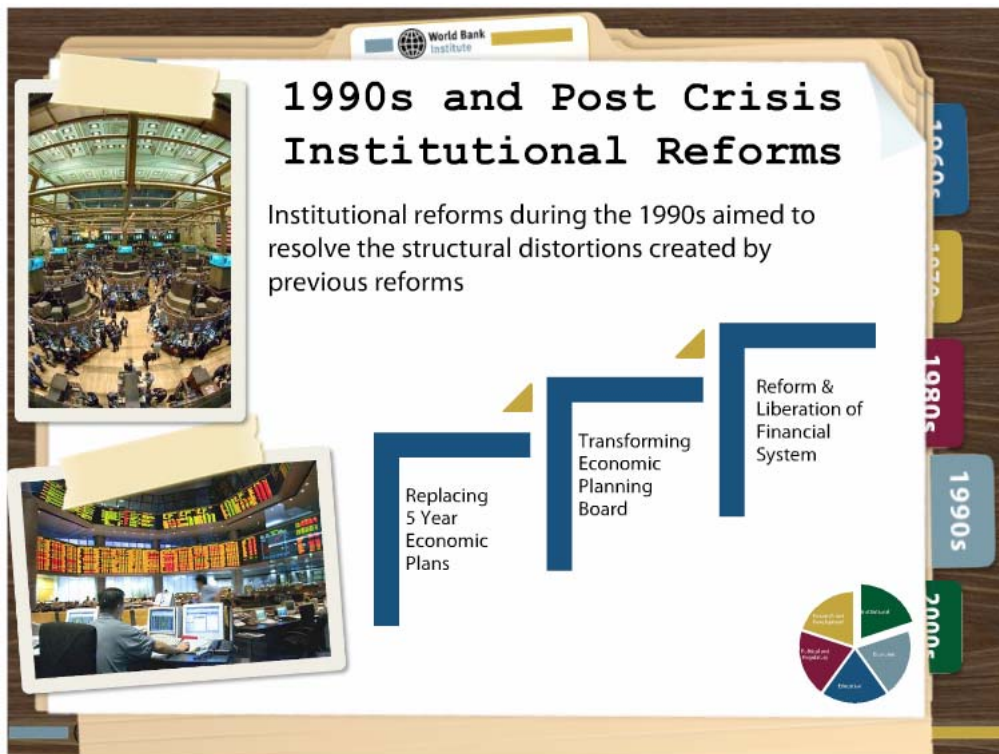


The coordination landscape during the 1980s became much more complex as the Korean economy began to liberate and as democracy took hold. A multitude of new actors came into the picture, including large **private sector players** that matured from the reforms of the 1970s, as well as the **ministry of education**. In addition, the scope of the policy changes became much more comprehensive and largely focused on institutional frameworks for further economic development and industrial deepening of existing industries.

Despite this complexity and seemingly overabundant number of actors, the government still carried on huge weights during the 1980s as it maintained its 5-year economic plans and still carried out significant industrial policy initiatives aimed to foster development in selected sectors of the economy.



Screen 17

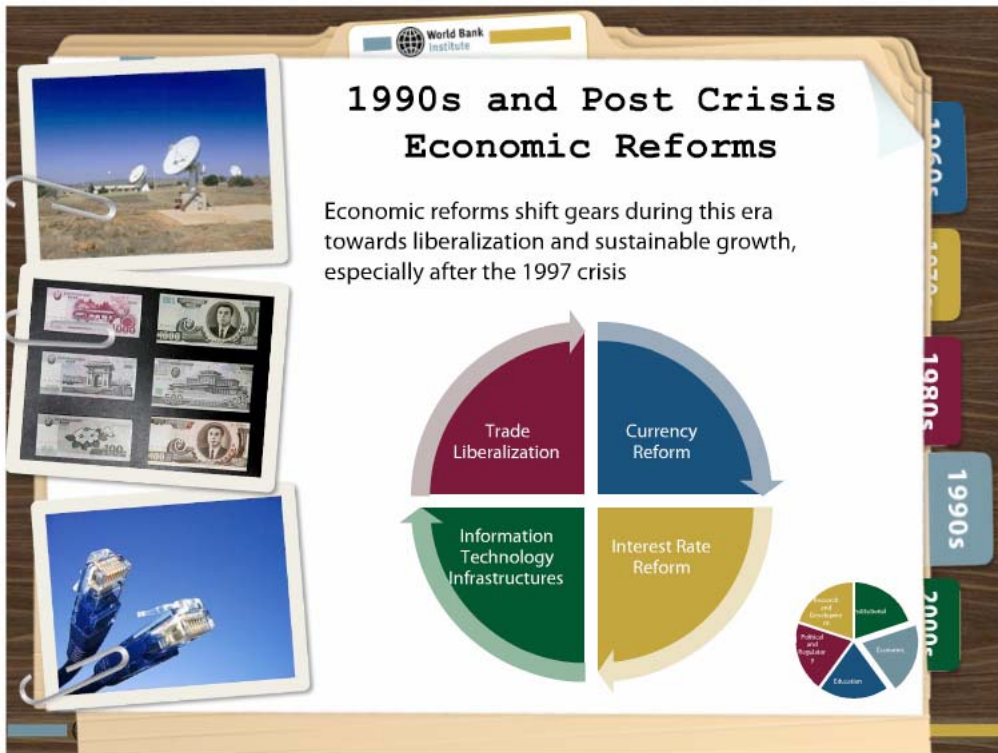


When Korea entered the last decade of the millennia, the economy had enjoyed three decades of rapid growth, and efforts to resolve structural problems during the 1980s seemed to have succeeded. However, deep rooted problems in the Korean economy manifested during the Asian financial crisis of the 1990s. Lack of competition in the financial and corporate sector, high current account deficit and foreign debt, and a weak currency regime, all contributed to the collapse of the Korean economy during the Asian crisis.

While institutional reforms in the financial sector and economic planning were instituted during the early part of the era, they were slowly implemented and were not able to prevent the crisis. Hence, comprehensive financial sector, and economic planning reforms took shape again after the Asian crisis. **Five year economic plans were replaced** with innovation agendas, indicating a fundamental shift from a focus on catch-up industrialization to knowledge-based economy. The **Economic Planning Board** was also replaced with the Ministry of Finance and Economy, implying that the old government centered approach to economy development was being phased out by the more market driven approach. Finally, the **financial sector was liberated** from government control, and competitive financing was encouraged.



Screen 18



Significant efforts were also made to address deep-rooted structural problems manifested by the economy crisis. **Trade, currency, and interest rate** liberalization allowed the country to become better integrated with the global economy, and reduce the price distortions caused by market inefficiencies.

In addition, significant resources were spent on improving **information technology infrastructures** in the country in order to boost Korea's technological capabilities entering the digital age.



Screen 19

1990s and post Crisis Education and Research and Development Reforms:

Knowledge development during the 1990s centered on the attempt to catch up with the developed world on key technologies such as biotech

Education:

- Life-long learning system

Research focus on leading industries

- Biotechnology
- Electronics

The slide is part of a presentation with a folder background and a vertical timeline on the right showing years from 1960s to 2000s. A pie chart is visible at the bottom right of the slide content.

In the education, as well as research and development reforms during the 1990s, we see Korea's first attempt at focusing on sustainable growth and innovation.

The focus of education gradually shifted towards developing a life-long learning system where workers are constantly updated on the latest technical knowledge and remain highly competitive in the global economy.

On the research and development side, the focus on "big-push" technological breakthroughs of the previous decades gave way to innovation at the frontier, where the country no longer just absorbed foreign technology, but attempted to develop indigenous knowledge in leading fields such as biotechnology and electronics.



Screen 20

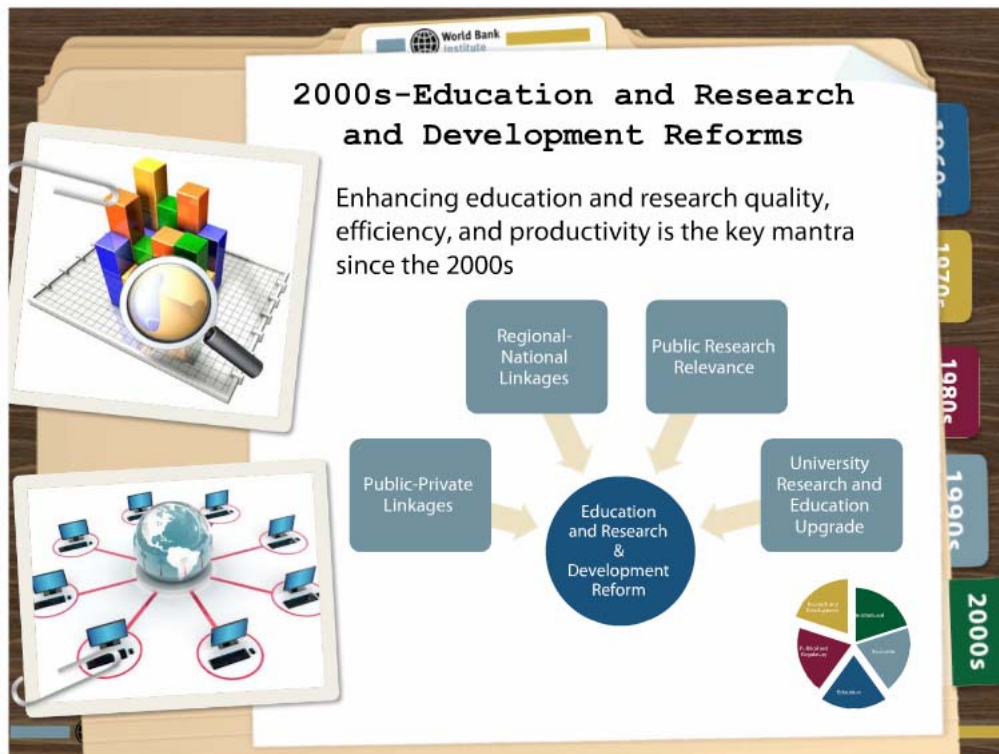


At the beginning of the 21st century, Korea emerged from the Asian crisis, and officially became a developed economy. With the pitfalls in institutional governance largely exposed and fixed after the Asian crisis, Korea's new wave of institutional reforms largely correspond with the country's transition into a sustainable knowledge based economy.

The government, in this new framework, acted as the market supporter and facilitator where public backed joint ventures and financing regimes **supported new start-ups** in high tech industries and small and medium enterprises. In addition, **tax incentives** were given to companies to encourage innovation and research, allowing for a surge in applied and basic research in the economy. The country also **embraced globalization** in that Korea expanded its global linkages in trade, investments, and knowledge flow, so that the economy became exposed to the most advanced technology of the day.



Screen 21



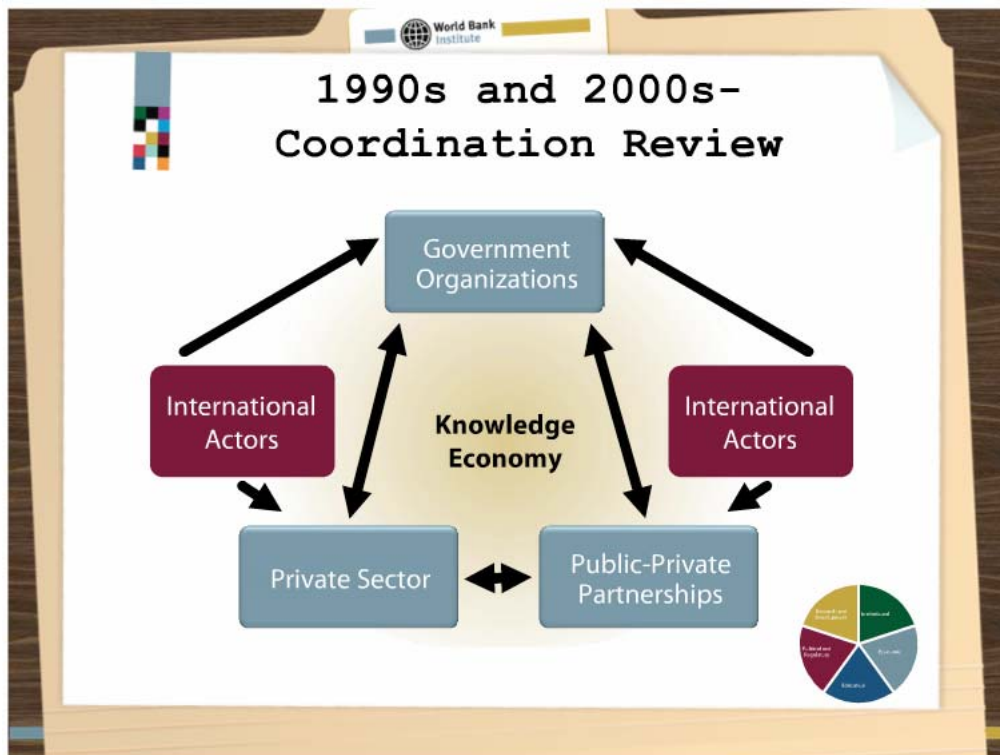
Education and research policies are naturally key components of a knowledge economy. Korea's education reform since the 2000s has been largely based on fostering market based linkages between the universities and the private sector, as well as improving the quality of education throughout the school system.

Research and development reforms focused on improving quality and market linkages between the **private and public sector**. Numerous mechanisms were introduced to strengthen public-private, and **regional-national research** cooperatives in order to connect basic research with applied research so to improve the **relevance of research**.

In addition, efforts to improve the relevance of research in universities also took shape as a means to improve the linkages between the universities and the market, as well as increasing the **quality of university trained researchers**.



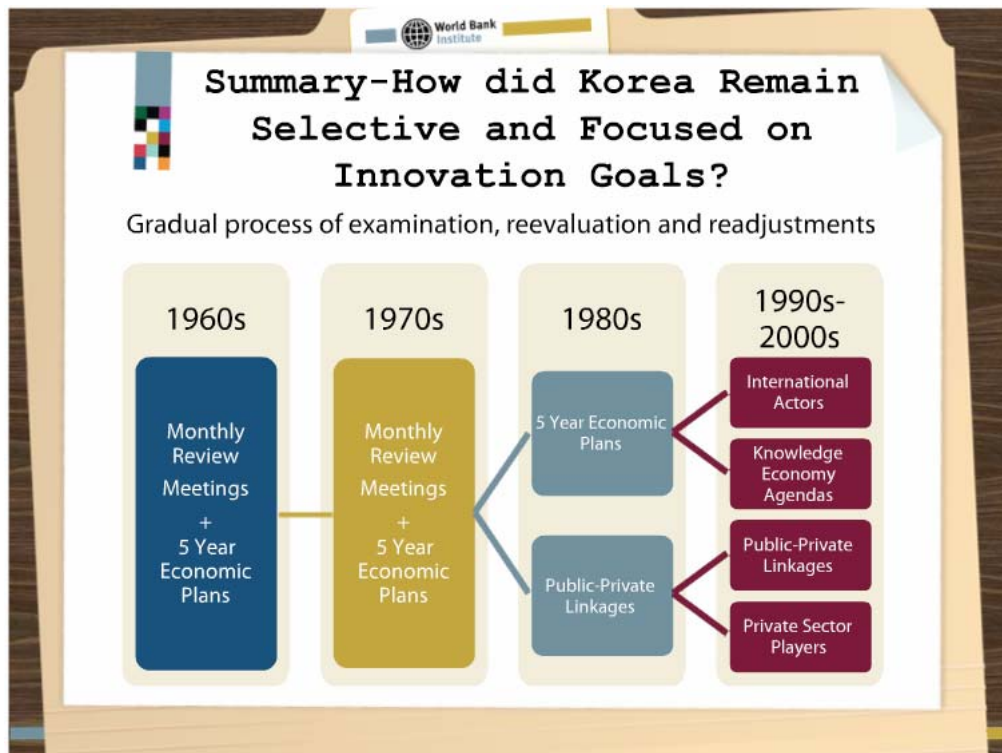
Screen 22



The coordination efforts during Korea's last two decades became a much more fluid model. **Government** no longer remains at the center of the economic planning agenda. Instead, the **private actors**, and **public-private partnerships** all took on important roles in shaping the direction of Korea's innovation policies. In addition, with a shift to focus on the knowledge economy, and the **rise of international actors** in the overall economy also makes policymaking more decentralized and much more horizontal. Moreover, as the Korean economy matures, no longer do players rely on government policies for direction; instead, market forces are having increased influence on the way with which innovation agendas are set. Hence, the role that the Korean government held in the overall innovation agenda was decentralized as a result of the transition to a **knowledge based economy**.



Screen 23



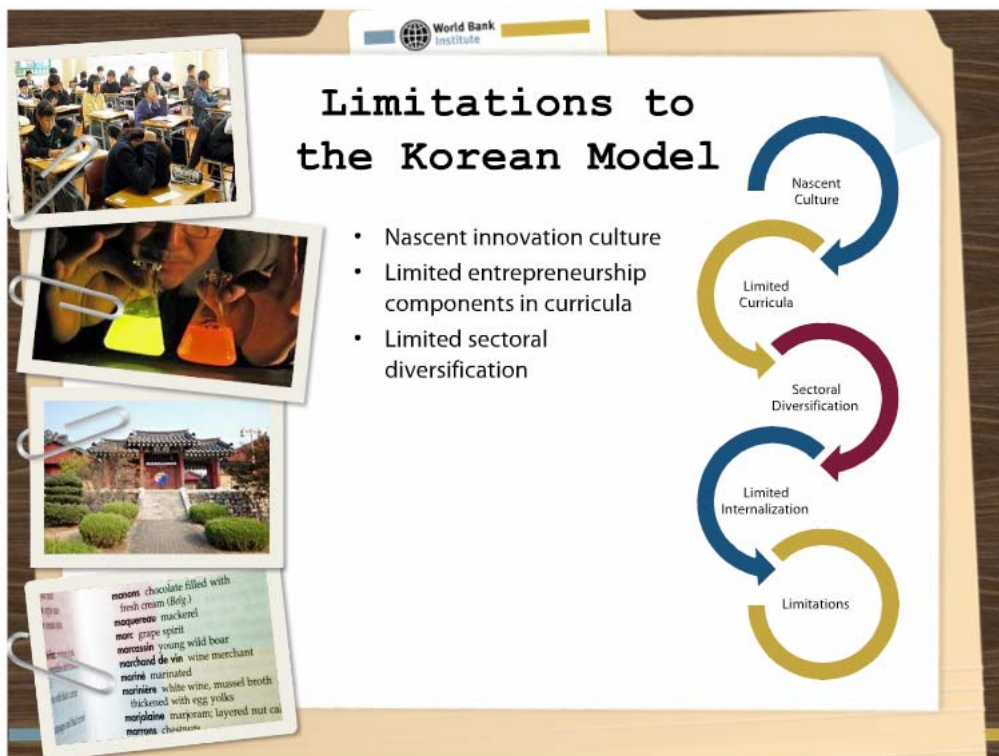
In summary of Korea's development progress, it is important for us to understand the mechanisms Korea has been implementing since its economic reform in the 1960s in order to maintain the focus and speed of economic reform policies.

Monthly review meetings and 5-year economic plans were Korea's main mechanisms for policy evaluations during the 1960s and 1970s. The policy meetings largely focused on export regime and industrial policies at the time, where government officials met industry leaders to receive constant updates on the progress of Korea's competitive industries. This, in combination with 5-year economic plans, allowed Korean policy makers and private sector players to understand the policy direction of the government, and keep the focus of government policies on industrialization in tact.

After the 1980s, greater economic maturity, and increasing internationalization made the government centered approach to evaluation less preferable. Hence, monthly review meetings were largely replaced by public-private organizations, private sector and international players. In addition, 5 year economic plans were also replaced with agendas for developing a knowledge-based economy. These changes, reflected in the rapidly rising private sector influence on the Korean economy, helped Korea to transition from a government led catch-up industrialization phase to a knowledge based economy.



Screen 24



Despite its success in promoting growth in Korea, the Korean Model to establishing a pragmatic innovation agenda is not without flaws. Korea's overall approach to innovation during its economic development from the 1960s to the 1990s for most sectors was characterized more by imitation rather than innovation. In addition, the overall innovation environment in Korea faces several challenges as the government attempts to build a knowledge-based economy.

First the culture of innovation in Korea is not as robust as a result of entrenched views towards stability and often antagonistic views towards diversity. This hinders the ability of the private sector to take risks and become innovative pioneers in their respective fields.

Second, the education system in Korea promotes memorization instead of creativity. This focus on memorization is visible throughout the education system, from basic to tertiary, and reduces the ability of the education system to produce innovators who can think outside of the box.

Third, as a result of government's sectoral approach to economic policymaking, Korea's innovation and research have a strong sector and regional based bias. Those regions and sectors labeled as key to national development, which are actively promoted by the government, often receive much more resources to be innovative while other sectors are ignored, resulting in large imbalances in Korea's innovation landscape. Government intervention also limits the role of the private sector in innovation, as well funded



government vehicles and conglomerates often out competes private firms in many sectors and force many innovators to withdraw.

Lastly, Korea, despite its high trade volume, does not have a very high degree of internationalization with respect to innovation. Low volumes of foreign direct investment, and lack of presence of many multinational firms in the country, hinders access to knowledge from small and medium enterprises, and reduces the innovative abilities of these firms.