Development of KBEs: Korea's Experience and Implications to APEC Cooperation

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Contents

1. Introduction to KBEs

- **Background**

- use of knowledge is becoming more central than ever

- due to rapid technical progress, globalization and the development of information and communication technologies (ICTs)

- **KBE is "an economy, which is directly based on the production, distribution and use of knowledge and information," OECD (1996)**

- in a KBE, all sectors have become knowledge-intensive, not just those usually called "high technology"

1. Introduction to KBEs

- **Need capacity to use global system of the generation and transmission of knowledge**

- **Elements required**

- infrastructure: to facilitate effective communication and processing of information

- human resources: educated population to create and use knowledge

1. Introduction to KBEs

- **Elements required (continue)**

- **innovation system: system of research centers, universities, think tanks, firms and other organization to adapt global knowledge to local needs, and create new knowledge**

- **institutional infrastructure: economic and institutional regime to provide incentives for the creation and efficient use of knowledge**

2. Korea's Experience of Structural Change

❖ **Structural changes (Woo 2004)**

- services constantly gaining, manufacturing sector declined in the late 1980s and recovered since the mid 1990s

(shares of agriculture, industry, and services in GDP: 8.5%, 43.3%, 48.2% in 1980, 3.9%, 40.3%, 55.8% in 2002)

- trade in goods and services as a share of GDP also increasing

(average of imports and exports): 25.7% and 3.9% in 1980 to 32.6% and 6.7% in 2002, respectively)

2. Korea's Experience of Structural Change

❖ **Internal strain**

- losing growth momentum
- declining industrial competitiveness
- job instability, increasing disparity

❖ **External pressure**

- globalization and trade liberalization (DDA, FTAs)
- technology revolution (IT, NT, BT etc.)
- China surge

2. Korea's Experience of Structural Change

- **Fundamental changes in**

  - industrial structure: a small group of conglomerates in electric and electronic goods (E&E) and auto sectors laying the foundation for a dynamic and innovation based growth, while general products losing competitiveness; emerging technology-based SMEs

  - market and policy environment :no explicit government –led industrial policies available

2. Korea's Experience of Structural Change

❖ **Fundamental changes in (continue)**

- firm behavior/strategy and market interaction: shifting focus from manufacturing to R&D, sales, the more value added sectors; establishing innovation networks, though still developing, a noticeable increase in cooperation among industries, academics and research institutes

- distribution of competitiveness and its outcomes within/across industries and firms: most industries with high employment proportion unable to maintain/enhance its competitiveness, eg. T&C

2. Korea's Experience of Structural Change

❖ **Uncertain and reduced growth potential**

- growth trends and sources

	1981~1990	1991~2000	2003~2012
Growth Rate	8.29	5.97	5.00
TFP	2.10	0.86	1.80
physical capital	3.61	3.24	2.00
human capital	0.76	0.87	0.60
Labor	1.82	1.00	0.60

- growth rate

1998	1999	2000	2001	2002	2003	2004(p)
-6.7	10.9	9.3	3.0	6.1	3.1	6.0

2. Korea's Experience of Structural Change

- **Long-term potential growth: downward trend from around 6% in the 1990s to 5%**

  - achieved mostly by enhancing productivity and investment, around 2% of productivity growth is expected in the next 10 years or so

  - policies since the 1990s to increase R&D investment and build a national innovation system will continue to raising productivity

  - in 2004 Korean economy is projected to grow around 6%

2. Korea's Experience of Structural Change

- **Differentiated trends: value-added share by major manufacturing sector**

  - **electric and electronic goods (E&E): high growth tendency**
  - **automobile: steady gain, machinery: modest gain**
  - **chemicals: downward but stable**
  - **textiles and clothing (T&C): sharp decline trend**

- **export share by manufacturing sector showed similar trends**

  - **sharp gain in E&E (10% in 1980 to 28% in 2002)**
  - **sharp decline in T&C (24% in 1980 to 10% in 2002)**

2. Korea's Experience of Structural Change

- **Labor productivity and TFP growth rate**

  - **the gap widened across industries and establishments sizes, especially since mid 1990s, large firms in E&E led productivity growth**

- **Strong trade performance in the IT related industry and at the same time increasing competition among Korea, China and Japan since 1990s**

  - **competitiveness (TSI): improved in IT equipment, auto parts, machinery (intermediate-assembled products); decline in T&C, traditional home appliances, semi-conductors**

2. Korea's Experience of Structural Change

- **R&D investment (2000)**

  - **large companies leading (however, still lag behind international leaders), while the quality of SME's R&D investment improving**

  - **R&D intensity (R&D as % sales): average intensity of 2.04 for Korean top 200 firms is far behind the average of 4.21 for global 500 companies, as the gap is ever increasing**

  - **compared with top 500 global companies by sector, Korea's R&D investment in IT exceeds international average, whereas in most of other sectors below 30%**

2. Korea's Experience of Structural Change

- **FDI**

  - **inbound: importance of FDI to Korea's economy increasing. however, recently the amount on FDI inflow sharp declined ($15.2 bil. in 2000 to $9.1 bil. in 2002); increase in the share of small scale investments**

  - **outbound: since 1997, Korea has been actively investing in Asia; investment in China increasing driven by SMEs globalization of production system; dynamic in precision machinery, automobile, E&E, textiles & clothing, chemicals, etc.**

  - **competition between Korea and China for inducement of FDI ever increasing**

2. Korea's Experience of Structural Change

- **Structural changes in KB industries**

  - **The Bank of Korea (2000) found that KB industries played leading roles in enhancing GDP and exports growth, stimulating domestic investment and consumption, stabilizing inflation rates.**

  - **According to Lee (2000), KB industries outperformed overall industries in annual average growth rate of output, value-added and employment during 1985 through 1995 (based on input-output tables).**

  - **KB manufacturing industries outperformed KB service industries in annual average growth rate of output, value-added but not in that of employment.**

2. Korea's Experience of Structural Change

❖ **Structural changes in KB industries (continue)**

	Share		Growth Rate (annual average)
	1985	1995	1985~1995
Output: Overall Ind.	100.0	100.0	11.1
KB Ind.	7.3	14.7	19.2
KB Manuf. Ind.	2.3	6.6	23.3
KB Service Ind.	4.9	8.1	16.7
V. Added: Overall Ind.	100.0	100.0	10.1
KB Ind.	7.0	17.4	20.6
KB Manuf. Ind.	0.4	5.1	43.6
KB Service Ind.	6.6	12.3	17.0

2. Korea's Experience of Structural Change

❖ **Structural changes in KB industries (continue)**

	Share		Growth Rate (annual average)
Employment	1985	1995	1985~1995
Overall Ind.	100.0	100.0	11.1
KB Ind.	5.9	10.8	9.2
KB Manuf. Ind.	1.9	2.7	6.4
KB Service Ind.	4.0	8.1	10.4

- As the results, KB industries' shares had increased rapidly in output, value added and employment during 1985 through 1995.

2. Korea's Experience of Structural Change

- **Structural changes in KB industries (continue)**

  - **KB manufacturing industries are defined as including high-tech (aero and space equipment, pharmaceutical), ICT manufacturing sectors based on input-output table.**

  - **KB service industries are defined as including ICT related services, finance, insurance, business services, and R&D based on input-output table.**

2. Korea's Experience of Structural Change

- **Related Issues (World Bank 2000 &)**

- face a competitive global environment: being squeezed between the developed OECD countries at the higher end, and China and other East Asian developing countries at the lower end

- rapid development of ICTs and the internet: exposing inefficiencies in the functioning of markets, firms and institutions, and accelerating the need to restructure

- challenges to increase overall productivity and to be more globalized: increasing importance of knowledge, transforming into a knowledge-based economy

2. Korea's Experience of Structural Change

- **Related Issues (World Bank 2000 &)**

- require new financing sources for investment needs (infrastructure): for inducement of more FDI, reexamination of present institutions, regulations related to M&A and strategic alliances

- private participation in infrastructure development and operations: need to deregulate and globalize

- enhancing the role of innovative SMEs and venture enterprises, also strengthening cooperation between industries and academics

- enhancing cooperation with dynamic APEC economies based on complementarity

3. Implications to APEC Cooperation

- **Areas to APEC cooperation**

- innovation supportive system: a network of public and private institutions

- efficient infrastructure: allowing citizens and businesses to access pertinent information around the world

- human resource development: widespread and lifelong education and training; brain circulation rather than brain drain among APEC economies

- business environment: supportive of enterprises and innovation

3. Implications to APEC Cooperation

- **Identification of the best policy practices**

  - **knowledge with its characteristics of public good, the efforts need to become an integral part of the broader policy agenda: better coordination with structural reform in product, labor and financial markets, in education and training system as well as macroeconomic policy**

  - **focused on realizing productivity and business environment benefits of knowledge and information; contribute to job creation; promote the creation, dissemination, and effective use of knowledge among APEC economies**

  - **cooperation need to be made politically feasible, for example through improved inter-ministerial coordination**

3. Implications to APEC Cooperation

- **KBE is not limited to some specific high-tech sectors but omnipresence in every sector of an economy.**

- **Korea has actively pursued structural changes toward 'Information Society' focusing on the development of ICT sectors and related infrastructure as well as support human resource development since mid 1980s.**

  - **In the process, the expansion of supply based on ICT with significant R&D played a leading role over demand. In turn, domestic demand (i.e., supply induce demand) supported the supply in the market (eg. computer and internet, mobile phone...).**

3. Implications to APEC Cooperation

- **Implications to APEC cooperation**

  - **from the characteristics of KBEs, overall trade and investment liberalization and facilitation of goods and services as well as human capital is a precondition.**

  - **Cooperation specific to knowledge and information can be identified and implemented effectively on that basis.**

  - **In addition, with the diverse characteristics of APEC cooperation for capacity building will be an inevitable process.**

3. Implications to APEC Cooperation

- **Implications to APEC cooperation (continue)**

  - **Institutionalized efforts through such as the KCH will be the best policy for APEC cooperation in KBE.**

  - **Currently, a pilot system is being operated and redesigned (by the APEC-KCH Team at KIEP, Korea).**

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