INFOKOREA

AN ESSENTIAL GUIDE FOR EDUCATORS

THE ACADEMY OF KOREAN STUDIES

A nightscape of Deoksu Palace in downtown Seoul, where the contemporary life and tradition coexist.

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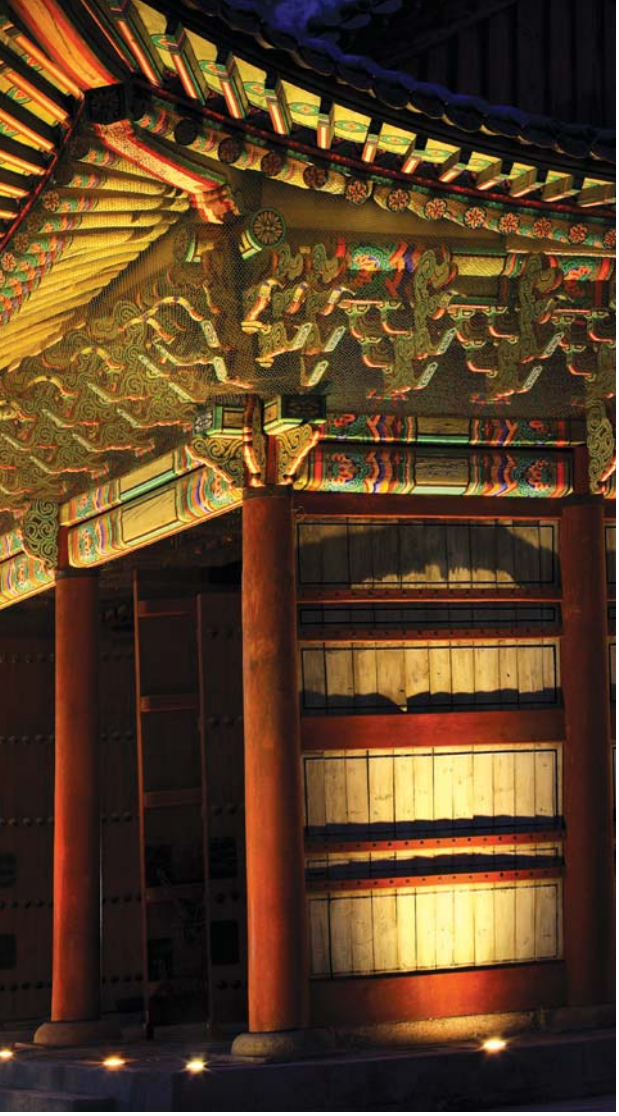

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1/ Land and Climate

Mountainous areas and inland waters account for three-quarters of the country's entire land mass. Most of the high mountains are located near the East Coast.

Location

The territory of the Republic of Korea is comprised of a peninsula, about 1,000 km long vertically and about 300 km long horizontally, that extends southwesterly from the Northeastern part of the Eurasian Continent; there are about 3,167 nearby islands (in 2004).

The territory is located between 33° 06'43" to 43°00'42"N and 124°11'04" to 131°52'21"E, extending about 10 degrees latitudinally and about 8 degrees longitudinally. The Amnok (Yalu) and the Duman (Tumen) Rivers form the country's northern borders with China and Russia, respectively; whilst the East Sea lies between the country and Japan.

The name East Sea, which refers to the sea lying to the east of the Korean Peninsula, has been used by the Korean nation for about 2,000 years. Samguksagi (Historical Record of the Three Kingdoms), the country's oldest historical text, indicates that the name was used from 38 BC onwards. King Gwanggaeto Stele, which was built in 414, clearly states this fact.

Korea and its neighboring countries, China, Japan, and Russia

Land size

The land size of the Korean Peninsula comes to about 220,000 km², while that of South Korea comes to 99,700 km² accounting for 45% of the entire peninsula. The size of the entire peninsula is similar to that of the U.K. and Romania. The size of South Korea is similar to that of Hungary, Portugal or Iceland. South Korea accounts for 0.07% of global land mass and 0.31% of the Asian Continent. The land size of Japan, China and Russia amounts to 3.8 times, 96 times and 171 times the land size of South Korea.

Table 1.1 Comparison with Land Size of Neighboring Countries (2008) (1,000 km², %)

	The entire world	Asia				Europe	
			Korea	Japan	China		Russia
Land size	134,425	31,964	99.7	378	9,598	22,999	17,098
Ratio	100.0	23.8	0.07	0.28	7.1	17.1	12.7

Source: http://www.fao.org

Administrative districts and major cities

As for the country's current administrative districts, South and North Korea have nine provinces, respectively. The nine provinces of South Korea are: Gyeonggi, Gangwon, South Chungcheong, North Chungcheong, South Jeolla, North Jeolla, South Gyeongsang, North Gyeongsang and Jeju (a special self-governing province). The South/North Chungcheong provinces are located in the middle of South Korea, with Gyeonggi and Gangwon to their north and South/North Gyeongsang, South/North Jeolla and Jeju to their south. The borderlines between administrative districts were drawn chiefly along mountains and rivers.

The South's major administrative districts are: a special city (Seoul) and six metropolises, i.e. Busan, Daegu, Incheon, Gwangju, Daejeon and Ulsan, in addition to nine provinces. Daejeon is surrounded by South Chungcheong; Daegu by North Gyeongsang; Busan and Ulsan by South Gyeongsang; Gwangju by South Jeolla; and Seoul and Incheon by Gyeonggi.

Seoul, the capital of South Korea, is located in the middle of the Korean Peninsula. The Han River flows through the heart of the city, dividing it into two sections. Designated as the capital in 1394, during the Joseon Dynasty, Seoul has become the center for political, economic, industrial, social and cultural activities

Summer in Korea

Winter in Korea

as well as the center for the country's transportation network. An internationally renowned city, Seoul hosted the Asian Games in 1986 and the Seoul Olympics in 1988.

Topography

Mountainous areas and inland waters account for three-quarters of the country's entire land mass. Most of the high mountains are located near the East Coast. Thus, the entire topography shows that the eastern section is higher than the western section, with the Taebaek Mountains in the South and the Nangrim Mountains in the North forming the backbone of the peninsula.

The total length of the coastline of the Korean Peninsula is about 17,000 km (including islands). Each of the East, West and South Coasts has its own unique characteristics.

The steep slopes of the Hamgyeong Mountains and Taebaek Mountains extend into the sea. Thus, the sea along the East Coast is deep. Most of the eastern coastline is relatively straight. There are well-developed lines of sand dunes, lagoons and half-moon-shaped sandy beaches along the East Coast. Ulleungdo and Dokdo, both volcanic islands, are located in the East Sea 130 km and 217 km, respectively, from the coast.

The South Coast forms an archipelago comprised of 2,000-plus islands (mostly in the western section). Jeju Island, the largest of the South Korean islands, is located about 165 km from the South Coast. The West Coast is comprised of relatively flat terrain. Wide reclaimed land has been formed along the coast by utilizing the big difference between the rise and fall of the tide.

Climate

The country is geographically located in the mid-latitudinal, temperate climate zones and thus the climate has clear-cut temperature changes between the four seasons, with summer and winter longer than spring and fall. In winter, it is cold and dry under the influence of continental high pressure. In summer, the climate is influenced by a hot and humid North Pacific high pressure. In spring and fall, the weather is mostly fair and clear under the influence of migratory high pressure.

With the exception of the mountainous areas in the central section of the country, the annual average temperature comes to 10~16℃; while it goes up to 23~27℃ in August, the hottest month in the year. Monthly average temperature is 16~19℃ in May, 11~19℃ in October and 6 ~ 7℃ below zero in January, the coldest month in the year.

Annual precipitation stands at 1,000~1,800 mm for southern areas and 1,100~1,400 mm for central areas. 50～60% of annual precipitation occurs in summer. Humidity is particularly high in July and August when it stands at around 80%, nationwide. This figure falls to about 70% in September and October, resulting in pleasant weather. Towards the end of June, a long spell of rainy weather starts in southern areas, including Jeju Island, and spreads northward. It lasts for about a month. Out of about 28 typhoons that develop in the western section of the North Pacific every year, two or three have an impact, either directly or indirectly, on the Korean Peninsula.

2/ Population

Based on the most recent data in spite of differences in the timing of data production, the life expectancy of Korean males stands at 76.5 in 2008, which is up 0.3 year compared to the average of OECD countries; while that of their female counterparts stands at 83.3, which is up 1.5 year compared to the average of OECD countries (81.8).

The 26th largest population in the world

In 2009, the population of South Korea stood at 48,767,000, a 0.29% year-on-year increase from 48,607,000 (in 2008) and ranks 26th in the world, accounting for 0.7% of the global population of 6,829,360,000. The population of North Korea stood at 23,906,000 or 49.0% of that of the South. Thus, the combined population of the two Koreas stood at 72,653,000, ranking 19th in the world after Iran, whose population came to 74,196,000.

High population density compared to other countries

As of 2007, the population density of South Korea stood at 486 people / km². With small countries, such as Monaco, Singapore, Malta, Bahrain and the Maldives excluded South Korea ranks 3rd in the world - after only Bangladesh and Taiwan - in terms of population density. That of North Korea stands at 196 people / km², 2.5 times lower than that of the South.

Table 2.1 Size and Structure of Population

	Estimated population (1,000)	Population growth rate[1] (%)	Population density (persons/㎢)	Population distribution ratio(%)			Median age
				0~14 year	15~64 year	65 and over	
1990	42,869	0.99	432	25.6	69.3	5.1	27.0
1995	45,093	1.01	454	23.4	70.7	5.9	29.3
2000	47,008	0.84	473	21.1	71.7	7.2	31.8
2005	48,138	0.21	483	19.2	71.7	9.1	34.8
2006	48,297	0.33	485	18.6	71.9	9.5	35.4
2007	48,456	0.33	486	18.0	72.0	9.9	36.1
2008	48,607	0.31	487	17.4	72.3	10.3	36.7
2009	48,747	0.29	488	16.8	72.6	10.7	37.3
2010	48,875	0.26	-	16.2	72.9	11.0	-

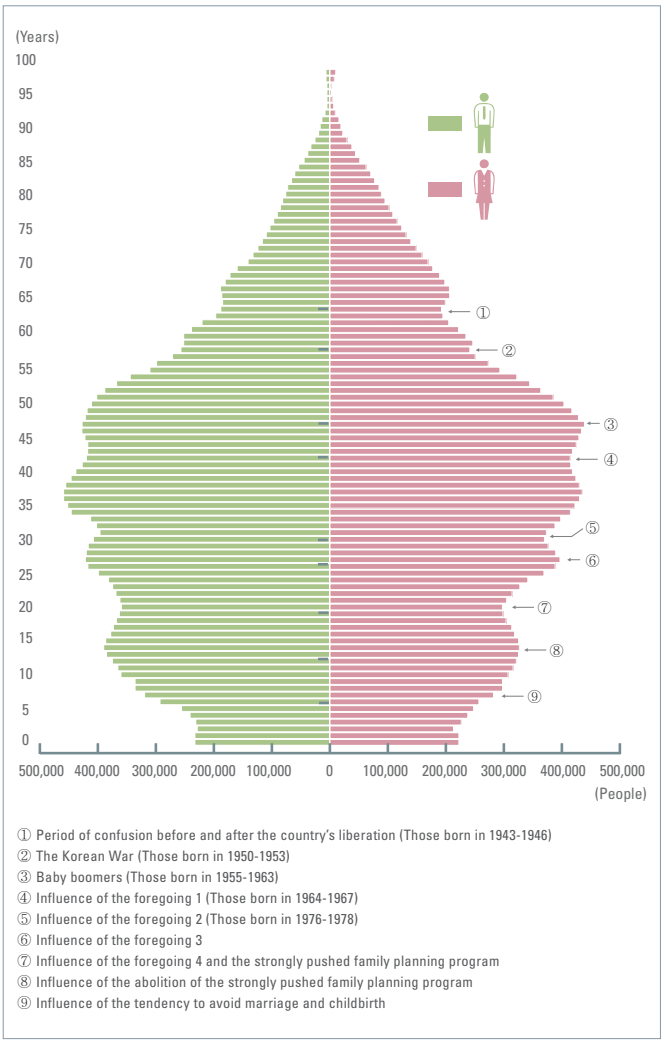
Note: 1) A year-on-year figure.
Source: KOSTAT 「Population Projections」 (November 2006), UN (2010); 「Korea Statistical Yearbook」(2000)

Table 2.2 Population Density (2007) (Persons/km²)

Rank	Country	Population density	Rank	Country	Population density
1	Macao	19,853	8	Bahrain	1,013
2	Monaco	16,483	9	Maldives	1,017
3	Singapore	6,360	10	Bangladesh	1,096
4	Hong Kong	6,211	12	Taiwan	632
5	Gibraltar	4,844	15	South Korea	485
6	Malta	1,284	20	Japan	337
7	Bermuda	1,181	34	North Korea	196

Note: Taiwan Statistical Yearbook 2006, CIA World Fact Book 2010 (concerning Monaco).
Source: KOSTAT, Ministry of Land, Transport and Maritime Affairs, UN 「Demographic Yearbook, 2008」

Fig 2.1 Population Pyramids (as of July 1, 2008)



① Period of confusion before and after the country's liberation (Those born in 1943-1946)
② The Korean War (Those born in 1950-1953)
③ Baby boomers (Those born in 1955-1963)
④ Influence of the foregoing 1 (Those born in 1964-1967)
⑤ Influence of the foregoing 2 (Those born in 1976-1978)
⑥ Influence of the foregoing 3
⑦ Influence of the foregoing 4 and the strongly pushed family planning program
⑧ Influence of the abolition of the strongly pushed family planning program
⑨ Influence of the tendency to avoid marriage and childbirth

Life expectancy

As the average expected lifespan of a new-born child, life expectancy is a leading indicator of a society's level of health and development. Based on the most recent data in spite of differences in the timing of data production, the life expectancy of Korean males stands at 76.5 in 2008, which is up 0.3 year compared to the average of OECD countries; while that of their female counterparts stands at 83.3, which is up 1.5 year compared to the average of OECD countries (81.8). Compared to their Japanese counterparts, reputed as having one of the world's highest life expectancy rates, the life expectancy of Korean males and females are 3.1 years and 3.3 years lower, respectively, according to the data for 2007.

Table 2.3 Life Expectancy in OECD Countries (Years)

	Year	Life expectancy		Difference
		Males	Females	
Korea	2009	77.0	83.8	6.8
	2008	76.5	83.3	6.7
	2007	76.1	82.7	6.6
	2006	75.7	82.4	6.7
	2005	75.1	81.9	6.8
Germany	2006	77.2	82.4	5.2
USA	2006	75.4	80.7	5.3
Sweden	2007	78.7	82.9	4.1
Spain	2006	77.7	84.4	6.7
UK	2005	77.1	81.1	4.0
Italy	2006	77.9	83.8	5.6
Japan	2007	79.2	86.0	6.8
OECD average	The most recent data	76.2	81.8	5.6

Note: OECD health data 2009 (http://www.oecd.org/home) for the other countries.
Source: KOSTAT 「Life Tables for Korea in 2008」

Stronger trend toward family nuclearization

The number of ordinary households (with institutional households and foreigner households excluded) has continued to increase from 6,648,000 in 1975 to 14,312,000 in 2000 and to 15,887,000 in 2005. The increase in the number of households has outpaced the increase in the entire population as a result of the complex interaction of demographical factors, such as industrialization, deruralization, urbanization or expansion of nuclear families, and socio-economic factors. The average number of household members has decreased from 5.0 in 1975 to 4.5 in 1980, 3.1 in 2000 and 2.9 in 2005, showing a clear trend toward small nuclear families.

Like the age group composition of the population, the generational composition of households has shown a rapid change. Two-generation households still remain the most common type, but one-generation or one-person households are rapidly increasing, while the number of three-generation households is steadily decreasing.

Table 2.4 Generational Distribution Ratio of Ordinary Households

(1,000 households, %, Persons)

	Total	One-generation	Two-generation	Three-generation	One-person households	Households of unrelated persons	Average number of household members
1975	6,648	6.7	68.9	19.2	4.2	-	5.0
1980	7,969	8.3	68.5	16.5	4.8	1.5	4.5
1985	9,571	9.6	67.0	14.9	6.9	1.7	4.1
1990	11,355	10.7	66.3	12.5	9.0	1.5	3.7
1995	12,958	12.7	63.3	10.0	12.7	1.4	3.3
2000	14,312	14.2	60.8	8.4	15.5	1.1	3.1
2005	15,887	16.2	55.4	6.9	19.9	1.4	2.9

Note: Taiwan Statistical Yearbook 2006, CIA World Fact Book 2010 (concerning Monaco).
Source: KOSTAT, Ministry of Land, Transport and Maritime Affairs, UN 「Demographic Yearbook, 2008」

Extended families are the traditional Korean family unit.

Members of a nuclear family are having a wonderful time at a ski resort.

3/ Labor

The country's employment structure has changed, in the space of only 30~40 years, to become something similar to that of more industrialized countries.

Economically active population

Labor is important as it is a way of realizing one's potential, as well as a means of making a living. The Government regards it as an important policy objective to provide stable jobs to people as part of its efforts to guarantee the right of labor, which is one of the basic rights of people provided for in the Constitution. Employment and unemployment statistics are basic materials for the Government's establishment of labor policies.

An economically active population refers to individuals who either are employed or are actively seeking employment.

The labor force participation rate, which refers to the ratio of the economically active population to the working age population (those 15 years old or over in Korea), is a measure of the efficiency concerning a society's utilization of labor as a resource.

The Statistics Korea (KOSTAT) produces statistics concerning the economically active population and the employed and the unemployed by carrying out a survey of the status of economic activities in the week, including the 15th of each month, across 32,000 sample households nationwide. These households are selected on the basis of the findings of the population and housing census in accordance with the criteria set by the International Labor Organization (ILO).

In 2009, the country's economically active population stood at 24,394,000, i.e. 60.8% of those aged 15 or over. From this figure, 23,506,000 are employed and 889,000 are unemployed leading to an unemployment rate of 3.6%. Due to the drop in the economy's ability to create jobs, the year-on-year increase in the number of the employed is decreasing every year, i.e. 418,000 in 2004, 299,000 in 2005, 295,000 in 2006, 282,000 in 2007, 145,000 in 2008 and 71,000 in 2009.

Employment structure

Looking at the industry employment structure in 2009, those employed in the agriculture, forestry and fisheries sectors accounted for 7.0%, while those employed in the mining and manufacturing sectors stood at 16.4%, showing a gradual decrease. Those employed in the SOC and other service sectors stood at 76.6%, demonstrating a year-on-year increase. It appears that such a trend will continue amid the development of information and communication technology as well as the recent trend for attaching importance to high value-added industrial sectors, such as services, the knowledge-based sectors and the sophisticated technology sectors.

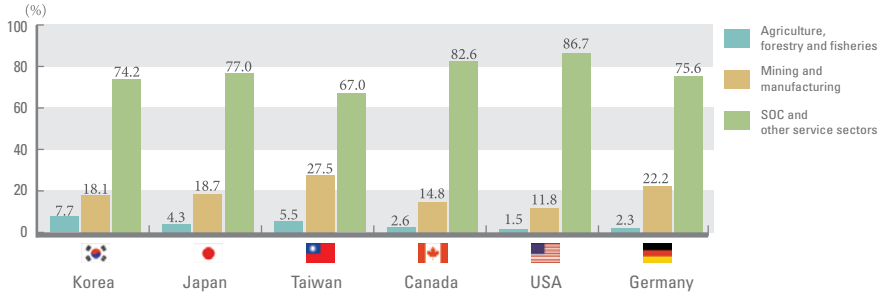
The country's employment structure has changed, in the space of only 30~40 years, to become something similar to that of more industrialized countries, as shown by the following Figure.

Table 3.1 Employment Trend (1,000 persons, %)

	Population 15 or over	Economically active population			Labor force participation rate	Unemployment rate
			The employed	The unemployed		
2000	36,186	22,134	21,156	979	61.2	4.4
2005	38,300	23,743	22,856	887	62.0	3.7
2006	38,762	23,978	23,151	827	61.9	3.5
2007	39,170	24,216	23,433	783	61.8	3.2
2008	39,598	24,347	23,577	769	61.5	3.2
2009	40,092	24,394	23,506	889	60.8	3.6

Note: Enlisted service people and those serving jail terms are excluded in the number of those aged 15 or over.
Source: KOSTAT

Fig 3.1 Distribution Ratio of the Employed in Major Countries (2008)



Source: KOSTAT

A laborer is working on the production line at an automobile factory of a motor company.

Wage level

Amid the trend towards globalization and the opening of domestic markets and the attempt to run them in a single unified environment, the securing of domestic goods' competitiveness has emerged as a factor more important than anything else. National competitiveness, including the price competitiveness of goods, is affected by nominal labor cost (wages), labor productivity and exchange rates. A low rate of rise in nominal wages leads to higher competitiveness from a labor cost perspective.

Table 3.3 shows a comparison of hourly wage index in manufacturing between countries. It shows that the country's wage index stood at 109.8 in 2009, a 3.6-fold rise from 36.9 in 1990, compared to a 1.7-fold rise in the U.S., a 1.2-fold rise in Japan and a 1.5-fold rise in Canada, in the same period.

Average work hours per week

In 2008, Koreans' average weekly work hours in manufacturing stood at 43.7 hours, a 1.7 hour decrease from the preceding year. It shows that Koreans work for longer hours than their counterparts in other OECD member countries, who work less than 40 hours a week.

In 2004, the country adopted a five-day work week system with businesses employing less than 20 employees not required to adopt the system until 2011. Under the system, employers shall not ask their employees to work for more than 40 hours a week. The system is expected to enable workers to have more time for leisure and hobby activities, enhance the quality of their lives, foster a family-oriented leisure atmosphere, and develop more sound consumption habits. It will also enhance overall productivity through the development of human resources, provide more opportunities to enhance women's participation in social activities, help develop service-related industrial sectors and help share jobs among workers.

Table 3.2 Distribution Ratio of the Employed (1,000 persons, %)

	Total	Agriculture, forestry and fisheries	Percentage	Mining and manufacturing	Percentage	SOC and other service sectors	Percentage
2000	21,156	2,243	10.6	4,310	20.4	14,603	69.0
2005	22,856	1,813	7.9	4,251	18.6	16,789	73.5
2006	23,151	1,781	7.7	4,185	18.1	17,181	74.2
2007	23,433	1,723	7.4	4,137	17.7	17,569	75.0
2008	23,577	1,686	7.2	4,101	17.4	17,784	75.4
2009	23,506	1,648	7.0	3,859	16.4	17,998	76.6

Note: Based on the 8th industrial classification.
Source: KOSTAT

Table 3.3 Hourly Wage Index (in manufacturing) (2005=100.0)

	Germany	USA	Japan	Canada	Korea
1990	70.2	75.3	86.0	77.6	36.9
1995	88.7	86.2	95.0	90.9	70.2
2000	91.7	86.5	96.4	88.9	65.1
2005	100.0	100.0	100.0	100.0	100.0
2006	100.8	101.5	101.3	99.7	105.6
2007	103.2	104.3	100.9	105.1	112.8
2008	106.1	107.2	101.0	106.9	108.9
2009	108.0	110.1	92.9	101.5	109.8
Rate of increase (1990 ~ 2009)	67.7	69.2	12.1	47.0	357.5

Note: Figures concerning Germany refer to an increase rate from 1990 to 2006.
Source: OECD, 「Main Economic Indicators」

Table 3.4 Average Work Hours by Gender (Hours)

	2002	2003	2004	2005	2006	2007	2008	2009
Male	51.6	50.9	50.5	49.7	49.6	48.9	47.8	47.9
Female	47.3	46.5	46.1	45.7	45.4	44.6	43.4	43.1
Total	49.8	49.1	48.7	48.1	47.9	47.1	46.0	45.9

Source: 「Korea Statistical Yearbook」(2010)

Table 3.5 Average Work Hours in Manufacturing (Hours)

	2000	2001	2002	2003	2004	2005	2006	2007	2008
Korea	49.3	48.3	47.7	47.6	47.4	46.9	46.0	45.4	43.7
Japan	-	-	-	43.1	43.5	43.5	43.5	42.9	42.4
Taiwan	45.8	42.5	43.2	43.4	43.9	43.5	43.1	43.2	43.2
Australia	-	38.0	38.2	38.2	38.1	38.1	37.9	37.6	37.7
France	36.3	35.7	35.3	35.6	36.0	36.3	36.4	36.5	36.7
Germany	37.9	37.8	37.6	37.7	37.6	37.7	37.9	38.4	38.4
UK	41.3	41.3	41.0	40.9	41.0	40.6	40.7	40.9	-
USA	41.3	40.3	41.5	40.4	40.8	40.7	41.1	41.2	41.2

Note: 1) Based on real work hours for Korea, Japan, France, Australia and Taiwan and on paid work hours for USA, UK and Germany.
2) Based on businesses with 5 or more regular employees from 1999 in Korea.
Source: Korea Labor Institute and, ILO

4/ Prices and Household Economy

A price index, which is a figure used to express changes in prices, is used as a useful index to indicate changes in the economy. It is divided into producer price index, consumer price index and import and export price index.

Prices

A price index, which is a figure used to express changes in prices, is used as a useful index to indicate changes in the economy. It is divided into producer price index, consumer price index and import and export price index.

Producer price index

In 2009, the producer price index stood at 110.9 (2005=100.0), a 0.2% year-on-year drop. The drop was attributable to a 1.6% decrease of 'manufacturing industry products' under the impact of a drop in international raw material prices.

By detailed item, the index for 'agricultural, forest and marine products', 'electric power, water and gas supply' and 'services' grew by 8.7%, 6.7% and 0.7%, respectively.

Household economy

A key player in the national economy, along with businesses and the Government, the household economy is a kind of private economy that aims to maintain and enhance family life. With the expansion of the size of the national economy, household income has increased. The income structure has become diversified. Household consumption and expenditure showed a change both qualitatively and structurally.

Household income

In 2009, the monthly average income of households, with two persons or more, stood at 3,442,771 won, a 1.5% (or 50,021 won) increase from 3,392,750 won in 2008. The rate of increase was 4.6%p lower than that of the preceding year (i.e. 6.1%). Monthly average regular income of households stood at 3,302,932 won, a 1.4% (or 47,090 won) year-on-year increase; while monthly average non-regular income of households stood at 139,839 won, a 2.1% (or 2,931 won) year-on-year increase.

Table 4.1 Producer Price Index (2005=100) (Year-on-year percent change, %)

	2001	2005	2006	2007	2008	2009
Overall index	-0.4	2.1	0.9	1.4	8.6	-0.2
Agricultural, forest and marine products	3.6	-3.7	-2.5	2.8	1.1	8.7
Manufacturing industry products	-2.1	6.7	0.2	0.8	11.9	-1.6
Electric power, water and gas supply	8.4	1.2	7.4	3.5	4.2	6.7
Services	1.0	1.2	2.2	2.3	2.5	0.7

Source: The Bank of Korea

Table 4.2 Monthly Average Household Income and Expenditure[1] (1,000 won, %)

	2008			2009		
	Amount	Component ratio	Percent change	Amount	Component ratio	Percent change
Income	3,392.7	100.0	6.1	3,342.7	100.0	1.5
Regular income	3,255.8	94.2	6.4	3,302.9	95.9	1.4
(Employee income)	2,208.8	64.0	8.2	2,244.0	65.2	1.6
(Other income[2])	1,047.1	30.1	2.8	1,059.0	30.8	1.1
Non-regular income	137.0	5.8	-0.4	139.8	4.1	2.1
Expenditure	2,719.0	100	-	2,782.8	100	-
(Consumption expenditure)	2,116.1	77.8	-	2,156.1	77.5	-
(Non-consumption expenditure)	602.9	22.2	-	626.7	22.5	76.6

Note: 1) Based on households with 2 or more members.
2) Other income = Self-employment earning + property income + transfer income.
Source: KOSTAT

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Customers are shopping at a mart.

5/ National Account

In 2009, the country's nominal GDP stood at 1,063 trillion won, a 3.6% year-on-year increase. In terms of the U.S. dollar, it stood at $832.9 billion, a 10.5% year-on-year decrease, due to the weakness of the local currency against the U.S. dollar.

Korea's economic size ranks 15th globally

The size of a country's economy can be checked by the process of cycling of economic activities, which refers to all activities of purchasing goods and services, with the income earned in return for participation in production activities using labor or capital owned by individuals. Gross domestic product (GDP) is an indicator showing the size of a country's economy.

In 2009, the country's nominal GDP stood at 1,063 trillion won, a 3.6% year-on-year increase. In terms of the U.S. dollar, it stood at $832.9 billion, a 10.5% year-on-year decrease, due to the weakness of the local currency against the U.S. dollar.

In 2008, the country's GDP ranked the 15th largest globally, compared to Japan (2nd), China (3rd) and India (12th).

Industrial structure

The country's industrial structure has changed from a typical agricultural country in the 1960s to an industrialized country, and is now being transformed into a service industry country. In more detail, the share of agriculture, forestry and fisheries in GDP decreased by 0.4%p year-on-year to 2.5% in 2008. This is compared to manufacturing, whose share increased by 0.8%p year-on-year to 28.1%. The share of construction in GDP decreased by 0.4%p year-on-year to 7.0% in 2008, whereas the share of services increased by 0.3%p year-on-year to 60.3% in 2008.

Table 5.1 National Income

	GDP		GNI		Per-capita GNI	
	Billion won	Billion dollars	Billion won	Billion dollars	Billion won	Billion dollars
1980	39,109.6	64.3	38,479.2	63.3	1.0	1,660
1985	85,699.1	98.4	83,666.6	96.1	2.1	2,355
1990	191,382.8	270.3	191,284.3	270.2	4.5	6,303
1995	409,653.6	531.3	408,013.6	529.2	9.1	11,735
2000	603,236.0	533.5	600,158.8	530.8	12.8	11,292
2005	865,240.9	844.7	864,427.3	843.9	18.0	17,531
2006	908,743.8	951.1	910,134.2	952.5	18.8	19,722
2007	975,013.0	1,049.3	976,813.9	1,051.2	20.2	21,695
2008	1,026,451.8	930.9	1,034,115.4	937.9	21.3	19,296
2009	1,063,059.1	832.9	1,068,654.1	837.2	21.9	17,175

Source: The Bank of Korea; 「Korea Statistical Yearbook」(2010)

Table 5.2 Industrial Structure (based on commodity prices in relevant years) (%)

Industrial sector	2000	2005	2006	2007	2008p[1)]
Agriculture, forestry and fisheries	4.6	3.3	3.2	2.9	2.5
Mining and manufacturing	28.6	27.8	27.4	27.5	28.3
(Manufacturing)	28.3	27.5	27.1	27.3	28.1
Electricity, gas and water supply	2.5	2.3	2.3	2.2	1.8
Construction	6.9	7.6	7.5	7.4	7.0
Services	57.3	59.0	59.7	60.0	60.3

Note: 1) Preliminary
Source: The Bank of Korea

Table 5.3 Employed Persons by Industry (1,000 persons)

Rank	2001	2005	2009
Total	21,572	22,856	23,506
Agriculture, forestry & fishing	2,148	1,813	1,648
Mining and manufacturing	4,285	4,146	3,859
(Manufacturing)	4,267	4,130	3,836
Social overhead capital and other services	15,139	16,897	17,998
(Construction)	1,585	1,813	1,720
(Wholesale & retail trade, restaurants & hotels)	5,874	5,804	5,536
(Electricity, transport, telecom & finance)	2,141	2,619	2,761
(Business, personal, public service & others)	5,540	6,661	7,981

Source: 「Korea Statistical Yearbook」(2010)

6/ Construction and Energy

Looking at the trend of the country's overseas construction projects, the highest point was hit in 1997, when a figure of $14 billion was earned, after which the number of projects nosedived. In 2003, the sector turned around to post a growth, winning more than $10 billion in 2005, for the first time in the 2000s.

In 2008, it appeared that 62,805 enterprises were actively engaged in construction work, a 2.3% increase from the previous year. The monthly average number of people engaged in construction work came to 1,657,000. In 2008, the combined sales of construction businesses stood at 192.700 trillion won, a 15.6% year-on-year increase amid an increase in the contractual work in the sectors of civil engineering, electrical and communications and architectural engineering.

Added value relating to contractual construction work increased to 72.69 trillion won; this resulted in a 43,870,000 won per-capita added value for those engaged in this type of venture.

Overseas construction

The country started overseas construction projects in 1965, enjoyed a boom during the 1980s, particularly in Middle Eastern countries that initiated numerous projects on the back of the oil dollar, and saw a decline under the impact of the financial crisis in 1997. The country is now ushering in a second overseas construction work boom era with a sharp increase in the number of overseas projects evident since 2005.

Looking at the trend of the country's overseas construction projects, the highest point was hit in 1997, when a figure of $14 billion was earned, after which the number of projects nosedived.

Burj Khalifa, a skyscraper in Dubai known as the tallest manmade structure in the world, was constructed by a Korean enterprise.

Table 6.1 Major Indices Relating to Construction (Billion won, %)

	2005	2006	2007	2008	2009	Percent change	
						2007	2008
Construction enterprises (1,000)	67	59	61	63	65	4.3	2.3
Employees (1,000 people)	1,718	1,717	1,728	1,657	1,661	0.6	-4.1
Amount of salary paid	36,832	37,492	34,941	37,847	38,421	-6.8	8.3
Sales	142,623	151,360	166,735	192,790	191,565	10.2	15.6
Construction work amount	133,734	137,843	151,919	178,356	177,686	10.2	17.4
Added value	61,740	67,684	68,020	72,695	75,908	0.5	6.9

Source: KOSTAT

Table 6.2 Overseas Construction Projects by Korean Businesses (Million dollars, %)

	1998	2003	2004	2005	2006	2007	2008	2009
Total	4,055	3,668	7,498	10,859	16,468	39,788	47,640	49,147
(Percent change)	-71	-40	104	45	52	142	20	103
Civil engineering	535	402	806	836	1,532	5,232	9,364	5,746
Architectural engineering	1,382	532	874	1,226	3,433	8,177	9,233	6,273
Industrial plants	1,954	2,491	5,182	8,263	10,920	25,268	26,764	35,692
Electrical engineering and telecommunications	146	200	548	387	477	731	1,355	775
Services	39	43	89	147	106	381	923	660

Source: International Contractors Association of Korea

In 2003, the sector turned around to post a growth, winning more than $10 billion in 2005, for the first time in the 2000s. In 2009, it earned $49.1 billion a 3% increase from the preceding year. The figures marked more than $40 billion for two years in a row.

The country's overseas construction sector has recovered steadily, after a turnaround in 2003, following the decline in 1998. This recovery was attributable to high international oil prices, which triggered another development boom in Middle Eastern countries, as well as strengthened plant market competitiveness in construction firms.

By area, the Middle East marked $35,746 million, accounting for 72%. The U.A.E. became the No.1 Middle Eastern country conducting business with South Korea: $15,860 million or 32% of its entire overseas construction projects were won by Korea.

It is expected that new overseas construction will see brisk business for years to come amid the favorable situation fostered by "the third Middle East boom", the recovery of construction in Asia and Africa, and the construction orders received for nuclear power plants.

Energy consumption

The country's energy consumption growth, which had shown a high annual rate of 7.7% in the 1990s, fell to 3.3% in the 2000s. As for final energy consumption, the share of high value added, low energy consuming sectors, such as the information and telecommunications sector, across the entire industry increased in the late 1990s and thereafter. This resulted in the stabilization of energy consumption in the industry. However, recently, with the brisk activities in material sectors, such as petrochemistry and iron & steel, the energy consumption in the industry started increasing at an annual rate of 4.0% in 2007 and 0.6% in 2008.

In 2008, the country ranked 9th globally in terms of primary energy consumption with a 2.1% share of the world's entire energy consumption of 11,295 million TOE. As for per-capita gross energy consumption, the world's average per-capita energy consumption stood at 5.01 TOE. Koreans consumed 4.68 TOE of energy in 2007 (based on the IEA's tentative statistics for 2007), showing a higher energy consumption propensity than more industrialized countries.

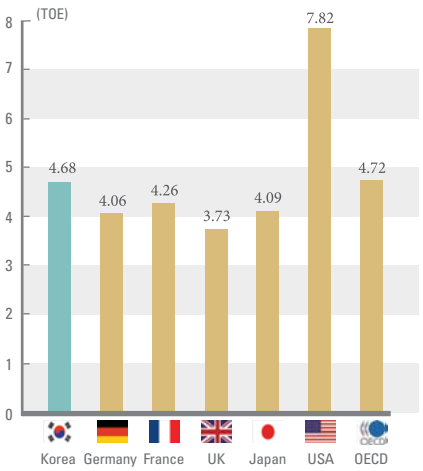
Primary energy consumption structure by source

Looking at the primary energy consumption structure by source in 2008, petroleum was the most used source at 41.6% of total energy consumption, followed by coal (27.4%), LNG (14.8%) and nuclear energy (13.5%). Recently, the country's leading energy sources are being changed from petroleum to environmentally-friendly energies, such as LNG and nuclear energy.

Energy policy in the era of high oil prices

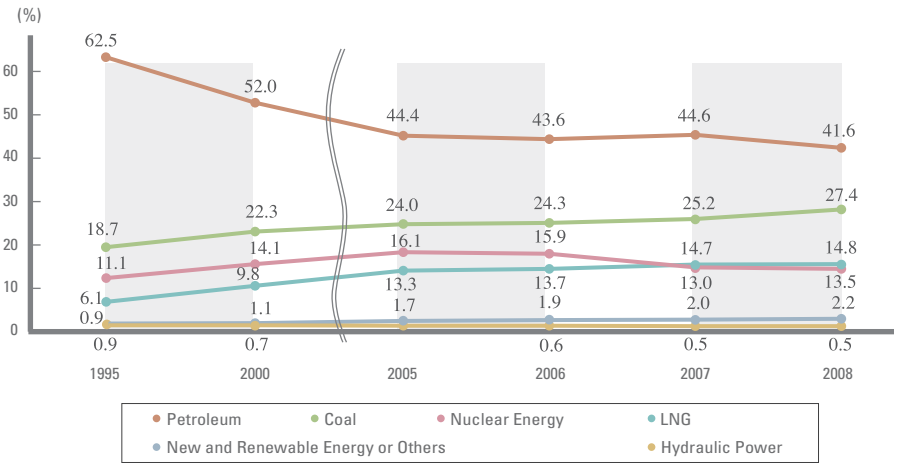
The Government is keenly aware of the need for establishment of a fundamental energy policy keeping in mind that a sharp rise in international oil prices may impair the country's economic growth potential. Such a policy includes development of overseas oil fields and pushes ahead with energy-saving initiatives and development of alternative energies with the aim of lowering the country's dependence on oil, until it accounts for less than 35% of its energy consumption. In addition to the efforts to enhance the share of natural gas and nuclear energy usage, the Government plans to depend more on environmentally-friendly new and renewable energy, such as photovoltaic energy and wind power energy, increasing its share from 2.4% in 2007 to 11% by 2030.

Fig 6.1 Per-capita Energy Consumption (2007)



Source: IEA

Fig 6.2 Primary Energy Sources' Component Ratio



Source: KEEI

7/ Transportation and Telecommunications

Recently, the importance of ports as logistics centers has been emphasized more than ever before amid globalization of the economy and changes in businesses' management strategies.

Passenger transportation share by transportation means

The number of domestic users of public transportation increased gradually until 1990 in tandem with an increase in the number of people engaged in economic activities and tourists. However, this figure stopped increasing, or decreased, due to the explosive increase in the number of privately owned cars in the 1990s. In 2005, however, it started increasing again. The number of people using railway services or subways, in particular, has been on the increase.

In 2008, the number of users of public transportation came to 12,990 million, a 2.9% increase from the previous year. As for passenger transportation share by transportation means, roads led the others with a share of 75.4%, followed by subways (16.5%) and railway services (7.8%).

All destinations in the country accessible within half a day through the opening of the high-speed railroad

With the opening of the country's first high-speed railroad in April 2004, it came to take only two hours and 40 minutes between Seoul and Busan; thus making all destinations in the country accessible within half a day. Following the work carried out between 1992 and April 2004, the Seoul-Busan High-Speed Railroad was opened to traffic, with the Daegu-Busan section still using the existing railroad. Thus, the country joined the ranks of countries operating trains at a speed higher than 250km/h, i.e. Japan, France, Germany, Spain, etc. The adoption of this new high-speed, mass transportation option made all destinations in the country accessible within 3 hours, thus bringing a drastic change to people's everyday life. The high-speed railroad has secured its position as a leading next-generation means of transportation that is fast, safe and environmentally-friendly; in addition to being a product of high-end technology.

With the construction of the Seoul-Busan High-Speed Railroad, the railroad's passenger transportation capability increased by 3.4-fold. It is also expected that many of the previous users of highways will switch to the high-speed railroad, resulting in approximately 2.4 trillion won worth of socioeconomic benefits related to time and fuel expenses saved (based on estimation in 2001).

Looking at leading countries in the provision of a high-speed railroad, Japan is the most advanced country. It opened the first high-speed railroad in 1964 and has extended the network to a total of 2,177 km. It is followed by France that has built a total of 1,542 km. Germany and Spain built their respective high-speed railroads in the early 1990s.

Table 7.1 Domestic Passenger Transportation

	Passenger (Million people)	Share(%)				
		Railroad	Subway	Road	Ship	Airplane
1990	14,488	4.5	7.6	87.8	0.1	0.1
1995	13,803	5.7	12.2	81.8	0.1	0.2
2000	13,515	6.2	16.5	77.0	0.1	0.2
2005	11,801	8.1	17.1	74.6	0.1	0.1
2006	12,187	8.0	17.1	74.7	0.1	0.1
2007	12,628	7.8	16.6	75.4	0.1	0.1
2008	12,990	7.8	16.5	75.4	0.1	0.1
2009	12,824	8.0	17.0	74.8	0.1	0.1

Source: MLTM 「Annual Statistical Report on National Land and Seas」; 「Korea Statistical Yearbook」(2010)

Table 7.2 Comparison of the High-Speed Railroads in Major Countries

	Length (km)	Highest speed (km/h)
Korea	432	300
Belgium	221	300
France	2,798	300~350
Germany	880	250~320
Italy	906	300
Spain	1,979	300~320
Japan	2,739	270

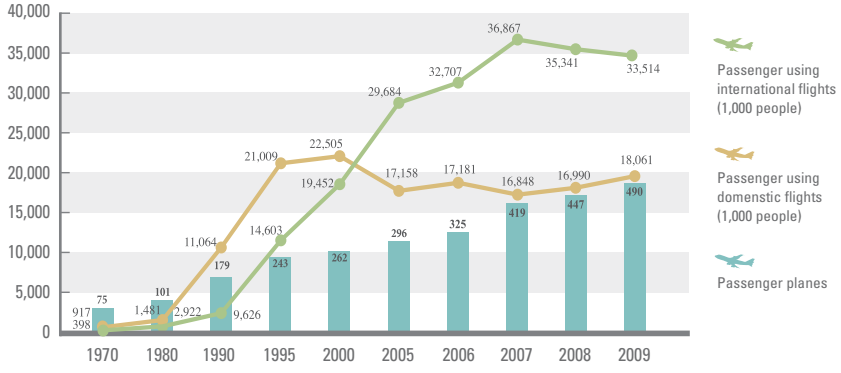
Source: Korea Railroad Research Institute, 2006

KTX (Korea Train Express), the high-speed railroad of South Korea

A sharp increase in the demand for commercial flights amid globalization

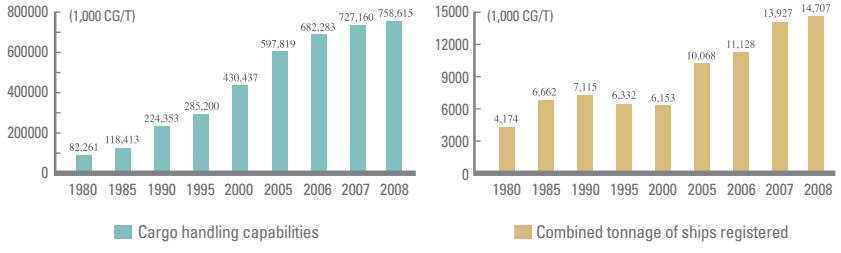
Passenger flights have made strides in step with the progress of science and technology. With the adoption of full-sized jet planes that can cover long distances within a short space of time, passenger flights came to occupy an important position in passenger transportation. The demand for passenger flights in Korea has grown steadily - in tandem with the economic growth and the enhancement of people's income - since the 1960s and particularly in the 1990s, on the strength of the briskness of trade and exchange with other countries amid the flow of globalization. This demand is insatiably increasing due to people's preference for fast and high-end transportation means for both domestic and international trips. As of 2009, the number of passenger planes owned by domestic airlines stood at 490, a more than 5-fold increase from 1970. This was in response to the increase in the number of passengers and the volume of cargo for international flights. However, in the case of domestic flights, the number of passengers continued to decrease in the 2000s apparently due to fierce competition with land transportation means, i.e. railroads and roads.

Fig 7.1 Number of Passenger Planes & Passengers



Source: Korea Civil Aviation Development Association (KADA)

Fig 7.2 Cargo Handling Capabilities at Ports and Combined Tonnage of Ships Registered



Source: MLTM 「Annual Statistical Report on National Land and Seas」

Incheon International Airport, the hub of Northeast Asia

A rapid increase in cargo handling capabilities at ports

In the course of carrying out its economic development plan in the 1960s, and thereafter, the country pushed ahead with an economic policy focusing on a shift of the economic structure away from domestic consumption to an export-oriented structure. Thus, the volume of exports and imports increased greatly, which, in turn, led to phenomenal development of the country's maritime and port sectors, as well as the expansion of the scope of its international transportation focused on timely delivery of cargo and enhancement of international competitiveness of its goods.

Recently, the importance of ports as logistics centers has been emphasized more than ever before amid globalization of the economy and changes in businesses' management strategies. This is because ports contribute greatly to what is good for both local businesses and the country concerned. Logistics centers act as the focal point of the local economy; they serve as a channel for the supply of goods, people and information and create enormous added value. At present, the Government is making an all-out effort to develop Busan and Gwangyang into world-class ports to serve as leading gateways to Northeast Asia, under the strategy of making the country the logistics hub in the region. As of 2008, the country's combined cargo handling capabilities at its ports stood at 758,610,000 CG/T, a 9-fold increase from 1980. The combined tonnage of ships registered in the country came to 14,700,000 CG/T, a 3.5-fold increase from 1980, amid the trend towards larger ships.

Table 7.3 Internet Users and Internet Use Rate (1,000 people, %)

	2003	2004	2005	2006	2007	2008	2009
Internet users	2,922	3,158	3,301	3,491	3,559	3,619	3,658
Internet use rate	65.5	70.2	72.8	74.1	76.3	76.5	77.2

Source: National Internet Development Agency of Korea (NIDA), 「A survey of the status of Internet use」

Table 7.4 Number of Cell Phone Subscribers and Penetration Rate

Country	Subscribers (Million people)	Rank	Penetration rate (%)	Rank
Italy	89.3	9	152.8	1
Greece	16.2	31	145.9	2
Hong Kong	9.6	39	138.3	3
Portugal	14.3	33	134.3	4
Israel	8.9	40	127.9	5
Czech	13.1	34	127.1	6
Singapore	5.6	44	125.0	7
Finland	6.4	43	122.4	8
Russia	172.9	4	121.7	9
UK	74.1	11	121.7	9
Korea	**43.5**	**18**	**89.9**	**27**

Note: Based on the end of 2007.
Source: "Global Wireless Matrix4Q07" (Merrill Lynch, 21 April 2008)

Internet use rate

Korea has established an advanced Internet infrastructure within a short period time. This well-established Internet infrastructure helps various sectors enhance their productivity in an epoch-defining way, while causing changes in people's lifestyles and increasing the number of Internet-related jobs.

Since 1994, when the country's commercial Internet service first began, the number of people using it has continued to increase until it had 30 million users in 2004 and 35,580,000 in 2009 (77.2% of Koreans aged 6 or more used Internet services, thus ushering in the "popularized" Internet era).

It was the result of establishment of a nationwide high-speed Internet network, adoption of a competitive system in the market for Internet connection services, and Koreans' strong interest in education and in adoption of new technologies. Thus, the Internet has become a part of Koreans' everyday life, through Internet banking to shopping.

9 out of every 10 Koreans use a cell phone

Cell phones have become a universal means of communication. Nowadays, virtually no Korean can imagine spending a day without their cell phone. They offer a variety of conveniences, including being able to talk to others in almost any place and at any time and easy access to a huge amount of useful information. As of the end of 2008, the number of cell phone service subscribers stood at more than 45 million, i.e. nine out of every 10 Koreans.

Such a rapid spread of cell phones is attributable to the wide variety of services they offer, including wireless Internet, their function as a phone, continually reduced monthly fees, and the improved functions of the handset. As of the end of 2007, the country's cell phone penetration rate stood at 89.9%, placing the country 27th globally.

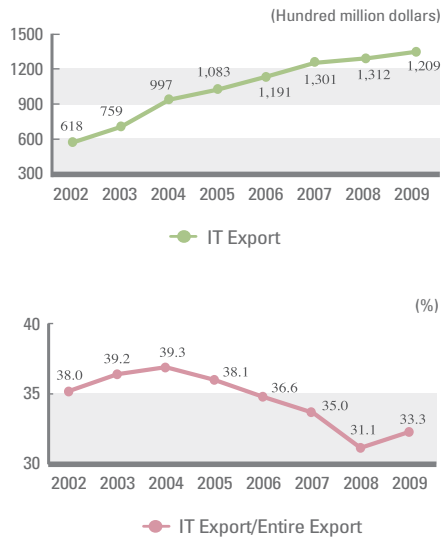
Status of the software industry

As shown by the computer distribution rate and the number of Internet users, Korean society has been equipped with the world's top information infrastructure. In 2009, the country's information technology (IT) sector posted exports worth $120.9 billion, which accounted for 33.3% of the country's entire exports. It shows that the IT sector takes the lion's share of the country's economy. With the development of the IT industry, the share of the software industry has also grown larger. The government has a strong commitment to the development of the software industry as a next-generation growth engine.

Although the country still does not have a software business large enough to be reckoned with in the world market, and it appears that many people do not have a firm view of copyright as an object that should be protected at any price, the share of software industry in GDP showed a steady increase from 1.22% in 2005 to 1.29% in 2008.

Latest smartphones combining style and function

Fig 7.3 Share of IT Exports in the Country's Entire Exports



Source: Institute for Information Technology Advancement (IITA)

A woman is purchasing a book by using her smartphone at a subway station.

8/ Foreign Trade and Balance of Payments

Inter-country trade is an economic activity designed to enhance the respective interests of countries by means of exchanges of goods and services. For Korea, foreign trade has particular significance as the resource-deficient country has to rely on imported raw materials to be exported after processing. The development of transportation means and telecommunications technologies results in brisker inter-country transactions. Earlier, inter-country trade focused on goods, particularly raw materials, including petroleum, coal, and intermediate goods. Now, in contrast, the items traded have become much more diverse, including services relating to labor, capital, technology and finance, as well as intellectual property rights, such as trademarks, copyrights and patents.

A surplus of $40.4 billion in the trade balance

Looking at the industry employment In 2009, the country's exports recorded at $363,534 million, a 13.9% year-on-year decrease as a result of global recession. Imports also posted a 25.8% decrease to $323,085 million, amid low prices of imported oil and overall demand shortage. This surplus surpassed the previous high, $39 billion, set in 1998.

In 2009, in terms of the amount of exports, shipbuilding ranked No.1, which surpassed petroleum products that ranked No.1 in 2008. Liquid crystal devices led exports, too. Imports declined due to a sharp drop in raw materials as well as a drop in capital goods and consumer goods.

In the meantime, the country's share of exports on the global market stood at 3.0%. Two years have passed since recording the benchmark share of 2% in 1989.

The country's businesses maintained market power on the global market. Shipbuilding and LCD panels stilled ranked No.1 globally. Wireless devices ranked No.2 globally. Semiconductors and motor vehicles ranked Nos.3 and 5, respectively.

In 2008, the country posted record figures for both exports and imports. The combined figure of exports and imports stood at a solid $857.3 billion, despite difficulties caused by exorbitant oil prices and the worldwide recession. In 2007, the combined figure of exports and imports stood at $728.3 billion making South Korea the world's 11th largest trading nation, pushing aside Hong Kong. In terms of the growth rate in exports between 1974, when the country's exports reached the $10 billion mark, and 2007, the country recorded the highest annual exports growth rate (14.3%) among the major exporting countries, excluding China. In terms of the combined figure of exports and imports, the country, over a period of 20 years, recorded an 8-fold increase in 2008, after it reached the $100 billion mark in 1988.

Table 8.1 Status of Exports and Imports (based on customs clearance)

(Million dollars, %)

	Total		Exports		Imports		Trade balance
		Percent change		Percent change		Percent change	
1980	39,797	12.4	17,505	16.3	22,292	9.6	-4,787
1990	134,859	8.9	65,016	4.2	69,844	13.6	-4,828
2000	332,749	26.3	172,268	19.9	160,481	34.0	11,787
2006	634,848	16.3	325,465	14.4	309,383	18.4	16,082
2007	728,335	14.7	371,489	14.1	356,846	15.3	14,643
2008	857,282	17.7	422,007	13.6	435,275	22.0	13,267
2009	686,618	-19.9	363,534	-13.9	323,085	-25.8	40,449

Note: Percent change (over the previous year).
Source: Korea Customs Service

Table 8.2 Foreign Exchange Reserve

	1998	2005	2006	2007	2008	2009
Foreign exchange reserve (Hundred million dollars)	485	2,104	2,390	2,622	2,012	2,700
Ratio of Foreign exchange reserve to GDP (%)	14.0	24.9	25.1	25.0	21.6	32.4
Foreign exchange reserve/Monthly ordinary payment made in dollars (Months)	4.5	7.4	7.4	6.7	4.4	7.8
Short-term foreign debts/Foreign exchange reserve (%)	81.6	31.3	47.6	61.1	74.5	55.6

Source: The Bank of Korea

In 2009, in its trade with 10 major trading partner nations, the country recorded a surplus towards Hong Kong, China, Marshal Islands, U.S.A., and Singapore while posting a deficit towards Japan, Saudi Arabia, the UAE, Australia and Qatar from which it imported chiefly crude oil, capital goods and raw materials. Looking at the size of inter-country trade, China emerged as the country's No.1 trading partner nation, pushing aside the U.S.A. and Japan.

Major items exported and imported

Amid the trend towards globalization and the opening of domestic markets and the atAs for the country's leading exported and imported items in 2009, shipbuilding topped the list of exported items, followed by mobile phones, electronic consolidated circuits, LCD and cars whereas crude oil topped the list of imported items due to unusually high oil prices, followed by electronic consolidated circuits, gas, petroleum products, and coal.

Foreign exchange reserve

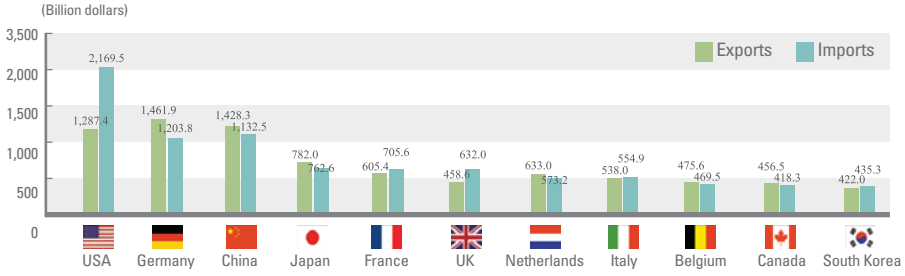
Foreign exchange reserve refers to foreign currency-denominated financial assets available for use by the central bank and the Government. They are assets featuring high exchangeability, liquidity and marketability.

An extremely low level of foreign exchange reserve may lead to the status of moratorium (which means that a borrower declares inability to repay some or all of an outstanding debt or ceases paying the debt service interest on a loan).

The country's foreign exchange reserve has steadily increased on the back of the continued surplus in the current account balance due to increases in exports, the continued inflow of foreigners' investment funds amid successful corporate management, innovation of the financial structure and the enhancement of the sovereign rating. It is difficult to say what is a proper level of foreign exchange reserve, but it is necessary to improve the efficiency of the operation of foreign currencies on hand and make continued efforts to reduce the expense of keeping them. However, it should be kept in mind that it is important to maintain a sufficient level of foreign exchange reserve to enhance the country's sovereign rating and prevent the repetition of a crisis situation (with due considering given to the country's specific situation, such as its being a small-sized open economy and the geopolitical situation surrounding the country).

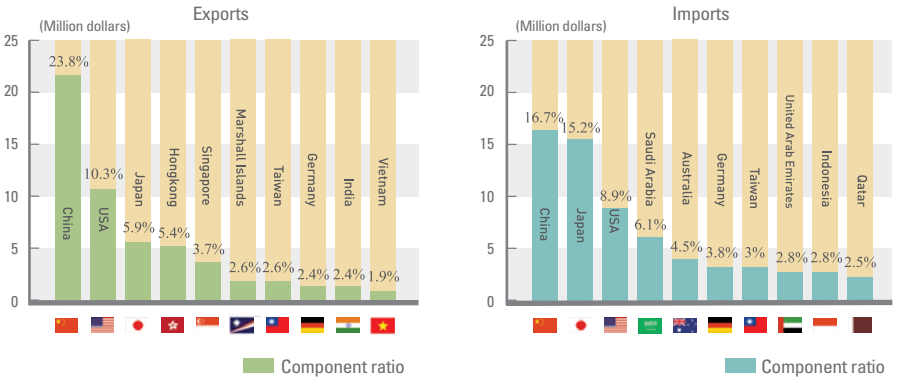
As of the end of 2009, the country's level of foreign exchange reserve stood at $270.0 billion, the world's 6th largest after China, Japan, Russia, Taiwan and India.

Fig 8.1 Major Countries' Trade Volume (2008)



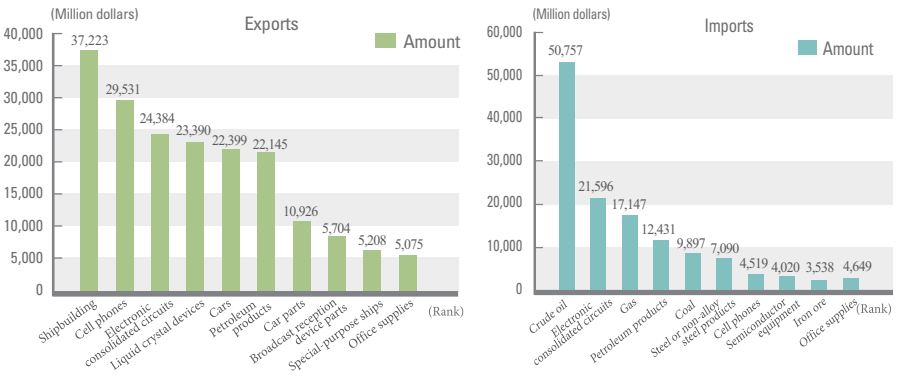
Source: WTO

Fig 8.2 Korea's Exports and Imports to and from the Ten Major Trading Nations (2009)



Note: Based on customs clearance.
Source: Korea Customs Service

Fig 8.3 10 Leading Imported and Exported Items



Source: Korea Customs Service

9/ Public Finance

The country has made a rapid progress since its liberation from colonial rule, overcoming an array of political and social confusions and tumultuous changes. In such a process, the role of public finance was very importance in connection with the need to form SOC, a sound investment basis and develop key industries.

Ratio of fiscal expenditure to GDP: 25.7%

The country has made a rapid progress since its liberation from colonial rule, overcoming an array of political and social confusions and tumultuous changes. In such a process, the role of public finance was very importance in connection with the need to form SOC, a sound investment basis and develop key industries. Public finance refers to the management of expenses for the maintenance and operation of the state system by the government, as entrusted by the people. The scale of public finance has grown in keeping with the country's economic growth.

The size of the central Government's consolidated public finance, which used to remain stable at the level of 18~20% against GDP, rose with public finance playing a positive role in the economic recovery following the financial crisis in 1997. At present (2009), it maintains a level of 25.7%, after dropping to a level close to 19% with the economic recovery in 2002.

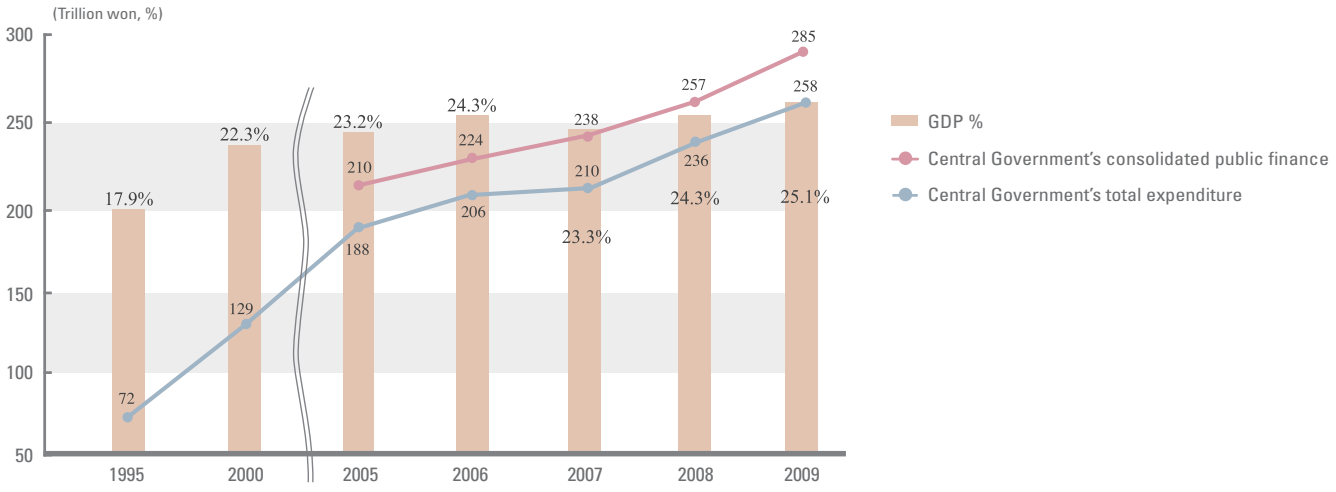
In 2009, the total size of the central Government's public finance stands at 301.8 trillion won, a 14.8% increase from 262.8 trillion won in 2008.

The country's tax burden ratio is lower than those of more advanced countries

The country has long maintained a fiscal policy that makes a point of keeping annual expenditure within the limit of annual revenue. Until the issuance of a large quantity of government/municipal bonds, which were intended to make up for the deficit caused by the financial crisis that hit the country towards the end of 1997, the Government imposed special-purpose taxes, such as the defense tax (1975), the education tax (1982) and the rural area special tax for development of rural areas (1994), rather than choosing the easier option of borrowing (like the issuance of government/municipal bonds), even when there was a need for special expenditure.

In such a process, the tax burden ratio has continued to increase along with the tax amount in accordance with an increase in people's income. However, the tax burden ratio dropped by 1.1%p to 19.7% in 2009 owing to lower taxation enforced to overcome the recession that started with the credit crunch in the U.S.A. in 2008.

Fig 9.1 The Central Government's Public Finance



Note: Concerning the central Government's consolidated public finance, figures concerning up to 2007 are based on account settlement, while figures for 2008~2009 and the size of the total expenditure are based on budget.

Source: Ministry of Strategy and Finance (MOSF) 「Consolidated Central Government Statistics」, 「Budget Overview」, 「National Fiscal Management Plan」

The Bank of Korea (BOK), the central bank of South Korea and issuer of the South Korean currency

But compared to the average figure for the 30 OECD countries, i.e. 26.7% (2007), the country's tax burden ratio still remains low. The public burden ratio, which refers to the ratio of the amount including national tax, local tax and social security contributions to GDP, stood at 26.5% in 2008, showing a rise similar to the tax burden ratio. It did, however, remain lower than the average of the major OECD countries, i.e. 35.8% (2007).

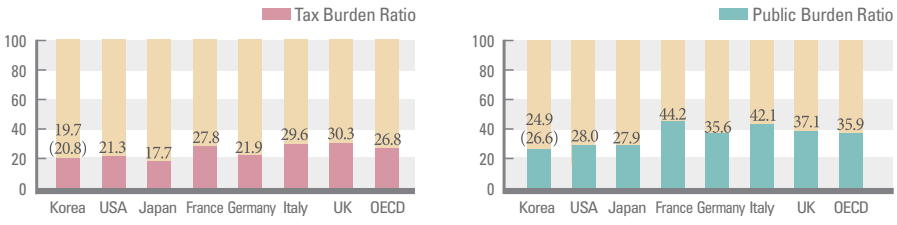
The continued rise in the country's public burden ratio can be attributed to an increase in wage income, which is the basis for imposition of social security insurance premiums, a rise in premiums for health insurance and industrial disaster insurance, and an increase in the number of national pension subscribers.

Table 9.1 Tax Burden Ratio (Trillion won)

	2005	2006	2007	2008	2009
Ordinary GDP	865.2	908.7	975.0	1,023.9	1,063.1
Tax	163.4	179.3	205.0	212.8	209.7
Tax burden ratio (%)	18.9	19.7	21.0	20.8	19.7
National tax	127.5	138.0	161.5	167.3	164.5
Local tax	36.0	41.3	43.5	45.5	45.2

Source: The Bank of Korea

Fig 9.2 Tax Burden Ratio and Public Burden Ratio (2007)



Note: Figures in ( ) are 2008 data.
Source: OECD Revenue Statistics (2008)

10/ Health and Welfare

The country's health and welfare budget has shown steady growth and reached the level of 12.0% of the entire budget in 2007, compared to 5.4% or 1,487.0 billion in 1990. The public assistance budget also recorded steady growth to 6,576.0 billion won or 4.2% of the entire budget in 2007, compared to 1.4% in 1990.

Life expectancy

With the development of medical skills and enhancement of health-related consciousness, the life expectancy of Koreans has increased by 17.3 years, i.e. from 62.3 years in 1971 to 80.1 in 2008 (with that of females being 7 years higher than that of their male counterparts).

Leading causes of death

Let's look at leading causes of death and mortality rates. The causes of death that showed the highest growth rate in the 1998-2009 period were cancer (26.3 among 100,000 people), suicide (16.0) and heart problems (6.1).

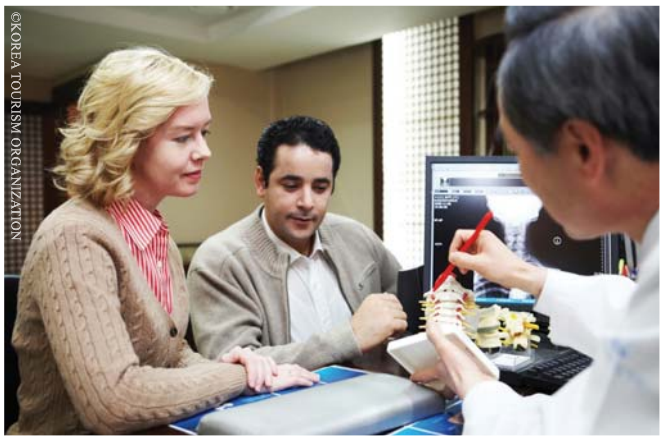
The causes of death that showed the highest reduction rate in the same period were cerebrovascular diseases (reduced by 20.9 among 100,000 people), traffic accidents (11.8 reduced) and liver diseases (9.6 reduced). Suicide moved up from being the 7th most common cause of death to the 4th, diabetes from the 6th to the 5th, and pneumonia from the 11th to the 9th. Traffic accidents moved down from being the 4th most common cause of death to the 7th, and liver disease fell from the 5th to the 8th.

People eligible for public pensions

Regionally, the system was adopted in rural and fishing villages and gun in July 1995. In April 1999, it was extended to include urban areas. In 2008, the number of the subscribers to the national pension system stood at 18,335,000 up 0.4% from 2008.

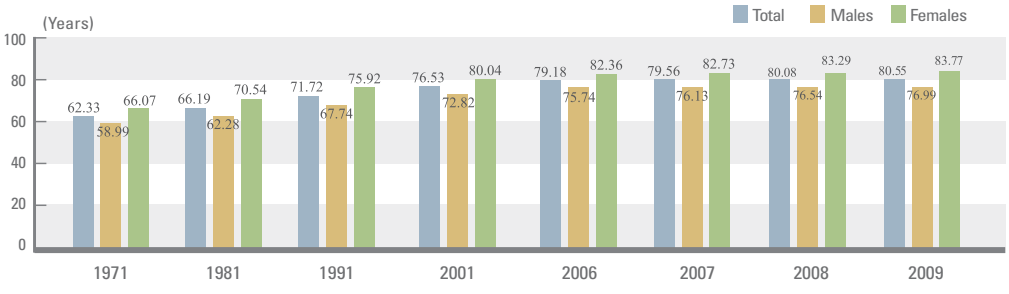
In 2008, the number of subscribers to a public pension system was 19,623,000, a slight increase from the preceding two years on the back of the increase in the number of subscribers to the national pension system.

As for health insurance, the system was first adopted in 1977 for businesses with 500 or more employees. In 1988, it was extended to include rural villagers. In 1989, it was extended to include all people. As of the end of 2008, 48,160 thousand people were covered by the health insurance system. 1,841 thousand people were covered by Korean version of Medicaid. 50,001 thousand people were covered by the health care system.



Korea is emerging as a hub for inbound medical tourism.

Fig 10.1 Life Expectancy



Source: KOSTAT

Medical institutions

The country's medical institutions have grown both in numbers and service quality. Amid higher interest in health following an increase in income and enhancement of living standards, the number of medical institutions increased about two-fold, i.e. from 21,701 in 1990 to 54,165 in 2008. The number of sickbeds has outpaced the population growth rate by a wide margin, showing a decrease in the number of people per one sickbed from 320 in 1990 to 102 in 2008. This attests to the drastic improvement in health care environment.

The number of medical doctors increased by more than two-fold, i.e. from 42,554 in 1990 to 95,088 in 2008. The number of dentists and nurses also increased by more than two-fold, i.e. from 9,619 to 23,924 and from 89,032 to 246,840, respectively, in the same period. The number of people per one doctor decreased by 49.3% from 1,007 in 1990 to 511 in 2008, showing a noticeable improvement in the medical service conditions .

The number of medical institutions, doctors and nurses has steadily increased. The service quality offered by medical institutions has also been improved amid competitions between them. According to the Social Survey carried out in 2007, the respondents who expressed satisfaction with the medical service they received over the past year outnumbered those who answered negatively. It was a far cry from a similar survey carried out in 1999, when the respondents who expressed dissatisfaction with the medical service they received over the past year outnumbered those who answered positively. Looking at the status of medical doctors compared to more advanced countries, the number of medical doctors (including traditional Korean medicine doctors) stood at 1.7 per 1,000 people in 2006, compared to 2.4 in the U.S., 2.5 in the U.K., 2.1 in Japan and 2.1 in Canada, showing that Korea falls behind them.

Table 10.1 Leading Causes of Death and Mortality Rates

(Per 100,000 people)

Causes of death	1999		2009		Percent change	
	Rank	Mortality rate	Rank	Mortality rate	Rank	Mortality rate
Cancer	1	114.2	1	140.5	-	26.3
Cerebrovascular diseases	2	72.9	2	52.0	-	-20.9
Heart diseases	3	38.9	3	45.0	-	6.1
Suicide	7	15.0	4	31.0	+3	16.0
Diabetes	6	21.8	5	19.6	+1	-2.2
Transport accidents	4	26.2	6	14.4	-2	-11.8
Chronic lower respiratory diseases	8	13.7	7	13.9	+1	0.2
Liver diseases	5	23.4	8	13.8	-3	-9.6
Pneumonia	10	6.7	9	12.7	+1	6.0
Hypertensive heart diseases	9	7.5	10	9.6	-1	2.1

Source: KOSTAT

Social welfare budget

Social welfare payments are made by the State to individuals faced with destitution and the physical threats of subsistent living. It is an indicator of a country's level of social security. The country's health and welfare budget has shown steady growth and reached the level of 12.0% of the entire budget in 2007, compared to 5.4% or 1,487.0 billion in 1990. The public assistance budget also recorded steady growth to 6,576.0 billion won or 4.2% of the entire budget in 2007, compared to 1.4% in 1990.

Table 10.2 Public Pension Subscribers and People Covered by Health Insurance

(1,000 people, %)

	Public pension subscribers				People covered by health insurance
	Total	National pension	Government employees pension	Private school teacher pension	
2000	17,330	16,210	909	211	45,896
2005	18,348	17,124	986	237	47,392
2006	18,995	17,740	1,009	246	47,410
2007	19,539	18,267	1,022	251	47,820
2008	19,622	18,335	1,030	257	48,160
2009	-	18,624	-	-	48,614

Source: National Pension Service, Government Employees Pension Service, Korea Teachers Pension and National Health Insurance Corporation

Table 10.3 Number of Licensed Medical Personnel [1]

	Medical doctors	People per one doctor	Dentists [2]	Pharmacists	Nurses
1990	42,554	1,007	9,619	37,118	89,032
1995	57,188	789	13,681	43,269	120,415
2000	72,503	648	18,039	50,623	160,295
2005	85,369	564	21,581	54,829	213,644
2006	88,214	548	22,267	55,845	223,781
2007	91,475	530	23,126	57,176	235,687
2008	95,088	511	23,924	58,363	246,840
2009	98,434	-	24,639	59,717	258,568

Note: 1) Inclusive of those not practicing currently and residing out of the country.
2) Inclusive of conditionally qualified limited physicians.
Source: MIHWAF

Table 10.4 Medical Personnel per 1,000 People in Major Countries [1] (2007)

(Persons)

	Korea [2]	USA	UK	Australia	Japan	Canada
Doctors	1.7	2.4	2.5	2.8 [4]	2.1	2.2
Dentists	0.4	0.6 [4]	0.4	0.5 [3]	0.7 [4]	0.6
Nurses	4.2	10.6	10.0	9.7 [3]	9.4 [4]	9.0

Note: 1) Doctors, pharmacists and dentists are based on those currently practicing. Nurses are based on license-holders.
2) Doctors (including traditional Korean medicine doctors) and dentists are based on those currently practicing. Pharmacists and nurses are based on license-holders.
3) Based on 2005 figures.
4) Based on 2006 figures.
Source: MIHWAF 「Annual Report on Health and Welfare-related Family Statistics」, OECD 「Health Data 2009」

11/ Environment

Continued efforts to improve the water supply and sewage system resulted in the enhancement of their distribution rate to 92.7% and 88.6%, respectively, as of the end of 2008.

Environmental improvement efforts made by various sectors

The fostering of a pleasant atmosphere is closely related to the improvement of the quality of people's lives. The Government is stepping up its efforts to reduce environmental pollution and reuse waste as energy resources.

Compared to 2003, when disposed waste reached a record figure, the total amount of household waste recorded 52,027 tons in 2008. Amid people's positive participation in recycling, the ratio of recycling rose from 43.3% in 2000 to 59.8% in 2008, while landfill showed a continuing decrease from 17.0% in 2000 to 20.3% in 2008.

Continued efforts to improve the water supply and sewage system resulted in the enhancement of their distribution rate to 92.7% and 88.6%, respectively, as of the end of 2008. At present, piped water is supplied to 45,270,000 people or 93.7% of the entire population.

Emission of air pollutants

There are various sources of air pollutants: vehicles, factories, thermal power plants, household/office heating, airplanes and ships. Most of them stem from human activities. Looking at the changing trends in leading air pollutants, nitrogen oxides (NOx) and volatile organic compounds (VOC) chiefly emitted from vehicles continued to increase by 2004. NOx emission started to decrease in 2005 and reached 1,188,000 tons in 2007, a 6.8% decrease from the previous year. As for VOC, it recorded a year-on-year decrease in 2005. However, it turned around to increase in 2006, and increased by 10.2% in 2007 from 2006. SOx had continued to decrease since 2001, apparently under the impact of the policy for the supply of low-sulfur oil but recorded a year-on-year increase in 2006. And it dropped by 9.6% to 403,000 tons in 2007. CO emission stood at 809,000 tons, a 2.5% year-on-year decrease, in 2007. In 2007, PM10 increased by 5.1% from the previous year, after recording ups and downs repeatedly.

Table 11.1 Environmental Improvement Record (Tons, %)

	Household waste disposed				Sewage supply rate	Piped water supply distribution rate
	Total amount	Recycled	Incinerated	Landfill		
2000	46,438	41.3	11.7	47.0	70.5	87.1
2005	48,398	56.3	16.0	27.7	83.5	90.7
2006	48,844	57.2	17.0	25.8	85.5	91.3
2007	50,346	57.8	18.6	23.6	87.1	92.1
2008	52,072	59.8	19.9	20.3	88.6	92.7

Source: Ministry of Environment

Table 11.2 Emission of Air Pollutants (1,000 tons/year)

	CO	NOx	SOx	PM10	VOC
2000	901	1,123	491	62	707
2005	789	1,307	408	67	756
2006	830	1,275	446	65	794
2007	809	1,188	403	98	875

Note: Not inclusive of flying dust particles or biogenic emissions.
Source: National Institute of Environmental Research (April 2009)

A campaign for 'No Driving Day'

Activities for environmental protection: Members of an environmental protection organization are weeding out harmful plants that hamper the growth of natural plants and cause them wither, thus destroying the ecosystem.

Amount of waste generated

The amount of waste generated on a daily basis has been on the increase since 1998.

Construction waste decreased in 2005 under the impact of recession in the housing sector and the decrease in the number of construction projects, but turned around to increase in 2006. It rose to 176,000 tons/day in 2008, accounting for 49.1% of the entire daily waste generated.

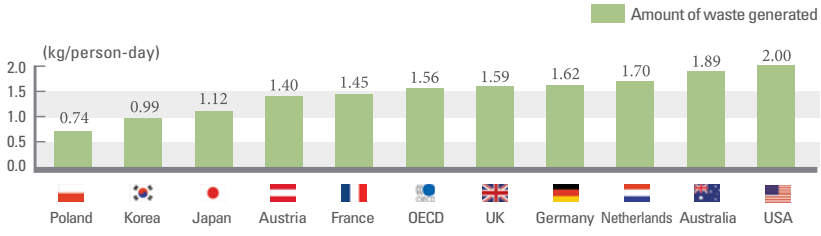
Industrial waste, which accounted for 36.4% of the entire waste generated, stood at 131,000 tons/day, a 13.9% year-on-year increase, in 2008. Household waste, which recorded a slight decrease for a few years from 2003, turned around to record an increase to 52,000 tons/day in 2008, accounting for 14.5% of the total waste. The amount of per-capita household waste generated on a daily basis remains at a stable level supposedly through the pay-by-the-bag system for collection of waste, despite enhancement of the level of income and an increase in consumption. In 2008, the country's per-capita household waste generated daily stood at 1.04 kg, compared to 2.00 kg of the U.S.A., 1.59 kg of the U.K., 1.12 kg of Japan and the OECD average of 1.56 kg.

Table 11.3 Waste Generated (1,000 tons/day)

	Total	Household waste	Per-capita (kg/day)	Industrial waste	Construction waste
2000	226.7	46.4	0.98	101.5	78.8
2005	295.7	48.4	0.99	112.4	134.9
2006	318.9	48.8	0.99	101.1	169.0
2007	337.2	50.3	1.02	114.8	172.0
2008	359.3	52.1	1.04	130.8	176.4

Source: Ministry of Environment

Fig 11.1 OECD Countries' Per-capita Household Waste Generated Daily



Source: e-National Indicators, Ministry of Environment

Climatic change caused by global warming

According to the 4th assessment report of Climate Change 2007, the Summary for Policymakers of the Intergovernmental Panel on Climate Change (IPCC), which is a council of experts jointly established in 1988 by the WMO and the UNEP, concluded that the Earth's average temperature has risen by 0.74℃ over the past century and the sea level has risen by an average of 1.8mm/year in the 1961~2003 period. Thus, it is expected that at this rate the Earth's average temperature will rise by up to 6.4℃ and the sea level will rise by 59cm, by the turn of the century, due to greenhouse gas emissions. In 2006, the country's carbon dioxide emission stood at 476 million tCO2, a 107.6% increase from 1990. Recently, however, this rate of growth has started slowing down, i.e. only a 10.4% increase has been recorded since 2000. In 2005, the country's carbon dioxide emission stood at 468.0 million tCO2, which grew 30.5% from 1995 and 11.2% from 2000. The Government puts priority on measures designed to cope with climatic changes. It implements pro-active policies, encourages people to reduce their carbon footprint, and discusses with businesses how to utilize the need to cope with climatic changes as an opportunity for Green Growth.

Table 11.4 Major Countries' CO_2 Emissions (from Fuel Combustion) (Million tCO2)

	1995	2000	2005	2006	2007	2008	Percent change 1995-2008 (%)
China	3,022.1	3,077.8	5,108.3	5,649.3	6,075.7	6,550.5	116.8
USA	5,138.7	5,698.1	5,771.7	5,684.9	5,762.7	5,595.9	8.9
Russia	1,574.5	1,505.5	1,516.2	1,579.8	1,578.5	1,593.8	1.2
India	785.0	981.3	1,159.5	1,249.9	1,337.9	1,427.6	81.9
Japan	1,147.9	1,184.0	1,220.7	1,205.0	1,242.3	1,151.1	0.3
Germany	869.3	827.1	811.3	823.5	801.1	803.9	-7.5
Canada	465.2	532.8	558.8	543.6	570.8	550.9	18.4
UK	516.6	523.6	532.3	533.3	520.5	510.6	-1.2
Korea	358.6	421.0	468.0	476.5	490.3	501.3	39.8
Italy	409.4	426.0	457.0	458.4	441.1	430.1	5.1
Mexico	290.9	345.8	389.8	396.9	417.6	408.6	40.5
Australia	285.5	338.8	388.8	393.6	387.2	397.5	39.2
France	353.8	376.9	388.3	380.1	373.5	368.2	4.1
Brazil	240.4	301.6	325.7	330.7	344.7	364.6	51.7
OECD	11,554.5	12,475.9	12,903.0	12,841.3	12,970.5	12,629.6	9.3
Worldwide	21,793.7	23,496.5	27,129.1	28,024.0	28,945.3	29,381.4	34.8

Source: OECD「CO_2 Emission from Fuel Combustion 2008」

A natural habitat for migratory birds

12/ Education and R&D

The teacher/student ratio is a crucial indicator of educational conditions. Looking at the country's teacher/student ratio in 2008, it stood at 21.3 students per one teacher at elementary schools, 18.8 students at middle schools and 35.8 at colleges or higher; thus showing a gradual decrease.

Education is very important as a process of enlightening people in a way that helps them live decent lives. It also supplies the human resources needed to carry out economic activities and technological development. The Government strives to educate youngsters who will harness their talents and creativity in a responsible role in the future of the country.

The country adopts an educational system comprised of 6 years of elementary education, 6 years of secondary education (i.e. 3 years of middle school and 3 years of high school), higher education (colleges or universities), and graduate schools. Additionally, there is a kindergarten course for pre-school age children and special schools for the handicapped. Based on this, it is clear the Government has strived to establish a lifetime educational system and supplemental vocational education that can meet what is required by the industry.

The country's educational environment has made great strides the likes of which can be found nowhere else in the world. With the enhancement of income and the average Koreans' eagerness for their children's education, a high school diploma has become a minimum requirement in virtually all sectors of the society. Even college education is becoming common nowadays.

Table 12.1 Number of Schools and Enrollment Ratio (Each, %)

	Kindergarten[1] (Enrollment ratio)	Elementary school		Middle school		High school		College or higher[3]	
		Schools	Enrollment ratio[2]	Schools	Enrollment ratio[2]	Schools	Enrollment ratio[2]	Schools	Enrollment ratio[2]
1990	31.6	6,335	100.5	2,474	91.6	1,683	79.4	265	23.6
1995	26.0	5,772	98.2	2,683	93.5	1,830	82.9	327	36.0
2000	26.2	5,267	97.2	2,731	95.0	1,957	89.4	373	52.5
2005	31.1	5,646	98.8	2,935	94.6	2,095	91.0	419	65.2
2006	33.9	5,733	98.8	2,999	95.9	2,144	90.3	412	67.8
2007	36.2	5,756	99.3	3,032	96.0	2,159	91.3	408	69.4
2008	37.5	5,813	99.0	3,077	93.2	2,190	90.0	405	70.5

Note: 1) Kindergarten agers: Those aged 3 – 5 in 1992 or thereafter/ Those aged 4 – 5 in 1991 or before.
2) A figure exceeding 100% refers to the number actually attending school being larger than the number of appropriate agers due to those who started attending school earlier or later than normal, etc.
3) Inclusive of junior colleges, universities, college-level educational facilities, open universities, polytechnic schools, remote educational facilities, in-house colleges and graduate schools, provided that open universities are excluded in the 1990~1995 period, remote education facilities and in-house colleges are excluded in 2003.
Source: Ministry of Education, Science and Technology 「A Collection of Materials concerning Education Statistics and Analysis」

Table 12.2 Number of Teachers and Number of Students per Teacher (1,000 people, Persons)

	Elementary school		Middle school		High school		College or higher[1]	
	Teachers	Students per teacher	Teachers	Students per teacher	Teachers	Students per teacher	Teachers	Students per teacher
1990	136.8	35.6	89.7	25.4	92.7	24.6	33.3	31.2
1995	138.4	28.2	99.9	24.8	99.1	21.8	45.1	26.3
2000	140.0	28.7	92.6	20.1	104.4	19.9	41.9	39.7
2005	160.1	25.1	103.8	19.4	116.4	15.1	49.2	37.8
2006	163.6	24.0	106.9	19.4	117.9	15.1	51.9	36.4
2007	167.2	22.9	108.0	19.1	120.2	15.3	52.8	36.4
2008	172.2	21.3	108.7	18.8	122.9	15.5	54.3	35.8

Note: 1) Figures for up to 1995 include TAs in the number of teachers, but those for 2000 and thereafter do not.
Source: Ministry of Education, Science and Technology 「Educational Statistics Annals」

Seven out of ten people go to college

Concerning the ratio of students in a specified age group to the entire number of people in that age group, as of 2008, 99.0% of school-age children appear to be attending elementary schools. The rate for middle school-agers and high school-agers stands at 93.2% and 90.0%, respectively. The percentage of high school graduates entering college or university rapidly rose in the 1980s and thereafter, reaching 50% in 2000. The rapid rise in the percentage of youngsters attending school is mainly attributable to the characteristics of a nation with a high regard for education. As for preschoolers attending kindergartens, the relevant statistics put their percentage at 37.5%. This low percentage is attributable to the fact that there are many other private facilities playing a role similar to that of kindergartens, and the number of children taken care of by them is not included in the statistics.

Children at a kindergarten are participating in a recreation program under the guidance of a teacher.

A scene from an elementary school classroom

A scene from a high school classroom

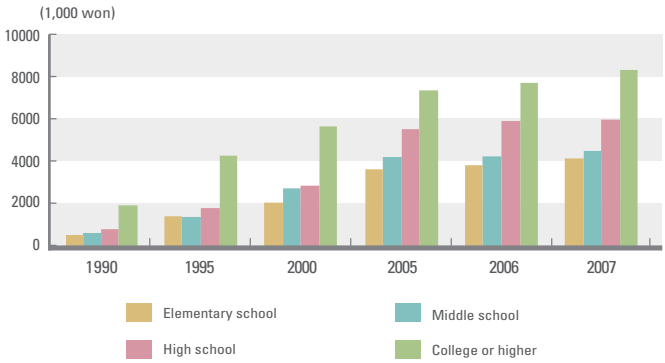
Teacher/student ratio

The teacher/student ratio is a crucial indicator of educational conditions. Looking at the country's teacher/student ratio in 2008, it stood at 21.3 students per one teacher at elementary schools, 18.8 students at middle schools and 35.8 at colleges or higher; thus showing a gradual decrease. The ratio for high schools stood at 15.5, a modest increase from the previous year.

Per-student public education expenditure is a crucial indicator about the qualitative level of education. Many studies point to the close connectivity between per-student public education expenditure and the quality of education. Per-student public education expenditure has steadily increased with the Government's efforts to supplement educational finance. Between 1990 and 2007, per-student public education expenditure increased by 7.2-fold for elementary schools, by 6.4-fold for middle schools, by 7.5-fold for high schools, and 4.3-fold for colleges or higher. The higher rate of increase for high schools indicates that public education expenditure for students applying to colleges or higher was particularly high.

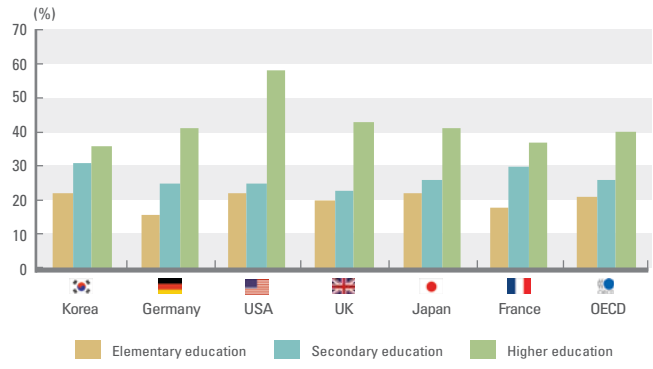
The country's level of *per-elementary or secondary student* annual education expenditure against per-capita GDP is similar to, or higher than, the OECD average; while that of *per-college student* is lower than the OECD average. It is expected that even the level of *per-college student* public education expenditure will gradually move towards the level of the OECD through an increase in the Government's R&D investment.

Fig 12.1 Per-student Public Education Expenditure



Source: OECD 「Education at a Glance 2008」

Fig 12.2 Per-student Annual Education Expenditure against Per-capita GDP (2005)



Source: Ministry of Education, Science and Technology
「A Collection of Materials concerning Education Statistics and Analysis」

A scene from a commencement ceremony at a university

Researchers are experimenting in a clean room a cutting-edge element required for the development of the chemical industry.

R&D investment led by the private sector

The possibility of a country's continued economic growth depends on whether its overall productivity continues to improve. Productivity can be enhanced through technological progress as well as with increases in the input of labor and capital. Technological progress requires courageous investment in, and provision of positive support for, R&D.

In 2007, the amount the country spent for R&D in the science and technology sector stood at 31,301.4 billion won, a 14.5% increase from 27,345.7 billion won the previous year. The country's R&D investment in 2007 accounted for 3.47% of GDP, a 0.24%p year-on-year increase. Translated into per-capita R&D expense this amounts to 646,000 won/person. As for the R&D investment burden ratio, the private sector accounted for 73.7% compared to the 26.1% assumed by the Government. This shows that the private sector plays a dominant role in R&D investment.

Looking at the number of people engaged in professional research activities, it stood at 289,098, a 12.7% increase from the previous year. By degrees held by such individuals, the number of Ph.D. holders stood at 73,506 or 25.4% of the entire researchers. 28.8% of them were employed in colleges or universities, while 64.2% of them work in private businesses.

Table 12.3 R&D Investment (Billion won, %)

	R&D investment	R&D ratio to GDP	R&D investment burden ratio		
			The Government	Private sector	Foreigners
1990	3,349.9	1.87	15.9	84.1	0.03
1995	9,440.6	2.37	24.2	75.7	0.01
2000	13,848.5	2.39	27.6	72.4	0.06
2005	24,155.4	2.98	24.3	75.0	0.71
2006	27,345.7	3.23	24.3	75.4	0.30
2007	31,301.4	3.47	26.1	73.7	0.22

Source: Ministry of Education, Science and Technology 「A Report on R&D Activities」

Table 12.4 Researchers Engaged in R&D Activities (Persons)

	Total	Researchers per 10,000 people	Public research institutions	Colleges	Private businesses
1990	70,503	16.4	10,434	21,849	38,737
1995	128,315	28.5	15,007	44,683	68,625
2000	159,973	34.0	13,913	51,727	94,333
2005	234,702	48.8	15,501	64,895	154,306
2006	256,598	53.1	16,771	65,923	173,904
2007	289,098	59.6	20,342	83,123	185,633

Source: Ministry of Education, Science and Technology 「A Report on R&D Activities」

13/ Culture and Tourism

In 2008, the country's export of cultural objects stood at $1,884.416 million, a 20.6% increase from the preceding year. Leading items of export were computer games (58.0%), publications (13.8%), characters (12.1%) and broadcast materials (8.5%).

Export of cultural objects

In 2008, the country's export of cultural objects stood at $1,884.416 million, a 20.6% increase from the preceding year. Leading items of export were computer games (58.0%), publications (13.8%), characters (12.1%) and broadcast materials (8.5%).

Table 13.1 Export of Cultural Objects (1,000 dollars)

	2005	2006	2007	2008
Total	1,235,967	1,373,158	1,562,043	1,884,416
Publications	191,346	184,867	213,100	260,010
Cartoons	3,268	3,917	3,986	4,135
Music	22,278	16,666	13,885	16,468
Computer games	564,660	671,994	781,004	1,093,865
Films	75,995	24,515	24,396	21,037
Animations	78,429	66,834	72,770	80,583
Broadcast materials (films)	121,763	133,917	150,953	160,120
Ads	9,359	75,981	93,859	14,212
Characters	163,666	189,451	202,889	228,250
Edutainment	5,203	5,016	5,201	5,736

Source: Ministry of Culture, Sports and Tourism (MCST)

Table 13.2 Inbound/Outbound Tourists (1,000 people)

Year	Inbound visitors (A)	Outbound Koreans (B)	Difference (A-B)	Inbound tourists (C)	Outbound Korean tourists (D)	Difference (C-D)
2000	5,322	5,508	-186	3,874	2,167	1,707
2005	6,023	10,080	-4,057	4,347	5,522	-1,175
2006	6,155	11,610	-5,455	4,365	3,130	1,235
2007	6,448	13,325	-6,877	4,388	-	-
2008	6,891	11,996	-5,105	4,642	-	-
2009	7,818	9,494	-1,676	5,685	-	-

Source: Korea Tourism Organization (KTO)

Table 13.3 Trends of Tourism Account Balance (Million dollars)

Year	Revenue		Expenditure		Tourism account balance
		Per-capita ($)		Per-capita ($)	
2000	6,811	1,282	6,174	1,175	637
2005	5,793	968	12,025	1,247	-6,232
2006	5,759	936	14,337	1,235	-8,578
2007	6,093	945	16,950	1,272	-10,856
2008	9,719	1,410	14,580	1,215	-4,861
2009	9,387	1,201	9,331	983	55

Source: KTO

Inbound/outbound tourists

In 2009, the number of inbound visitors stood at 7,818 thousand people. In the meantime, the number of outbound Koreans was 9,494 thousand people, which was 1,676 thousand people more than that of inbound visitors. The number of inbound visitors rose by 13.4%, while that of outbound Koreans dropped by 20.9% from the previous year. And the number of inbound tourists stood at 5,685 thousand people, up 22.5% from the previous year.

Foreigners are participating in a "Learn Traditional Korean Culture" program where they can experience traditional Korean etiquettes and manners.

A lantern festival held at the Cheonggyecheon stream in downtown Seoul.

Tourism account balance

Looking at the country's tourism account balance in 2008, revenue stood at $9,017 million compared to an expenditure of $12,641 million, recording a deficit of $3,624 million.

Tourism revenue posted a year-on-year increase of $2,923 million, while tourism expenditure decreased by $43,900 million from the year before. The foregoing is translated into an incoming tourists' expenditure of $1,309/person in Korea compared to Korean tourists' expenditure of $1,054/person in foreign countries.

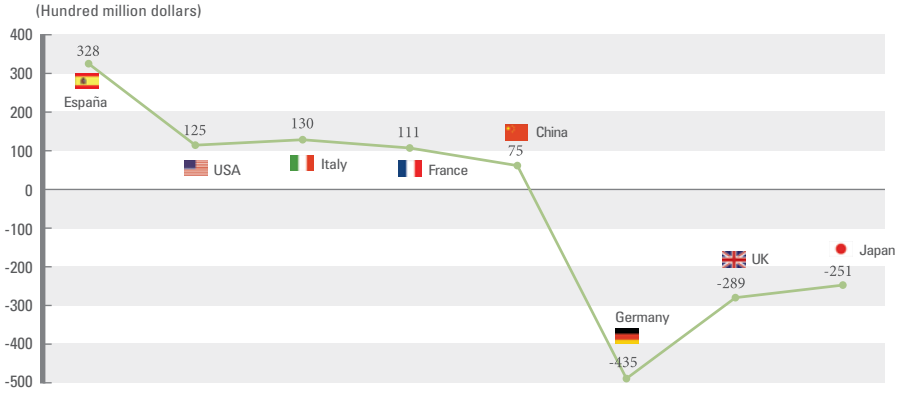
As for the tourism account balance in 2009, revenue stood at $9,387.10 million compared to an expenditure of $9,331.60 million, recording a surplus of $55.50 million for the first time after 2000. Tourism expenditure by foreign tourists in Korea stood at $1,201 per person, down 14.8% from the previous year. In the meantime, overseas tourism expenditure by Korean tourists in foreign countries stood at $983 per person, down 19.1% from the previous year.

Tourism is not a core industry in many of the more advanced countries, such as Germany, the U.K. and Japan. These countries usually record a deficit in their tourism account balance, with the number of outbound locals outnumbering that of incoming tourists.

In contrast, Spain, Italy and France, in which tourism is a major industry, usually record a surplus in their tourism account balance. As for the U.S., it has a myriad of tourist destinations across its vast land mass. Thus, the number of outbound locals is relatively small, while there are many inbound visitors for business, study, training and tourism. This results in the country recording a surplus in its tourism account balance.

Foreigners participating in a program of kimchi-making for winter are all smiles as they are holding up kimchi they have made.

Fig 13.1 Tourism Account Balance in More Advanced Countries (2005)



Source: MCST

FOCUS

Korean Industry Transformed from Industrious Revolution to Industrial Revolution Underpinning Innovation

A Statistical Understanding of Korean Industry

Written by Jun Seong Ho (The Academy of Korean Studies)

An integrated iron and steel mill of POSCO in Pohang, North Gyeongsang Province

Ever since the IMF crisis in 1997, there have been significant changes in the structure of Korea's manufacturing industry, helping create a favorable environment for the growth of high-technology industries. Since then, Korea has been able to effectively engage in innovation-based competition in the global economy.

General Overview: Who Is Leading and Who Is Lagging in the New Millennium?

The 2000s have been a period distinguished by high rates of economic growth in Korea, with extraordinary growth in manufacturing, electronics, and shipbuilding industries. In contrast, heavy and chemical industries have either stagnated or contracted during the last fifteen years. Korea remains a major global producer of steel and ships, but in the context of depressed world demand, both of these industries have become burdened by chronic overcapacity. Perhaps the most striking feature of Korea's heavy industry since the 1990s has been the emergence and rapid growth of high-technology industries. From modest beginnings about ten years ago, Korea has become a major producer as well as major source of technological innovation in a wide range of knowledge-intensive industries, including micro-electronics. Many of these industries had their beginnings in the 1980s.

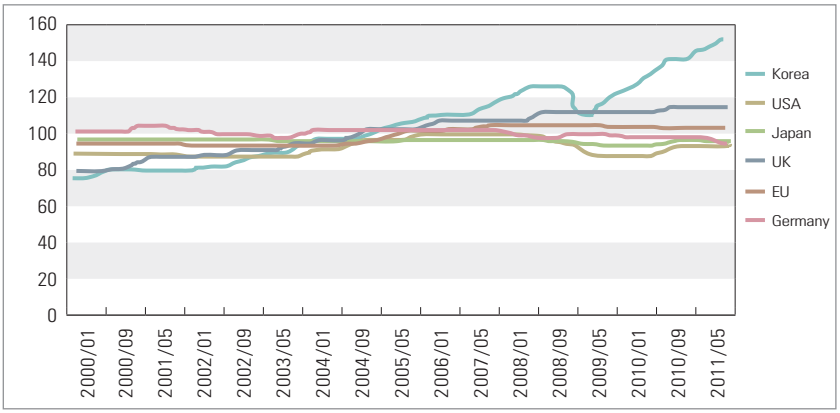
In the electronics industry, for example, Korea made huge advances early on in the development and application of transistor technology, and in many ways the growth of high-technology industries can be seen as a logical continuation of trends established well before the IMF crisis.

However, more than any other development, it was the global shortage of electronic components during the 1990s that accelerated the expansion of high-technology manufacturing in Korea. As a major electronics exporter, importer and consumer, Korea had every incentive to promote the development of its electronic industries to yield high returns per unit of electronics demanded. Moreover, high prices placed a premium on greater efficiency and rationalization throughout manufacturing in general, thus creating a favorable environment for the growth of high-technology industries. High-technology industries have several far-reaching implications for the long-term organization of manufacturing, as suggested by the now famous factories of Samsung Electronics, Hynix Semiconductor, and LG Electronics, where R&D is employed to promote innovation-oriented growth. Equally, high-technology industries have important implications not only in Korea but worldwide.

The 2000s have ushered in an interesting time for Korea. According to IFI Claims Patent Services, among the top ten United States Patent Winners of 2010, the Korean electronics company Samsung was ranked second after IBM. However, Samsung holds the number one position in Asia. Korea ranked eleventh in the Innovation Capacity Index (ICI) in 2010. Industry, in collaboration with tertiary-level educational institutions, have become an engine of technology-based economic growth as well as an incubator for R&D, which requires close proximity to facilities where scientific ideas can be tested. The Korean industrial indices show high rates of growth. Figure 1 shows that Korea, among all OECD countries, has the highest rate of industrial production during the last decade. In some OECD countries, the average indices for industrial production fluctuate by around 20 percent, whereas Korea demonstrates extraordinary growth, which means that the East Asian miracle continues to unfold with respect to manufacturing in Korea. Figure 1 demonstrates that the 2007-2008 financial crisis has not resulted in a lingering economic recession owing to the robustness of Korean industry.

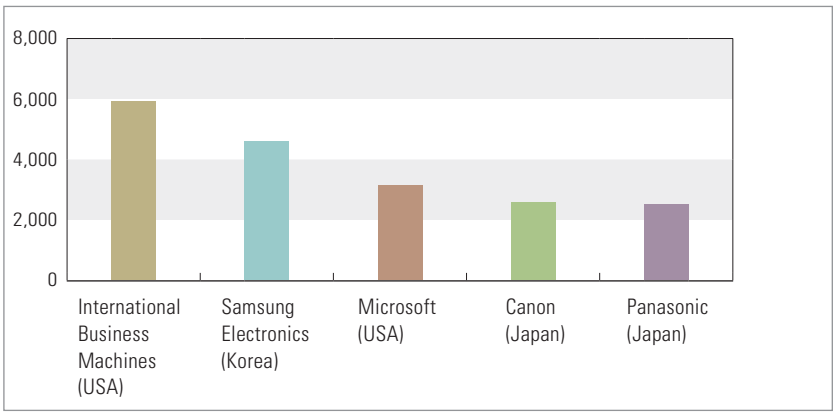
The number of patents derived from industry is an important indicator of innovation. In all OECD countries, the number of patents has increased with level of education. In Korea, Japan,

Fig. 1 Industrial Production Indices (2000-2010) (2005=100)



Source: Bank of Korea, http://ecos.bok.or.kr

Fig. 2 World Top 5 Patent Winners (Number)



Source: IFI Claims Patents Services 2011

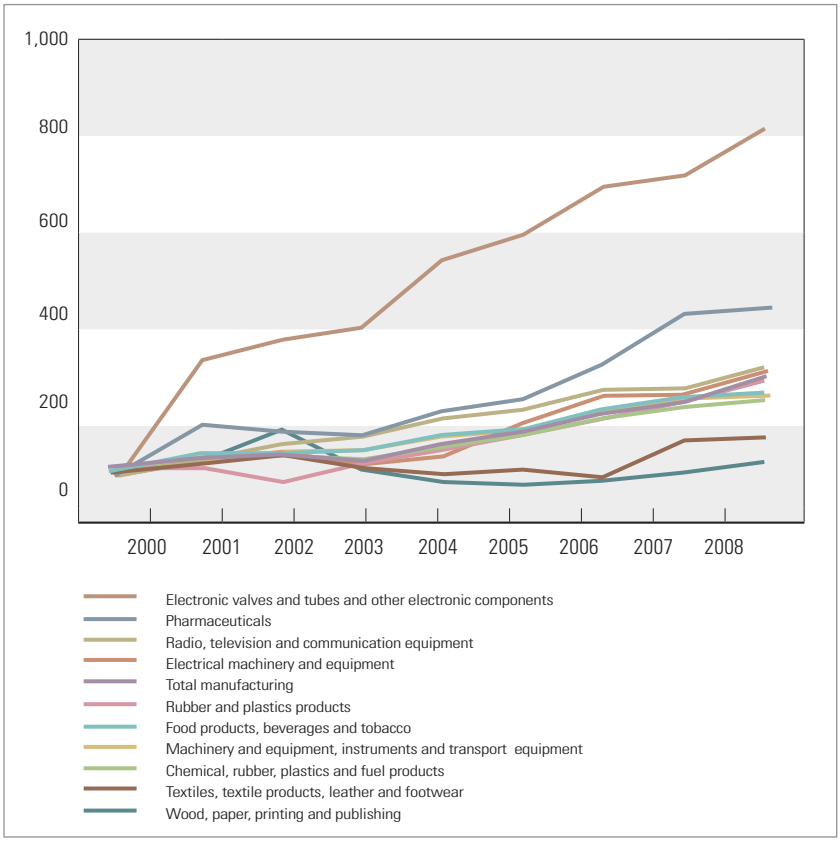
and the United States, the number of patents was higher than 10,000 in 2007. The opposite trend was observed in Germany, China, France, and Russia, with the number of patents below 52,000. After the IMF crisis, Korea recognized the role of innovation in competitiveness and economic development. Most new patents since that time have come from the manufacturing sector. That means there is no doubt that after the 1997 IMF crisis, Korea's dissemination of knowledge and use of information and communication technologies (ICT) became increasingly widespread, resulting in innovation-oriented manufacturing. Therefore, understanding the role of innovation in overcoming the financial crisis is necessary. Increasing the rate of innovation in Korea can improve productivity and prosperity.

Ever since 2000, more than 90 percent of all new patents in Korea have been derived from the manufacturing sector, closely integrating with engineering and technology-intensive services. Manufacturing R&D is conducted in a wide array of industries and by businesses of all sizes. In Figure 3 we can see the highest R&D expenditures are usually associated with computers and electronics, as well as chemicals (primarily pharmaceuticals). However, R&D expenditures in the traditional manufacturing sector have declined over the past two decades or stagnated completely with only a slight increase from 2000 to 2008. Even today, Korean R&D requires more complex and interactive solutions; the share of foreign affiliates in Korean industry R&D is one of the lowest in the world. Korea's need for more openness and innovation has led innovators to obtain partners to share costs. Since the 2000s, scientific articles have sought international co-authorship in response to the Korean government's global networking project. As such, the production of scientific articles has shifted from a domestic to international setting, from single to multiple universities, and from the national to international level.

Electronics Industry

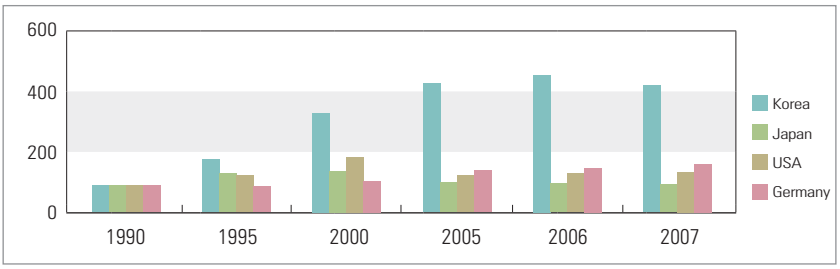
The electronics industry is proving to be the current growth engine of Korea. Since the late 1980s, Korea has become a major producer of electronic merchandise, producing televisions, videocassette recorders, microwave ovens, radios, watches, personal computers,

Fig. 3 R&D Expenditure in Industrial Korea (2000-2008) (2000=100)



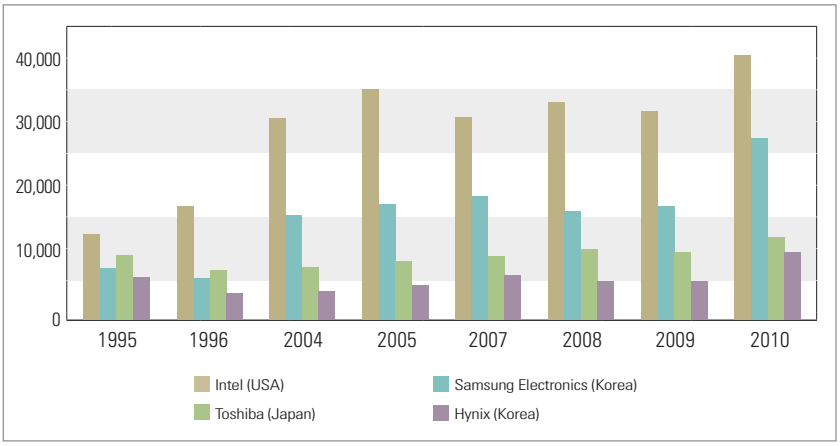
Source: OECD Statistics Dataset 2000-2010

Fig. 4 Production of Electronic Merchandise (1990 – 2007) (1990=100)



Source: Yearbook of World Electronics Data 1990-2007

Fig. 5 Semiconductor Revenue by Company (Million dollars)

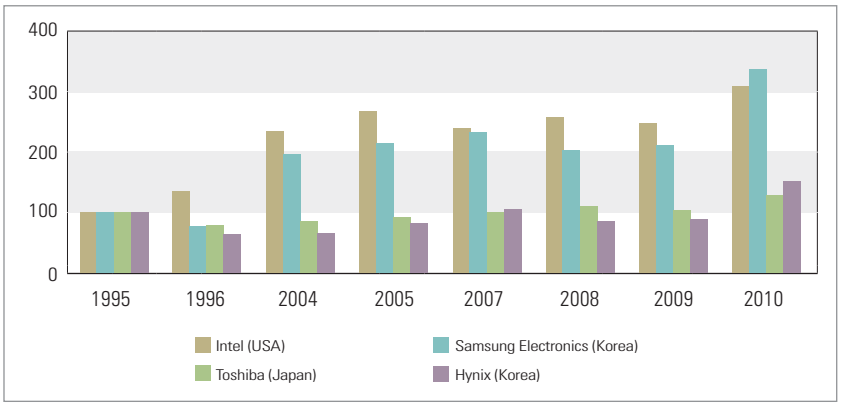


Source: Gartner Dataquest 1995-2010. International Statistics Year Book National Statistical Office Republic of Korea

A factory of Samsung Seimconductor in Giheung in Gyeonggi Province

An LG Electronics factory in Gumi in North Gyeongsang Province

Fig. 6 Samsung's Percentage Growth (Korea) Outstrips Intel (USA) and Hynix (Korea) Surpasses Toshiba (Japan) after 2008/09 Financial Crisis (1995=100)



Source: Gartner Dataquest 1995-2010

and videotapes. In 1987, the electronics industry produced US$ 13.612 billion worth of goods, becoming the world's sixth-largest manufacturer. The Korean electronics industry has rapidly grown from 1990 and gained even further momentum in recent times. By 1990, significant shifts were occurring within the electronics industry. The globalized policy initiatives of the Korean government after the IMF crisis propelled Korea onto a path of development and prosperity. Further, component shortages in the global electronics industry had a positive impact on Korea's growth.

Semiconductor Industry

The global semiconductor industry has suffered a sharp decline since 2009, except in Korea. Revenue in Japan declined by 20.7 percent while that in the United States fell by 10.5 percent. Only the Korean semiconductor industry escaped the downturn of 2009, with revenue increasing by 7 percent, market share 9.3 percent, and 2010/2009 change record 60.8 percent. Production of LEDs and NAND flash memory, which are used in backlighting of LCD-TVs, also increased due to high demand from the mobile phone market. In fact, the NAND flash memory market increased by around 10-15 percent in 2009. Samsung Electronics and Hynix Semiconductor, both Korean companies, reaped huge revenues due to this development. The semiconductor industry also expanded by a record margin in 2010. The global semiconductor market achieved its largest dollar increase ever in 2010 according to the Gartner report, 2011. Global semiconductor revenue amounted to US $304 billion in 2010, up from US $229.5 billion in 2009. This represents growth of 32.5 percent over just one year. According to Figure 5, Samsung's percentage growth was higher in the 2000s than in 2010, and after the 2008/2009 financial crisis, was higher than that of Intel. The enormous expansion in semiconductor revenue in 2010 was based on renewed demand for LCD televisions and smartphones. Samsung and Hynix, in 2010, were able to increase their revenues related to electronics equipment. This augmented growth was driven by innovative action at the executive level. The DRAM and NAND flash memory market segments demonstrated extraordinary growth by Samsung Electronics and Hynix Electronics, respectively, which led the industry boom. Hynix advanced one place to No. 6, with 10.577 billion U.S. dol-

A production line of Kia Motors Company in Gwangju, located in the southwestern area of South Korea

lars in revenue. Samsung Electronics also benefited from dramatic growth in the memory market. Company revenue surged by 60.8 percent in 2009/2010, and market share increased to 9.3 percent in 2010 from 7.6 percent in 2009. After the 2008/09 financial crisis, Korea made extraordinary progress compared to its position during the 1997 IMF crisis. Since the 1990s, Samsung has dominated most areas of the memory market, holding the No. 1 position in DRAM, SRAM, and the fast-growing NAND flash market. Hynix Semiconductor moved into the top ten for the first time in 2005. Increasing the rate of patents issued by Samsung Electronics can improve market productivity and prosperity as well as increase the rate of world economic growth. The Korean high-technology industry has made progress in the dissemination of knowledge, and the use of information and communications technologies have become increasingly widespread, resulting in increased prosperity in the new millennium.[1]

Steel and Shipbuilding Industry

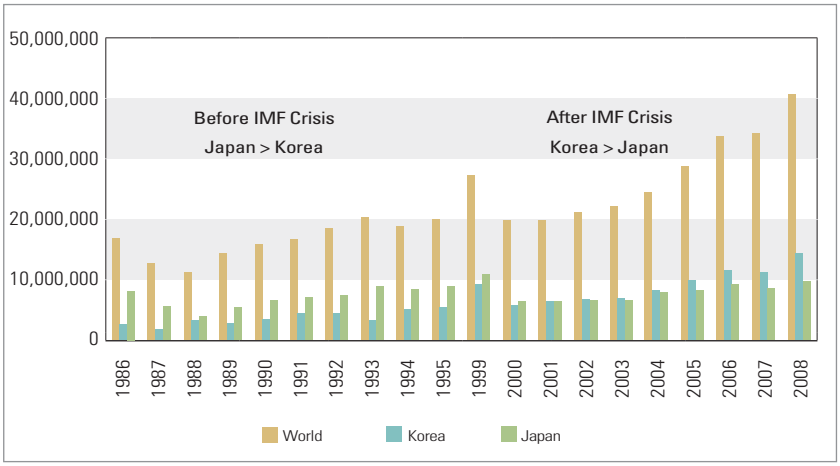
Korea is home to several of the world's top ten shipbuilders, including Hyundai Heavy Industries, Samsung Heavy Industries, Daewoo Shipbuilding and Marine Engineering, STX shipbuilding, and Hanjin Heavy Industries and Construction. Korea competed with Japan neck and neck after the IMF crisis, but in recent times, it has regained its status as the world's leading shipbuilding nation. In the first half of 2011, Korea actually controlled half of the global market in terms of orders measured in weight. Korea's shipbuilding sector has maintained its No. 1 position by introducing innovative systems, although the world's shipbuilding market declined during 2000 to 2010. Korea received 52 percent of all shipbuilding orders worldwide, 65 percent of all vessels, and 25 percent of all tankers in 2010.

The role of the steel industry is vital to the shipbuilding industry. Pohang Iron and Steel Company (POSCO) has played an important role in rapid economic growth of Korea. POSCO was established in 1968 by the military government of Korea. The contribution of the steel industry to the Korean economy is clear from the interdependence between POSCO and the main industries of Korea, especially the automobile, appliance, construction, and shipbuilding industries.[2]

Automobiles and Automotive Parts

Korea's automobile industry increasingly depends upon electronic technology and revolutionary design. Auto parts and their assembly are also linked to financial service industries including insurance and repairs. What does the Korean experience in automobile industry tell us about the global production networks? Throughout the 1970s and 1980s, the automobile industry was subject to a series of government regulations, but from the 1990 successes in these areas have become dependent on firm-level strategies. The automobile industry in Korea emerged as a major export industry from the 1980s. The decision of Korean motor vehicles to enter the U.S market was necessary for the industry to shift from import substitution to export orientation. However, during the 1980s, Korean export motor vehicles had a reputation for poor quality in U.S market. The negative image changed dramatically after the Asian financial crisis in 1997. Innovation following the financial crisis combined with the expansion of regional and global trade helped to create a significant part industry in Korea. Before the financial crisis, the debt burden of Korean auto companies es-

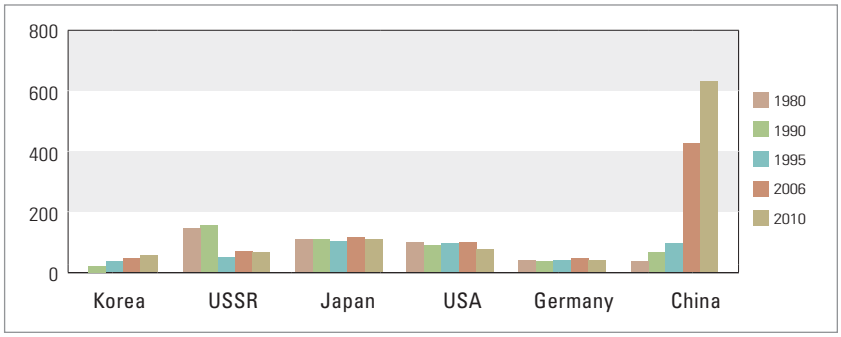
Fig. 7 Ship Completions: World, Korea, and Japan (1986-2008) (GT)



Source: Gartner Dataquest 1995-2010

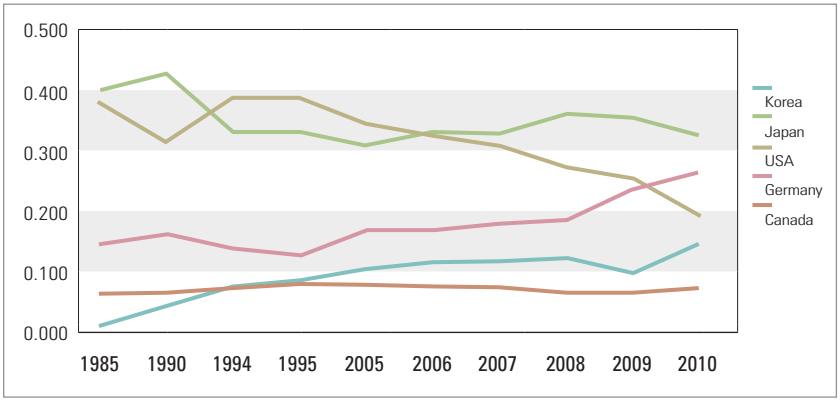
calated rapidly as they took advantage of the easy access to loans following financial liberalization. At the end of 1996 the debt to equity ratio of Ssangyong Motors, Korea's fourth car manufacturer, stood at 10,496 percent. Korean motor vehicles developed a reputation for being manufactured to high standards and design in the 2000s. With this positive image, the capacity of the Korean automobile industry had increased more than ten-fold since 1985. With almost 263,000 passenger cars being produced in 1985, Korea became the world's fourth largest producer in 2000s. This success had been achieved by Korean companies. The HYUNDAI-KIA became among the best selling import model in the U.S. market with outstanding warranties and price points, but challenges to Korean dominance arose in the 2000s and accelerated in the recent time. The very success of Korean exports elicited a protectionist reaction abroad, and Korean companies were forced to embark on investments in overseas assembly operations. Korean companies produced overseas, mainly in the United States and China, and also had the largest share of the auto markets in Eastern Europe. Throughout most of the late 1980s, exports to the US surged but fell by more than a half by 1990. This decline reflected sluggish car sales to the United States. The industry continued to grow, however, due to a surge in domestic demand. The Korean companies achieved success in the 2000s because of their reputation for quality rather than because of the low price of cars alone. The globalization of the Korean economy resulted in joint ventures between Korean companies and foreign partners. Moreover, in the last decade, increasing global networking and persistent global overcapacity have led to a significant consolidation of the global auto industry. For example, Daimler Chrysler was reported in January 2001 to be seeking to increase its shareholding in Hyundai Motors. Korean auto companies, for all their progress over the previous quarter of a century, had succeeded in becoming the leaders of the pack like their counterparts in the electronic industry.

Fig. 8 Steel Production by Nation (1980-2010) (Million tons)



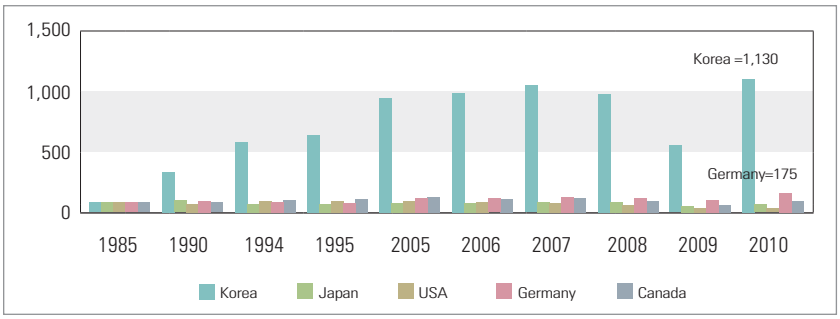
Source: Steel Statistical Yearbook, Year Book of Iron and Steel Association

Fig. 9 Production of Motor Vehicles (1985-2010) (Ratio between each nation and total 5 nations)



Source: OICA Production Statistics, International Statistics Yearbook 1997-2009

Fig. 10 Emerging Korea in Production of Motor Vehicles (1985-2010) (1985=100)



Source: OICA Production Statistics, International Statistics Year Book 1997-2009

This essay demonstrates that the Korean innovation factor played a critical role in creating sustainable growth after the 1997 crisis. The electronics industry has led all industries in innovation, such as shipbuilding, steel, and motor vehicles, which has contributed to creating new horizontal relations with the progress of FTAs with the United States, the European Union and Japan. But for the future, the Korean economy needs more creative thinking than catching up to the United States, the European Union and Japan. In order to produce new thinkers, reform of education will be necessary. Without reforming education the FTA phase might bring negative results to Koreans.

1. Augusto Lopez-Claros Lopez-Claros, Augusto and Mata, Yasmina, "Policies and Institutions Underpinning Country Innovation: Results from the Innovation Capacity Index," *The Innovation for Development Report 2010-2011*, pp. 36-38; Gartner Dataquest (1995-2005).
2. William Hogan, *POSCO Strategy: A Blueprint for World Steel's Future* (Lanham, MA: Lexington Books, 2001).

The Economic Growth of South Korea

Written by Park Heung Gi (The Academy of Korean Studies)

The South Korean Economy: Overview and Major Issues

The economy of South Korea, the last remaining divided nation on earth, is characterized by an open capitalist economy that has developed despite a shortage of natural resources. South Korea has to depend on the importation of raw materials required for most of its industries due to its paucity of natural resources. Additionally, its economic fluctuations rarely exert tangible influence on the world economy because of its smaller economic scale. On the other hand, the South Korean economy is highly sensitive to fluctuations in the world economy as it constitutes an open capitalist economy with a high level of dependence on trade. As is shown in Table 1 and Table 2, South Korea has a population of approximately 48 million people with a land area of a little less than 100,000 square meters.

Despite these figures, however, South Korea ranked 14th in the world in terms of gross domestic product (GDP) amounting to $969.8 billion as of 2007, and, as the figure suggests, has been classified as a high income country whose per capita income now reaches $20,000. Additionally, South Korea has become a subject of major research by numerous social science scholars of the world, especially economists. For what major reasons? If Argentina had developed into a high income country with economic power comparable to that of South Korea, the nation would nevertheless have found it hard to attract the attention of scholars. The reason is that Argentina had already joined the ranks of developed nations beginning in the early twentieth century. South Korea, in contrast, has transformed itself from one of the world's poorest countries with the least developed agriculture in the world, into an industrial powerhouse leading the world's state-of-the-art information technology (IT) industry. More surprisingly, those changes have been made during a short period of some sixty years since its liberation from Japanese colonial rule immediately after the end of World War Two in 1945.

Table 1 shows the vast economic changes South Korea has experienced during the past 60 years. The ordinary GDP of $1.3 billion in 1953 when the Korean War armistice agreement was concluded. The ordinary GDP of South Korea, however, rose a whopping 746 times to $969.8 billion as of 2007. During the same period, South Korea's per capita income rose 294 times from a mere $67 to $19,730. The rate of farm household population in South Korea—an indicator of the percentage of farm households in the total population—shrank from 71.4 percent in 1949 to a mere 7.0 percent in 2005, less than one-tenth of the earlier figure. During the same period, electricity generation and the number of privately-owned cars rose 840 times and 1,000 times, respectively. The amount of trade in value terms and foreign exchange reserves rose sharply enough to make people feel as if they were living in a different world.

It must be noted that such statistics as South Korea's GDP and trade in value terms in Table 1 are indicated not in present value

Table 1 Comparison of the South Korean Economy between the Period of the Government Establishment and the Year 2007

	Following the government's establishment (A)	2007 (B)	B/A
Population (per 1,000)	20,189 (1949)	48,456	2.4
Aging index (%)	8.0 (1955)	47.4 (2005)	5.9
Farm household population (per 1,000) Percentage of farm households in the population (%)	14,416 (1949) 71.4 (1949)	3,433 (2005) 7.0 (2005)	0.2 0.1
Ordinary GDP ($100 million) Per-capita income ($)	13 (1953) 67 (1953)	9,698 19,730	746 294
Exports in value terms ($100 million) Imports in value terms ($100 million)	0.2 (1948) 2.1 (1948)	3,715 3,568	16,886 1,699
Foreign exchange reserves ($1 million)	3.8 (1951)	262,224	69,006
Electricity generation (100 million kWh)	4.8 (1948)	4,031	840
Number of privately-owned cars (10,000 units)	1.5 (1948)	1,643	1,118

Source: Statistics Korea. The aging index = [The number of persons 65 years old and over] / [The number of persons 14 years old and under] * 100.

but in ordinary prices, which means that the extent of the change is liable to be unduly magnified, rather than reflecting the actual changes in South Korea's economic indicators. In order to dispel methodological concerns, one of the recommended methods to be employed is to compare the achievements of South Korea with those of other countries during the same period. Let's first compare the economic output of South Korea with that of North Korea. The two nations can be compared to fraternal twins that shared an almost homogenous character in terms of history, geography and language but who began to diverge under the different systems. The output of South Korea and North Korea are compared in Table 2.

From the above figure, we can see that the North Korean economy recorded constant growth after the establishment of its own government, but its growth stalled and struggles to maintain the status quo. Metaphorically, the people of both Koreas had been of a completely homogenous nature, but have now become heterogeneous enough during the past half a century to be regarded as different tribes even in terms of outer appearances; there is a ten year gap in terms of life expectancy and a gap of 7 centimeters in average heights. We can see it more clearly in Fig 1. Fig 1 was drawn in a form of a graph after highlighting only the changes of per capita income of South and North Korea. The South Korean economy can be compared to a large jet plane that has successfully passed the stage of "take-off." In contrast, North Korean economy is comparable to a small airplane that is still taxiing down the runway under difficult circumstances.

The unusual aspect of the long-term, rapid growth of the South Korean economy is more clearly seen when compared with not only the economy of North Korea but also that of other nations. Ghana, for example, is oft-cited as a case study whose economic development is compared to the rapid growth of South Korea.[1] Some years before he died, the late Samuel Huntington, the author of *The Clash of Civilizations* (1996), also edited and contributed to a book that emphasizes the role of a variable called "culture" in the process of economic development, and in which he found support for his opinion by comparing South Korea and Ghana. Huntington's view can be summarized as follows. In the early 1960s, South Korea and Ghana were situated in almost all the same conditions, in terms of per capita income, industrial structure, and their status as the beneficiaries of foreign support. More than thirty years later in the early 1990s, however, South Korea has grown into the world's 14th largest industrialized economic powerhouse and exports automobiles, electronic appliances, and other cutting-edge high-tech products while at the same time making reliable progress in achieving democratization in politics. Ghana, on the other hand, still remains in a stage of underdevelopment with per capita income amounting to less than one-fifteenth of South Korea's. What can explain these enormous differences in terms of growth?[2]

In Fig 2, we can reaffirm what Huntington pointed out. Fig 2 is drawn in the form of a graph based on the content of Table 3 excluding those items related to North Korea. Fig 2 shows the changes in per capita income of the Philippines, Argentina, and Turkey as well as Ghana. Except the case of Argentina which was some ten times richer economically than South Korea in the early 1960s, the per capita incomes of the other nations were more than double that of South Korea. It must be noted that Ghana and the Philippines were each one of the most promising nations in Africa and Asia, respectively. Ghana and the Philippines have each undergone a growth pattern that is highly similar to that of North Korea: They have not been able to get out of the stage of underdevelopment.

It is neither easy nor common that a poor nation can sustain constant economic growth in the process of transforming itself into a high income nation. The World Bank evaluated the economic growth of South Korea during the past six decades as a representative case of achieving a "miracle" although there were other Asian nations that have accomplished high economic development. We agree with the evaluation of the World Bank. Now, let's figure out the factors contributing to this growth.[3]

Table 2 Comparison of Recent Major Economic Indicators between South Korea and North Korea

	South Korea (A)	North Korea (B)	A/B
Population (1,000 people)	48,456	23,200	2.1
Land area (square meters)	99,828	122,762	0.8
GDP ($100 million)	9,698	267	36.3
Per-capita GDP	19,730	1,152	17.1
Total amount of trade in value terms ($100 million)	7,283	9	413
Exports	3,715	29	29
Imports	3,568	20	178
Electricity generation (100 million kWh)	4,031	237	17
Crude steel output (10,000 tons)	5,152	123	42
Grain output (10,000 tons)	503	401	1.3
Fertilizer output (10,000 tons)	343	41	8.4
Number of automobiles produced (10,000 units)	409	0.5	818
Life expectancy (Years)	78.6	67.3	A-B = 11.3
The average height for men (cm)	172.5	165.6	A-B = 6.9

Source: This above figure is based on both the "Special Report on the Two Koreas" featured on Page 13 of The Economist of its September 27th issue in 2008 and the statistics of the Bank of Korea. Where the numerical figures for the same items are different, however, the 2007 statistics of World Bank and the Bank of Korea are used.

The History of South Korea's Economic Growth and Its Main Factors

It is by no means easy for a country to accomplish an economic miracle. A more difficult job is to scientifically and incontestably explain the phenomenon of an economic miracle. According to the statistics of World Bank, the per capita income of Norway stood at $77,370 as of 2007. On the other hand, however, the per capita income of Burundi, the poorest nation in Africa is only $110.[4] What are

the reasons behind the figures? It goes without saying that an enormous imbalance of income should be explained by economists or social scientists as their top priority concern, both from the perspective of theories and from the perspective of policies rescuing impoverished populations which comprise a lion's share of the people around the world. In this respect, the successful "catch-up growth" of South Korea can be a valuable case that could be a good lesson for many other nations. Scholars' perspectives on the contributing factors to growth, however, are not always the same, as everybody can easily expect, considering the characteristics of social science where controlled experiments are almost impossible. Let's briefly examine the process of South Korean economic development.

1. The Development Process of the South Korean Economy

The development process of the South Korean economy is often portrayed as "condensed growth." As was mentioned above, South Korea has grown from the world's most impoverished country into a high income nation during the considerably short period of half a century. Additionally, South Korea has accomplished its growth from an agricultural nation into an industrialized nation in a very short period of thirty years, which has usually taken some one hundred years in the case of advanced nations. The successful "condensed growth" of South Korea was the outcome of several factors: the refurbishment of systems and norms by transforming adverse situations and crises both at home and abroad into opportunities; selection and execution of proper policies; and incessant restructuring and self-reform. These can be divided into several periods for the convenience of discussion.

1) The Crisis of Ideological Conflicts and the Selection of a System (1945-1960)

South Korea was liberated from Japanese colonial rule in 1945 right after the end of the Second World War. South Korea's liberation, however, became a prelude to another great tragedy, as the Korean peninsula was soon divided into two halves along the 38th parallel. The two Koreas became dominated by the United States and the Soviet Union, respectively. After experiencing severe social chaos amid ideological confrontations between the left and the right, Korea was ideologically divided in August and September 1948 by the two superpowers: the United States and the Soviet Union. The government of the Republic of South Korea, established in the south, was pursuing a capitalist market economy. At the same time, the government of the Democratic People's Republic of Korea was established in the north and sought a socialist planned economy. Soon afterwards, North Korea invaded South Korea on June 25, 1950 with the ambition of unifying and communizing the whole of South Korea by force. Until July 27, 1953 when the armistice agreement was made between the two, Korea had been devastated and burnt to the ground for almost three years during the fratricidal Korean War, and Korea was ultimately divided into two countries. Currently, ideological conflicts have little meaning due to changes in systems and the reform and open-door policies of the former Communist countries, but the Korean peninsula still remains the last divided territory in the world that is yet to be reunified.

Fig 1 Changes in Per-capita Income of the Two Koreas (Ordinary US$)

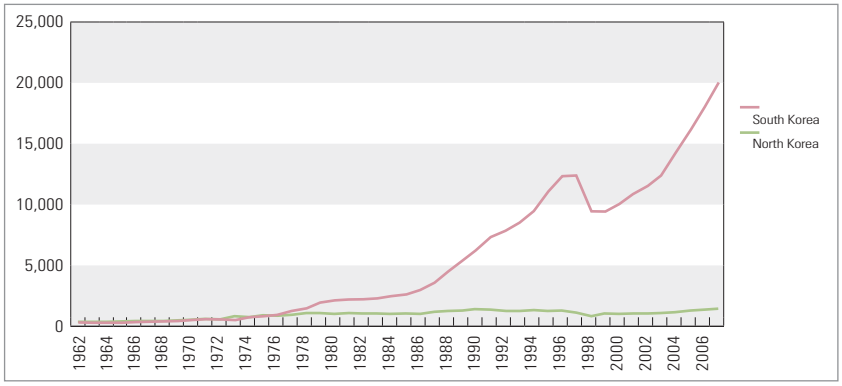
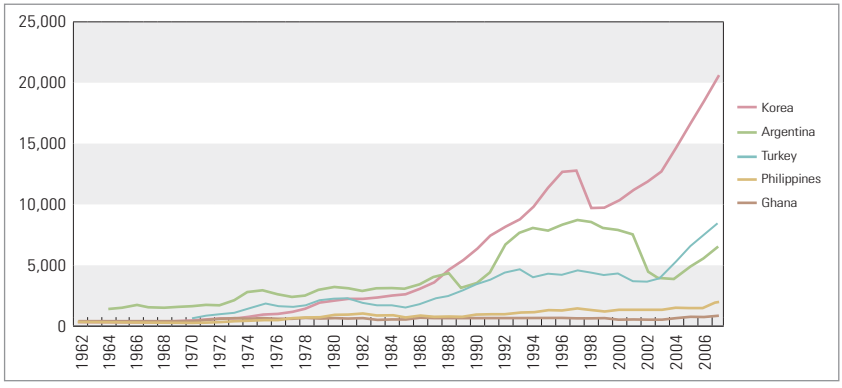


Fig 2 Changes in Per-capita Income of South Korea, Ghana, the Philippines, Argentina, and Turkey (Ordinary US$)



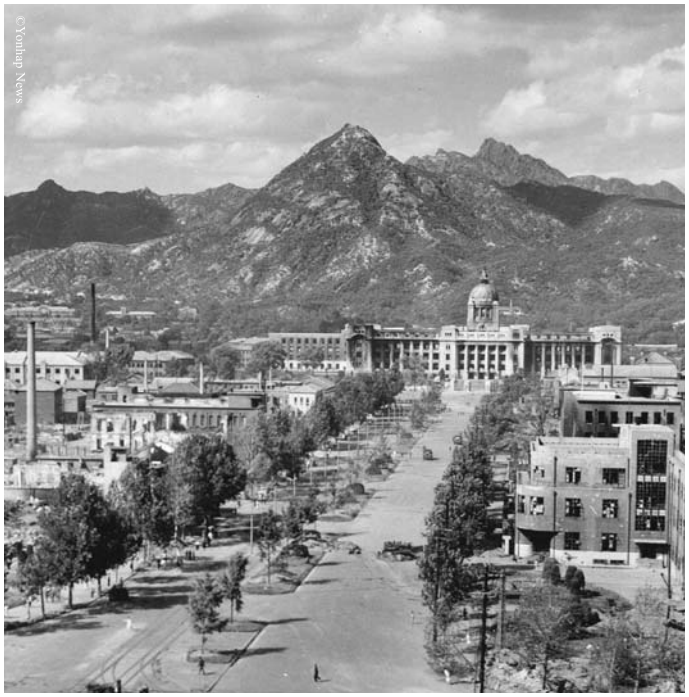
Between 1953—the year of the armistice agreement—and 1960, the South Korea government could not accomplish tangible economic growth due to severe socioeconomic chaos and a shortage of investment resources, although the government endeavored to restore destroyed production facilities and to rebuild the economy. The government had to map out a policy of relying on foreign aid in managing its economy in a situation where the majority of the people were lacking jobs and threatened with death from starvation. Between 1953 and 1960, South Korea received aid goods worth some $1.9 billion from the United States and the United Nations. That was an enormous amount of foreign aid in value terms considering that the gross national product (GNP) of South Korea stood at mere $1.9 billion in 1960.

As South Korea was economically constrained between 1945 and 1960, scholars examining the South Korean economy tend to ignore this period in their studies. With regard to the economic growth of South Korea thereafter, however, this period bears a special meaning compared with other periods. As many scholars firmly be-

Table 3 Changes in Per-capita Income of South Korea, North Korea, Ghana, the Philippines, Argentina, and Turkey (Ordinary US$)

	South Korea	North Korea	Ghana	Philippines	Argentina	Turkey
1962	110	179	180	210		
1963	120		190	190		
1964	130	194	200	170	1,110	
1965	130		220	180	1,230	
1966	130	192	230	190	1,340	
1967	140		230	200	1,230	
1968	180	225	210	220	1,210	
1969	230		210	230	1,300	
1970	270	286	240	220	1,320	540
1971	310	308	260	220	1,470	620
1972	340	316	250	210	1,460	740
1973	410	418	270	260	1,810	910
1974	530	461	310	320	2,460	1,180
1975	630	579	290	380	2,700	1,550
1976	770	585	280	420	2,340	1,440
1977	930	642	290	440	2,200	1,360
1978	1,240	784	340	490	2,170	1,420
1979	1,620	873	370	590	2,610	1,860
1980	1,810	758	410	690	2,940	1,920
1981	1,960	746	390	750	2,810	1,830
1982	1,960	735	340	740	2,570	1,540
1983	2,050	765	300	670	2,800	1,400
1984	2,190	762	320	580	2,820	1,310
1985	2,330	765	330	520	2,650	1,300
1986	2,700	860	370	550	3,020	1,420
1987	3,320	936	400	610	3,610	1,900
1988	4,240	980	410	670	3,920	2,250
1989	5,040	987	380	710	2,920	2,570
1990	6,000	1,146	380	740	3,190	3,070
1991	6,980	1,115	390	740	3,970	3,500
1992	7,700	1,013	410	790	6,310	4,020
1993	8,330	969	400	840	7,110	4,300
1994	9,270	992	360	940	7,580	3,630
1995	10,770	1,034	350	1,040	7,360	3,870
1996	12,070	989	360	1,190	7,730	3,900
1997	12,190	811	370	1,230	8,140	4,250
1998	9,200	573	370	1,080	8,020	4,050
1999	9,220	714	370	1,050	7,570	3,760
2000	9,800	757	320	1,050	7,470	3,930
2001	10,580	706	280	1,050	7,000	3,250
2002	11,280	762	260	1,020	4,050	3,250
2003	12,060	818	300	1,070	3,670	3,560
2004	14,040	914	370	1,180	3,580	4,770
2005	15,930	1,056	440	1,270	4,460	6,150
2006	17,780	1,108	510	1,390	5,150	7,070
2007	19,730	1,152	590	1,620	6,040	8,030

Source: All the statistics, except those of North Korea, were based on the World Development Indicators Database of World Bank, revised on April 24, 2009. The statistics for North Korea before 1989 are based on "A Comparative Analysis of the Trend of National Strength between the Two Koreas" (Korea Institute for National Unification, 1993), p. 255. The statistics for North Korea after 1990 are based on the data of the Bank of Korea.



A scene from the metropolitan area in Seoul in the 1950s

lieve, the wide difference in the economic power between the two Koreas manifested in Table 2 is fundamentally attributed to the fact that, during this period, South Korea chose and established a capitalist market economy oriented toward to openness while North Korea adopted the closed socialist planned economy. We can easily surmise from the accumulated experiences and economic knowledge that the socioeconomic situations of the two Koreas might have been clearly reversed had North Korea adopted a capitalist market economy and South Korea adopted a planned economy. It, therefore, is necessary to reassess the meaning of the period from this perspective.

2) The Crisis of Absolute Poverty and the Period of Rapid Growth (1961-1979)

Overcoming absolute poverty and political and military instability were the two motives and also the aims of the "revolution" suggested by the Park Chung-hee regime that rose to power through a military coup d'état on May 16, 1961. If converted into the present currency, the per capita income of South Korea around the year 1960 was similar to that of Ghana and Cambodia. That means the South Korean people were desperately poor and had to live on an average of only $1.50 per day. Additionally, as was shown in Table 3, the per capita income of North Korea was higher than that of South Korea until the early 1970s. South Korea, therefore, had no other way but to increase national wealth by facilitating economic growth in order to escape from the real threat of the enemy within—the vicious cycle—and the outer enemy which was North Korea. In order to achieve the goal, South Korea had to concentrate its potential on one thing. In order to achieve its aims, the government pushed for implementation of its "five-year economic development plan."

President Park Chung-hee carried out these economic development plans step-by-step four times during his reign after he adopted the first Five-year Economic Development Plan in 1962. The basic aims of the plan carried out between 1962 and 1966 were as follows:

- Rectification of the socioeconomic vicious circle and the establishment of the groundwork for a self-supporting economy.
- The principle of free enterprise respecting the freedom and creative power of private persons, but based on the maintenance of a guided capitalist system under which the government is directly involved in policies or indirectly carrying out inducement policies with regard to the basic industries and other key sectors.
- Emphasis on placing a top priority on the public sector that directly reflects government policies and on expanding the ripple effect on the private sector while encouraging autonomous activities of the private sector.

Expansion of employment and exports were suggested as the two main policy measures of the government for accomplishing its basic goals. The government set the annual target economic growth rate for the first Five-year Economic Development Plan at 7.1 percent.[5] As we can see from the figure, the Park Chung Hee administration gave up the passive tactics of the previous government, such as restoration from the devastation of war and economic stabilization. Instead, the administration shifted the direction of the strategy into one of accomplishing high growth through industrialization. Additionally, the government drastically changed the paradigm of the industrialization strategy from one of promoting import-substituting industries to an exports-oriented one. In the process of systematically adopting and carrying out economic plans, the government established a grand framework for South Korea's growth strategy: growth through the government-led, exports-oriented industrialization. Although the government intervened in every sector of economy in the process of growth, it maintained the basic framework of a market economy. The government made business conglomerates into its cooperative partners, played the role of a supporter for growth, and carried out export promotion strategies

A scene from the ground-breaking ceremony for the construction of the Ulsan Industrial Center in February 1962, when the first Five-year Economic Development Plan just started in South Korea

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South Korea accomplished the exports of $10 billion in value terms in 1977.

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A scene from a semiconductor factory. South Korea has grown into an IT powerhouse thanks to the strengthened R&D activities of both the government and the businesses.

based on market incentives. That's what distinguished South Korea from Brazil and India whose governments directly entered into production activities for industrialization through the promotion of import-substituting industries and the nationalization of businesses.[6]

After successfully carrying out two phases of the five-year economic development plans through the promotion of labor-intensive light industries, the government changed the plan into one focusing on capital- and technology-intensive heavy industries in the process of carrying out the third Five-year Economic Development Plan. Beginning in the mid-1960s, the government established and realigned various administrative organizations, specialized banks, and special research institutes for the nation's industrialization. In 1973, the government established the Center for the Promotion of Heavy and Chemical Industry in order to actively enhance industry. As economies of scale are a precondition for the promotion of the heavy and chemical industry, such a plan necessarily facilitated the formation and the growth of large conglomerates in the nation. Due to the promotion of heavy and chemical industry over a long period, several problems arose, including: excessive and overlapping investments, deepening imbalances, inflation, and some side-effects of the government-led economy. Boosted by heavy investment, however, South Korean businesses could make the best use of the golden opportunity of "three lows" phenomenon: low interest rates, low oil prices, and low exchange rates. Additionally, the nation could maintain the world's top-level competency in the steel, petrochemical, electric, electronic, and shipbuilding industries. It must also be noted that beginning in 1972 the government actively pushed for a new regional development plan titled the New Village Movement (*Saemaeul Undong*) as part of efforts to promote agriculture as the nation's strategic industry, enlighten farmers, and enhance agricultural life. This generated a great effect.

The results of the rapid economic growth boosted by the four phases of five-year economic development plans are as follows.

First, the South Korea people were able to overcome the crisis of absolute poverty that had been passed down for decades. Even though a new problem of relative poverty was germinating with regard to the distribution of the growth outcome, that was an issue different from others discussed in the past. Second, South Korea established an undoubtedly higher supremacy over North Korea in terms of competition over the merits of their respective political and economic systems. Third, with increasing pride, South Koreans realized that by redoubling their efforts to become an advanced nation they could even catch up with Japan.

3) The Period of Deepening Imbalance, the Crisis of Outer Pressure to Open Doors and Liberalization

Since the 1980s, a series of difficult problems arising both at home and abroad were encountered and piled up one on another. Several problems arose domestically. The title of the existing five-year economic development plan was changed into the "five-year economic and social development plan" beginning in 1982 with the commencement of the fifth five-year development plan. The basic agenda of the new plan included the promotion of national welfare through balanced development among the income brackets and the

regions, which shows that the domestic circumstances had changed. Though the government had pushed for an economy-first policy in the past, it now had to be concerned about the social and political issues as well as economy to a certain degree. Additionally, as a result of pushing for quantitative growth that placed a premium on a total amount of output, the disparity between exports and domestic demand, between large conglomerates and small and mid-sized companies, and among regions and social classes had gradually intensified. For example, between 1976 and 1979 when the government strongly promoted the heavy and chemical industry, up to 77 percent of investment in plant and equipment in the manufacturing sector was excessively pumped into that industrial sector. As a result, the heavy and chemical industry attracted excessive investment and saw the deterioration in terms of both profitability and the efficiency of investment. On the other hand, investment in the light industry and the service sector had shrunk considerably. In an effort to rectify these imbalances, the government readjusted the amount of investment in the heavy and chemical industry beginning in the early 1980s, and aggressively implemented measures of "industrial rationalization," i.e. renovation and modernization of industrial equipment, thereafter.

Additionally, by wielding patriarchal authority the government—in the process of focusing on economic growth and the expansion of exports—intervened in the nation's economy through various regulations. As a result, the creativity and the spontaneity of the private sector declined and its adaptability to the changes in environment weakened. Accordingly, strong demand for deregulation arose, and that demand was incorporated into the demands for "democratization," "autonomy," and "liberalization" in the 1980s. It was during this period that the nation's economy began to be gradually led more by the private sector than by the government.

The year 1987 will be remembered as the first year when democracy was established in South Korea as the people's wish for a direct presidential election and the peaceful transfer of power was accomplished that year. The same year, in the wake of the rapid process of democratization, a strong desire to rectify the imbalance in distribution that was an aftereffect of growth was expressed in the form of labor movements. In order to cope with these desires and to relieve the people of the fatigue resulting from the rapid growth, as well as to guarantee social integration, the government sought to expand the social safety net by expanding the eligibility for the medical insurance to the entire population in 1989 and by gradually adopting and implementing systems for a national pension and unemployment insurance. At the same time, the government strengthened that welfare system for the poor through measures such as a system of guaranteeing basic livelihood and medical treatment.

The problems coming from abroad were as follows. The nation's trade volume rose rapidly at an annual rate of 8.6 percent between 1950 and 1972 but in the wake of the first oil crisis, or the oil price shocks, in 1973, it decline severely to an annual rate 4.3 percent between 1973 and 1989. Especially in the 1980s, a trend of "new protectionism" advocating protective trade rather than free trade emerged among the advanced nations, including the United States which was suffering from an economic slowdown in the wake of the second oil crisis. The United States, for example, strongly called for the opening of markets in the developing nations—including South Korea—which had been protecting their markets and recording huge trade surpluses. In 1988 and 1989, the United States designated South Korea as a country that manipulated exchange rates, excluded South Korea from the list of the developing countries subject to the generalized system of preference (GSP), and increased pressure to open South Korea's agricultural, as well as industrial, goods markets. The South Korean government could not remain aloof from the demands and the pressure, so had to gradually expand the scope of market opening and the continuous reduction of tariff rates. As a result, the average tariff rates on industrial goods that amounted to 18.1 percent in 1988 dropped to 8.6 percent in 1997.

Around the year 1980, advanced nations became reluctant to offer their technology to South Korea as they were gradually coming to regard the rapidly-growing South Korea as a competitor. Under these circumstances, the South Korean government, which had felt the limits of the conventional technology and the necessity of technological self-reliance, formed a public-private partnership with the fastest-growing large conglomerates. The public and private sectors decided to develop a state-of-the-art information and technology (IT) industry including semiconductors and a full electric switching system and poured more manpower and capital into research and development (R&D). In the fifteen years from the time it entered into DRAM semiconductor device development in 1983, South Korea overtook Japan—a predecessor in the field—in 1998. As a result of this decision-making and capital investment, South Korea laid a cornerstone for the development of its information and communication industry by resolving the problem of handset shortages, after it opened the service of the telephone switchboard it had developed in 1986. Thanks to the new challenge and the incessant efforts, the IT industry of South Korea maintained a balance with the traditional key industries and has emerged as South Korea's new growth engine since the 1990s. Having experienced such a process, today South Korea has grown into an IT powerhouse that competes with other advanced nations.

South Korea gained confidence after having successfully coped with the challenges from both at home and abroad and began to prepare for participation in the OECD (Organization for Economic Cooperation and Development), an international organization of advanced nations, in earnest. Despite its unprepared finance-related systems and inexperience in managing foreign exchange policies, the South Korean government hastily pushed for the opening of the capital markets as the transaction of foreign exchanges and the liberalization of the capital movements were preconditions for OECD membership. As a result, South Korea achieved its goal of joining the OECD in 1996. But being unable to cope with the speed of the capital market opening amid the global financial liberalization process, South Korea underwent a foreign currency liquidity crisis and finally experienced a foreign exchange crisis along with several other Asian nations.

South Korea had to carry out the policy of liberalization half willingly and half reluctantly during this period, but it had pro-

duced several accomplishments in the economic sector. First, as South Korea was under pressure both at home and abroad to ease government regulations and to activate market functions, it gradually changed the mode of managing its economy from the government-initiated one to the private sector-led one. Second, South Korea was keenly aware of the limitations to growth based on imitating imported technology and of the necessity of technological self-reliance, so both the government and conglomerates reinforced research and development (R&D) activities to lay a cornerstone for becoming a technological powerhouse. Third, although it is true that South Korea suffered from the growing pains of a foreign exchange crisis due to a lack of preparation coupled with a trial-and-error approach, the drastic open-door policy provided the nation with a chance to enhance its competitiveness and revamp its economic structure. Fourth, South Korea could remedy its shortcomings in terms of systems and policies so that it sincerely considered changing its mode from the growth-first policy to one including balanced distribution and the establishment of a social safety net.

4) The Period of the Foreign Exchange Crisis and Overall Reform of the System (1997-2009)

South Korea had been glorified as an economic miracle until late 1997 when it descended into crisis, opting for an IMF bailout package in order to avoid national bankruptcy. As is seen in Table 3 and Table 4, South Korea in 1998 recorded negative growth (of -6.9 percent) for the first time since 1962 when it had begun to grow in earnest. As a result, its per capita income decreased by $3,000 from $12,190 in 1997 to $9,200 in 1998. The nation's joblessness rate rose from 2.6 percent to 6.8 percent during the same period due to bankruptcies and the restructuring of many companies. At that time, it was even difficult to pass through several subway stations in Seoul as they were crowded with homeless people who had lost their means of living and run away from home. Why did such a phenomenon happen?

As was suggested above, the foreign exchange crisis of South Korea was the outcome of aggravating factors from both home and abroad. Since the collapse of the former Soviet Union in 1990, capital markets grew due to the rapid process of globalization and financial liberalization. With the rise in speed and magnitude of capital movement, global speculative capital was on the verge of expanding. The rise of China amid this situation resulted in intense international competition and East Asian nations with similar industrial structures made large-scale facility investments in order to produce export items. East Asian nations, including South Korea, acquired short-term funds from Japan but used them as if they were long-term funds. That did not really matter while these nations experienced consistent growth of their economies and exports because they were able to extend maturity dates. Problems arose, however, as the price of export items declined as a result of the increased supply coming from the continuing investments in plant and equipment. The number of insolvent companies that could not deliver profits rose due to a decline in the price of export items. Accordingly, the financial institutions that had funded those companies also became insolvent. Realizing the implications of this

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South Korea experienced a severe foreign exchange crisis in 1997.

situation, foreign creditors immediately collected their short-term funds from the near-bankrupt debtor nations, thus resulting in foreign exchange crisis.

Adding fuel to the fire, government-led financing and the cozy relationship between politics and business aggravated the situation. As is well known, the government-led growth-oriented industrial policy and the back-scratching alliance of government, banks, and businesses through government-led financing helped create a paradigm of "Too big to fail." Under these circumstances, the role of entrepreneurs with a rational mindset is to attract as much capital as possible without regard to the broader circumstances of short-term and long-term capital arrangements at home and abroad—despite the worries of insolvency—in order to expand the size of the domestic businesses. The foreign exchange crisis in South Korea was a good opportunity to teach economic bureaucrats and businesspeople that these practices are misguided. Given that one-third of the nation's top 30 conglomerates went bankrupt in the aftermath of the foreign exchange crisis, clearly there was virtually nothing that the nation could do for these businesses when it could no longer repay foreign loans.

After the foreign exchange crisis, the government accepted the IMF bailout package to repay foreign debts and made excruciating efforts to restructure and adopt overall systematic reforms. Extensive systematic reforms were made in four sectors: finance, large con-

glomerates (or *chaebol*), labor and the public sector. Financial sector reform was centered on the recovery of financial soundness, and improvements in the management structure and the supervisory system on one hand, and the adoption of the Anglo-American approach to the financial system that emphasizes market function on the other.

For the reform of the *chaebol*, South Korea emphasized the principle of autonomy and responsibility of the *chaebol* and considered restructuring and the management reform aimed at raising the competitive edge of these businesses. For the reform of the labor sector, South Korea sought improvements in the labor market-related systems and labor-management relations, as well as the expansion of manpower resources. For the public sector reforms, South Korea pushed for innovation in government organization, the operating system, and the reform of the public enterprises. At the same time, the South Korean government opened the entire market to cope with the demand of the IMF and implemented a level of openness in the commodity and financial markets and capital liberation to be on equal terms with those of advanced nations.

Boosted by these efforts to overcome the crisis, South Korea recovered its economic indicators to the previous condition in less than four to five years after the foreign exchange crisis as is manifested in Fig 1 and Table 4. South Korea repaid the bailout funds it received from the IMF three years earlier than initially planned. After undergoing intensive restructuring processes, large conglomerates were reborn into attractive multinational businesses equipped with strong international competitiveness. As is manifested in Table 4, however, it is also true that the South Korean economy did not recover its previous dynamic power and growth potential as corporate managers have preferred stability since the foreign exchange crisis. Under these circumstances, South Korea is now having a tough time in the wake of the global economic crisis that started in the United States in 2008. But South Korea is expected to overcome the crisis earlier than any other nations—according to the IMF and the OECD—as the nation has strengthened its organization and become highly competitive after experiencing ups and downs in the process of overcoming the foreign exchange crisis.

2. The Growth Factor of the South Korean Economy

The process of middle- and long-term economic growth is a highly complex phenomenon that cannot be easily explained in terms of several small variables. If one universal "economic growth theory" is established, it could explain the disparity between rich and poor nations. No such theory, however, exists so far. The growth model of the mainstream neoclassical school in economics has focused on the accumulation of the physical and human resources and on technological change. Of course, it is true that the accumulation of capital and the technological changes are the immediate cause of economic growth. But the traditional growth theory has the limitation in that it cannot explain the phenomena that aspects of the accumulation of capital and technological changes differ by nation and region. In this context, the role of "culture" and "the system," which have been mentioned several times in this article, has been emphasized. The result of growth in one nation can vary according to the global environment in which the nation is situated. The growth of the South Korean economy can generally be explained by these factors.

First, from the comparison between South and North Korea, we can understand the importance of the underlying system in economic growth. As was mentioned above, South and North Korea started from a completely homogenous situation but then adopted different economic systems. The two Koreas have made efforts to achieve the same goals: building a self-reliant economy and promoting national prosperity and military power.[7] North Korea chose the planned economy of Soviet-style socialism based on Marxist-Leninism. Under the collectivistic order, the means of production, or the possession of land and capital by private individuals and entities, was completely banned and all economic problems had to be resolved by state planning in circumstances of the abolition of markets. South Korea, on the other hand, adopted an American-style capitalist market economy, allowing private ownership of all properties including the means of production. South Korea regarded exchanges based on the voluntary decision of individuals in the markets as the basic mode of resolving economic issues. We can understand from this that the system of property rights and markets were the driving power that facilitated the economic growth of South Korea. This view can be supported by the fact that China fully recovered from poverty through allowing limited property rights and pursuing the marketability of the agricultural products.

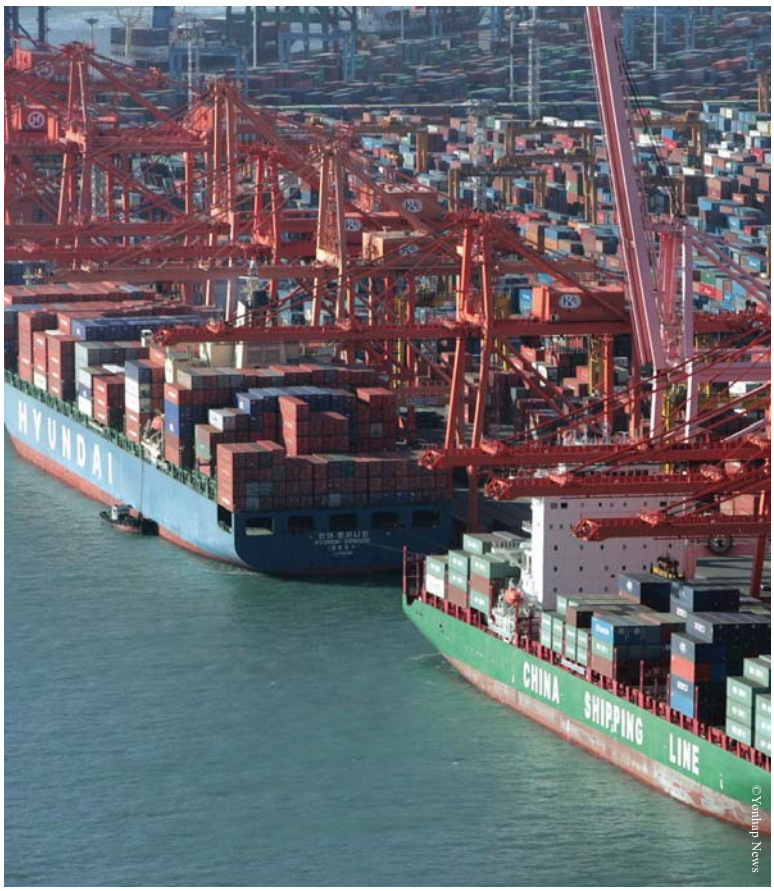
Second, we cannot ignore the comparison between South Korea and Ghana—based on the theory of Huntington—of the influence of culture on economic growth. Elaborating on the sharp differences between South Korea and Ghana, Huntington focused on the contrast between the two countries, saying that, unlike the culture of Ghana, the Confucian culture of South Korea puts top priority on such values as frugality, investment, diligence, emphasis on education, and support for systems and rules. Of course, it is true that culture is a concept hard to define. It is even more difficult to measure with numerical values. According to the circumstances, the same culture is regarded as a factor that facilitates the economic growth but can also be recognized as an element that hampers economic development under different circumstances. Between the 1980s and the mid-1990s, for example, Confucian culture or the Asian values were highly praised as having resulted in the economic miracles of Asia. After the foreign exchange crisis of 1997, however, Confucian cul-

Table 4 Changes in Major Economic Indicators after the Foreign Exchange Crisis in South Korea

(Units: %, 100 million dollars)

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Economic growth rate	4.7	-6.9	9.5	8.5	3.8	7.0	3.1	4.7	4.2	5.1	5.0
Joblessness rate	2.6	6.8	6.3	4.4	4.0	3.3	3.6	3.7	3.7	3.5	3.2
Rate of increase in prices	4.4	7.5	0.8	2.3	4.1	2.8	3.5	3.6	2.8	2.2	2.5
Current account balance	-83	404	245	123	80	54	119	282	150	54	60

Source: Bank of Korea



Busan Harbor is packed with inbound and outbound cargo vessels.

tural values were regarded as the main factors giving rise to a kind of "crony capitalism" highly liable to corruption and which finally brought about the crisis, because they had emphasized collectivism, duty, harmony and a hierarchy of obedience to orders from upper echelons. In any case, however, it is a true reminder that culture and economy are closely related each other.

Third, it must be pointed out that the global environment exerts a great influence on the economic growth of a country. In case of South Korea, there were several factors that heightened the awareness of crisis and facilitated the rapid economic growth among the economic agents since the 1960s. They include: competing with North Korea, a security-oriented crisis as North Korea had never given up its ambition of unifying the Korean peninsula under the banner of communism; catching up with the economy of Japan, Korea's object of envy, by imitating and learning from that nation; and tightening vigilance against the economy of China that had emerged as an economic powerhouse beginning in the 2000s. Additionally, it must be noted that South Korea began its economic growth when the trade volume of the world market expanded to epoch-making levels. For such developing nations as South Korea, the existence of favorable markets in the advanced nations to which it could sell its goods freely was a precondition for its growth.

There was another significant favorable factor for South Korea that at the time had little domestic savings and a markedly lower standard of technological development. South Korea could rather easily acquire the capital and technology needed for its economic development from advanced countries, including the United States and Japan.

Finally, the economic growth of South Korea was facilitated by timely and flexible growth strategies and economic policies. In this respect, it would be useful to point out some of the major growth strategies and economic policies.

● Export-oriented Industrial Strategies

The South Korean government had observed that no other country had ever made rapid economic growth by mapping out industrial strategies based on promoting import-substituting industries. It, therefore, was a wise decision that South Korea changed its strategies into export-oriented industrial policies at a considerably earlier time.

● South Korea's Growth Policies Accompanied by the Focus on Economic Power

What distinguishes the process of South Korea's economic growth most from those of other developing nations was that the South Korean government carried out the policy of giving special preference to a few groups of large conglomerates, called chaebol, by promoting them and allowing them to focus on building up their economic strength in the process of pushing for the development of the heavy and chemical industry.

These conglomerates such as Samsung, Hyundai, LG, and SK enjoyed the government's political support and the power of economies of scale. With their global competitiveness strengthened compared to that of small and mid-sized companies, they succeeded in making inroads into world markets and grew into multinational businesses. Now, they are carrying out their role as core enterprises constituting the driving force behind the South Korean economy ven amid the current global economic crisis.

● South Korea's Growth Strategies Focusing on Education, R&D and Technological Self-reliance

Having sought economic development by acquiring foreign capital and technology, the South Korean government and businesses had already felt the importance of accumulating human resources and capital, and of technological self-reliance since earlier times. Based on that philosophy, they established and operated various public-private cooperative research institutes for the development of education and technology. For example, the government established the Korea Institute of Science and Technology (KIST) in February 1966 with a view to studying and developing creative "original technology" that could help promote the development of the nation's science and technology and to widely distribute the outcome. The government established not only institutes devoted to the natural science, but also others dedicated to social science research at almost at the same time. In July the same year, it also launched the Korea Development Institute (KDI) with the ambitions of conduct-

ing research and analyzing projects in various areas related to the development of the national economy on one hand, and of cultivating professional manpower which could make a significant contribution by implementing the economic strategies of the nation and fostering economic development on the other.[8]

As is shown in Table 5 below, the ratio of research and development (R&D) investment to gross domestic product (GDP), or the R&D ratio to GDP, among the developing nations, including South Korea, was hovering around the boundary of 0.2 percent to 0.4 percent around the year 1965. In 1980, the R&D ratio to GDP in most other developing nations stood only at around 0.5 percent. Since the mid-1980s when South Korea devoted itself to catching up with other advanced countries and expanded its investment on R&D, the situation has completely changed. As a result, as of 2000, South Korea's R&D ratio to GDP stood at 2.39 percent, manifesting that South Korea was investing a larger amount of capital on R&D than many other nations. In 2006, South Korea's R&D ratio to GDP stood at 2.99 percent, still lower than Japan's 3.18 percent, but higher than 2.68 percent recorded in the United States.[9] Considering these and other circumstances, South Korea is expected to recover much earlier than other nations from the ongoing global economic crisis.

• South Korea's Active Open-door Policy

As was mentioned above, South Korea had to carry out the policy of market opening half willingly and half reluctantly. Additionally, South Korea suffered from the growth pains of foreign exchange crisis due to the lack of preparation and trial and error of the earlier-than-planned open-door policy. But after overcoming the foreign exchange crisis, South Korea embarked on a drastic market opening to the level of advanced nations in almost every sector of the economy. Although South Korea is still delaying the opening of some sectors, its commodity and financial markets are as open as those of other OECD nations. As South Korean conglomerates were exposed to international competition, they were able to revamp their business structure and enhance their competitiveness.

Table 5 The Changes of R&D Ratio to GDP in Several Nations (%)

	1965	1980	2000
South Korea	0.26	0.56	2.39
Taiwan		0.71	2.05
Philippines	0.2	0.2	
Thailand	0.3 (1969)	0.3 (1985)	0.25
Malaysia		0.10 (1988)	0.49
China		0.68 (1985)	1.00
India	0.4 (1968)	0.7 (1982)	0.85
Argentina	0.2 (1969)	0.5	0.44
Brazil	0.3 (1974)	0.6 (1982)	1.04
Mexico	0.1 (1970)	0.6 (1984)	0.37
Ghana	0.2 (1966)	0.9 (1976)	

Source: Keun Lee, "How Can South Korea Be a Role Model for Catch-up Development? A 'Capability-based View'," UNU-WIDER, Research Paper No. 2009/34 (June 2009), p. 3.

• South Korea's Timely Change of Its Mode of Managing the Economy

We have already mentioned before that South Korea based its growth strategy on government-initiated export-oriented industrialization. This strategy, characterized by large-scale government intervention in the market, may be effective in the early stage of economic growth when the private sector records a low level of growth and the mediation through markets has a high possibility of failure, but it may hamper the economic growth at a later stage of a large-scale open economy. It, therefore, was a proper choice for the government to change the mode of operating the economy from a government-oriented one based on intervention to a private sector-oriented one that facilitates market functions, although the government has had to cope with the demand for deregulation from both home and abroad.

The Growth of the South Korean Economy: Is It a "Miracle" or a "Myth"?

So far, we have examined the process of South Korea's economic growth and the factors contributing to growth. During the half century since the early 1960s, South Korea has achieved such brilliant economic growth as to be praised for having made a "miracle." On the other hand, however, it suffered from the crisis of being subject to the IMF bailout package. What then is the reality of the South Korean economy?

This question was raised internationally by Paul Krugman, winner of the Nobel Prize in economics. In a paper released in 1994, much earlier than the foreign exchange crisis sweeping East Asian nations, Krugman said that the rapid economic growth of Southeast Asia during the past thirty years was a result of a mere accumulation and investment of physical and human resources, rather that the enhancement of the TFP (total factor productivity), adding that, therefore, the gradual slowdown of the growth rate is inevitable according to the law of diminishing returns. In short, the miracle of Asia might come to an end in the near future.[10] The meaning of this suggestion can be more clearly shown by some equations.

$$Y = C + I + G + (X - M)$$
$$Y = f(K, L) = AK^{\alpha}L^{\beta}$$
$$\Delta Y/Y = \alpha\Delta K/K + \beta\Delta L/L + \Delta A/A$$

The first equation defines national income. It says that national income comprises consumption (C), investment (I), government expenditures (G), and net export [export (X) – import (M)]. The second equation is the production function based on the growth theory of the neoclassical school that says that the national income is the outcome of physical capital (K) and human capital—or labor—(L). The last equation shows the growth of national income, in other words, economic growth. This shows that economic growth is supported by the increase in physical capital, human capital and $\triangle A/A$,

or the increase of total factor productivity (TFP). The growth based on the increase of TFP can be translated into growth supported not by the quantitative input of production factors but by the technological innovation with which people can produce much more end products by investing the same amount of production factors. If a country's economy is situated under this circumstance, it can avoid being subject to the law of diminishing marginal returns. It is because the movement of the economy is not decided by the given production function but because the production function itself makes an upward movement. Krugman argues that the so-called economic growth of South Korea and other East Asian nations cannot be interpreted as a miracle because the growth is not based on the increase in TFP.

What Krugman predicted was the end of "a miracle" not the advent of "a crisis." Nevertheless, his reputation as an economist rose higher in the wake of the foreign exchange crisis. The crisis clearly demonstrated how precise was his forecast. Afterwards, academic circles were divided into pro and con factions of scholars with regard to Krugman's view. Those who advocate Krugman's opinion saw the "miracle" of Asia as a "myth," while the opposing scholars took the position of seeing it as a miracle. The former group is of the opinion that the miracle of Asia can be explained in terms of the enormous investment of human and physical capital and opined that any country could make rapid economic growth if it increases capital investments as in the Asian countries. The latter group, on the other hand, maintains that the accumulated capital investments are necessary, but not sufficient, conditions, so, in order to explain the economic miracle, we have to take into consideration the acquisition of new technologies and the innovative functions of the businesses in those nations that have made the miracle. The two sides are still are in a neck-and-neck race too close to call. It is very hard to decide whose opinion is right.

First of all, it must be noted that scholars who emphasize the role of systems and cultures in a nation's economic growth do not ascribe an absolute value to these factors. Next, it must be emphasized that, though we accept the discussions on the production function, it is hard to measure TFP. We will take the position of recognizing the miracle of Asia not as a myth but as a miracle itself. We will show Fig 1 and Fig 2 in order to reaffirm that. In South Korea, the increasing trend of the per capita income briefly declined in the wake of South Korea's financial crisis and under the strictures of the IMF bailout package but recovered its pace to the level before the financial crisis. If the law of diminishing returns is applied to this situation, the per capita income of South Korea would have been stagnant at around $15,000 even though it recovered from the financial crisis. We can also suggest the Table 6 as further grounds in support.

From Table 6, we can understand that the South Korean government and the private businesses devoted themselves to technological development by allotting 3 percent of GDP for R&D. Even under the difficult circumstances of the foreign exchange crisis, South Korea's ratio of R&D-to-GDP did not decline sharply. As was mentioned above, South Korea's ratio of R&D-to-GDP is higher than that of the United States today. In another example, in 1982, South Korea applied for and obtained seven patents in the United States, which accounts for 0.01 percent of the total patents. In 1999, the number rose to 3,558, or 2.09 percent of total patents. The United States is ranked first, followed by Japan, Germany, Britain, Taiwan, South Korea, and France.[11] For these reasons, it is highly likely that Krugman would retract his 1994 suggestion if and when he reconsiders the situation of South Korea.

The Present Tasks of and Forecasts for the South Korean Economy

The opinion that the economic growth of South Korea is "miraculous" cannot be interpreted as the suggestion that no problem exists in South Korea's economy. We have proven that South Korea's economic growth has been a "miracle" based on Fig 1, Fig 2, and Table 1 and discussed the issue. But when we discuss the path of South Korea's economic growth and its process, we should not forget that it has been connected to some kind of crisis. South Korea's economic growth has great meaning, not because the nation has achieved it easily under an always-favorable environment, but because it has overcome difficulties after experiencing ups and downs and failures in policies and coordination. Therefore, when we talk of the prospects for the South Korean economy in the wake of the current crises, we can say the nation will continue to achieve growth by overcoming challenges by trial and error as it has in the past.

One of the most urgent tasks faced by the South Korean economy is to overcome the current global economic crisis. But if we analyze the major tasks of the South Korean economy more objectively by categorizing it into the mid- and short-term projects and the mid- and long-term projects, we can draw the following conclusions. Let's examine the mid- and short-term projects.

- Securing New Growth Dynamics through Innovation

The South Korean economy is currently in the situation that it cannot join the ranks of the advanced nations when it sticks to growth strategies based on mere imitation and the expansion of investment. Although South Korea is holding a dominant position in several time-honored manufacturing sectors and the IT industry, it falls short of entering into the advanced nation-style industrial portfolios. South Korea should endeavor to resolve the problems raised by the so-called "sandwich theory," according to which South Korea should reestablish its status between Japan armed with state-of-the-art high technology and China which has the advantages of low costs and is rapidly catching up with other nations in terms of technological development. In order to achieve the goal, South Korea should put discovering and acquiring new growth engines through innovation as a top priority. Additionally, it should redouble efforts to change its mode of economy from one relying on the manufacturing industry to another befitting a knowledge-based society.

- Resolving Polarization and Social Conflicts

Currently, certain conflicts are being amplified in South Korean society as it becomes polarized across regional, social class, business size and ideological lines. These have not been properly managed. South Korea finds it hard to effect social integration and has

to pay a huge social cost due to its polarization in many sectors: ① polarization between metropolitan and provincial regions (concentration of economy in the metropolitan areas; the problem of seeking for balanced regional development); ② polarization between large conglomerates and mid- and small-sized enterprises (weakened industrial connection between the two sides; the problem of fostering win-win strategies in business relations); ③ polarization among the social classes (the collapse of the middle class and the polarization between growth and distribution; the problem of a virtuous circle of growth and distribution); and ④ ideological polarization between the left and right (conflicts between liberal and conservative camps; the problem of achieving a harmonious coexistence).[12] In order to resolve these conflicts, we have to build a solid foundation based on the rule of law in society and to establish an effective conflict management system.

• Easing of Unnecessary Regulations and Continuous Reform of the Public Sector

Ineffective systems and practices that were established during the period when the government masterminded the nation's economy still linger. South Korea should abolish unnecessary regulations and reform the public sector by privatizing public enterprises in order to reconstitute the role of the government and the market and to reactivate market functions.

The following are the mid- and long-term projects.

• The Problem of Population

As is manifested in Table 7 below, South Korea has become one of the fastest aging nations. South Korea's birth rate remains lowest in the world. In order to maintain its economic vigor, South Korea should draw up measures to raise fertility rate and raise the economic activity rate of women.

• Reunification of South Korea and the Procurement of the Reunification Costs

Although reunification of the divided halves is the common wish of the Korean people, it is also one of the most difficult tasks to accomplish. This is because there are many uncertainties surrounding reunification. Is it possible to see the reunification of the two Koreas? If so, when and in what form will it be made? How much will it cost and who will pay for it? How much time will be required to effect economic, social, and cultural reunification after political reunification has been achieved? Is there any possibility that the life of the people of South

Table 6 Changes in R&D Expenditure and the Number of Patent Applications in South Korea

	R&D		Patent Applications				
	R&D/GDP (%)	Private R&D Shares (%)	Total	Non-residents	Residents	Residents' shares (%)	Business Shares (%)
1962			782	68	714	91.3	5.5
1963	0.24		771	101	670	86.9	11.6
1964	0.20		908	164	744	81.9	12.4
1965	0.26		1,018	160	858	84.3	10.6
1966	0.31		1,060	177	883	83.3	15.3
1967	0.37		1,177	322	855	72.6	10.3
1968	0.41		1,463	377	1,086	74.2	20.2
1969	0.45		1,701	547	1,154	67.8	20.4
1970	0.37	18.37	1,846	639	1,207	65.4	21.4
1971	0.31		1,906	623	1,283	67.3	24.0
1972	0.28		1,995	618	1,377	69.0	15.9
1973	0.29		2,398	776	1,622	67.6	28.1
1974	0.30		4,455	3,362	1,093	24.5	17.1
1975	0.42		2,914	1,588	1,326	45.5	24.3
1976	0.43	35.20	3,261	1,825	1,436	44.0	27.8
1977	0.59	52.24	3,139	1,962	1,177	37.5	36.4
1978	0.62	51.16	4,015	3,021	994	24.8	33.2
1979	0.55	45.54	4,722	3,688	1,034	21.9	26.4
1980	0.56	48.39	5,070	3,829	1,241	24.5	24.0
1981	0.62	56.37	5,303	3,984	1,319	24.9	18.3
1982	0.84	58.72	5,924	4,368	1,556	26.3	22.8
1983	1.13	72.55	6,394	4,795	1,599	25.0	19.3
1984	1.22	78.63	8,633	6,619	2,014	23.3	39.6
1985	1.41	80.53	10,587	7,884	2,703	25.5	44.7
1986	1.59	80.92	12,759	9,118	3,641	28.5	57.9
1987	1.65	79.60	17,062	12,191	4,871	28.5	66.0
1988	1.72	82.27	20,051	14,355	5,696	28.4	72.5
1989	1.75	82.89	23,315	16,294	7,021	30.1	77.3
1990	1.72	84.06	25,820	16,738	9,082	35.2	80.0
1991	1.84	80.38	28,132	14,879	13,253	47.1	82.3
1992	1.94	82.39	31,073	15,121	15,952	51.3	82.8
1993	2.12	83.11	36,491	15,032	21,459	58.8	83.5
1994	2.32	76.15	45,712	17,148	28,564	62.5	85.4
1995	2.37	75.74	78,499	19,263	59,236	75.5	93.4
1996	2.42	73.67	90,326	21,913	68,413	75.7	90.4
1997	2.48	72.45	92,734	25,388	67,346	72.6	90.6
1998	2.34	69.13	75,188	24,592	50,596	67.3	83.3
1999	2.25	69.96	80,642	24,672	55,970	69.4	76.3
2000	2.39	72.38	102,010	29,179	72,831	71.4	68.4
2001	2.59	72.46	104,612	30,898	73,714	70.5	72.9
2002	2.53	72.20	106,136	29,566	76,570	72.1	75.5
2003	2.63	74.01	118,652	28,339	90,313	76.1	77.4
2004	2.85	74.96	140,115	34,865	105,250	75.1	79.8
2005	2.98	74.96	160,921	38,733	122,188	75.9	80.9

Source: Keun Lee, "How Can South Korea Be a Role Model for Catch-up Development? A 'Capability-based View'," UNU-WIDER, Research Paper No. 2009/34 (June 2009), p. 10.

A barbed-wire cease-fire line that separates South Korea from the North. The peaceful reunification of Korea, the common and supreme task of the two Koreas, are also prerequisite for facilitating the economic growth of Korea.

and North Korea could be more miserable after reunification? East and West Germany clearly shows that reunification of a divided nation requires a process that will cost an astronomical amount of money. We, however, have to make preparations for the sudden collapse of a North Korean regime that has already lost its viability. And as it is almost certain that South Korea should shoulder the burden of reunification, we, from now on, should seriously consider ways of estimating unification costs and of achieving a social consensus on sharing the burden.

Translated by Sohn Tae Soo

Table 7 Changes of Total Population and the Growth Rate of Population (Unit: 1,000 people, %)

	1970	1980	1990	2000	2005	2010	2018	2020	2030	2050
Total Population	32,241	38,124	42,869	47,008	48,138	48,875	49,340	49,326	48,635	42,343
Growth Rate of Population	2.21	1.57	0.99	0.84	0.21	0.26	0.02	-0.02	-0.25	-1.07
Rate of Aging Population	3.1	3.8	5.1	7.2	9.1	11.0	14.3	15.6	24.3	38.2

Source: Statistics Korea

1. The population of Ghana today has reached 23 million, almost the same as North Korea.
2. Samuel P. Huntington, "Foreword: Cultures Count," L. E. Harrison and S. P. Huntington (eds.), *Culture Matters: How Values Shape Human Progress* (New York: Basic Books, 2000), p. xiii.
3. World Bank, *The East Asian Miracle: Economic Growth and Public Policy* (New York: Oxford University Press, 1993), pp. 1-26.
4. The average income of the world amounts to $7,995, which is closer to the per capita income of Turkey.
5. The annual economic growth rate on average during this period stood at 8.5 percent, much higher than the target figure. The annual economic growth rate on average between 1962 and 1979 was hovering above 9 percent.
6. No nation made a success in industrialization by adopting this policy after the Second World War.
7. In this respect, some scholars regarded the divided Korea as the site of a "natural experiment" that helped them figure out the meaning of the systems. Daron Acemoglu, Simon Johnson, James Robinson, "Institutions as the Fundamental Cause of Long-Run Growth," NBER Working Paper No. 10481(May 2004), pp. 18-20.
8. It was in June 1978 that the Academy of Korean Studies was established in order to study the traditional culture of Korea and to create a national culture. The late President Park Chung Hee showed a great interest in these goals.
9. Park Seong-uk, "Jijeok jaesan boho-wa gyeongje-seongjang" (Protection of Intellectual Property and Economic Growth) *Geumyung gyeongje yeongu* (Research of Financial Economy) (2009. 2), pp. 2-4.
10. Paul Krugman, "The Myth of Asia's Miracle," *Foreign Affairs*, Vol. 73(1994), pp. 62-78.
11. Keun Lee, "How Can Korea be a Role Model for Catch-up Development? A 'Capability-based View'," UNU-WIDER, Research Paper No.2009/34(June 2009), p. 15.
12. A recent study suggested a conclusion that South Korea of today is paying 27 percent of GDP per capita as expenses because the nation is unable to manage social conflicts. Park Jun, "Hanguk sahoe-galdeung-gwa gyeongjejeok biyong" (Social Conflicts in South Korea and their Economic Expenses) Samsung Economic Research Institute, CEO Information 710th Issue 2009. 6. 24.

Rethinking the Miracle on the Han River

On the Road to Successful *Laissez-faire* Market Economies

Written by Jun Seong Ho (The Academy of Korean Studies)

Over the past sixty years, the South Korean people have transformed from peasants working the land into a nation of online netizens. As a result of this process, South Korea has developed into an advanced and open state with the goal of large-scale globalization. However, there remains the question of how this economic miracle was achieved. This introductory paper addresses several issues relating to global market institutions, human capital creation, structural transformation, egalitarianism, and a persistent focus on a global perspective.

Ever since Adam Smith wrote his books *The Theory of Moral Sentiments* (1759) and *The Wealth of Nations* (1776), there has been a debate about the efficiency of laissez-faire economic policies versus those of regulatory ones. Actually, the origin of laissez-faire economics can be found in the Confucianism of the proto-globalization that took place between eleventh and eighteenth centuries.

Immediately after World War Two, most developing countries were in dire straits economically and had to escape from absolute poverty. As such, economic planning was not a choice, and it became necessary for Korea to overcome the harm imposed by the Japanese colonizers. By taking steps toward an export-oriented economy, the South Korean economy entered a new phase which later became known as the Han River Miracle.

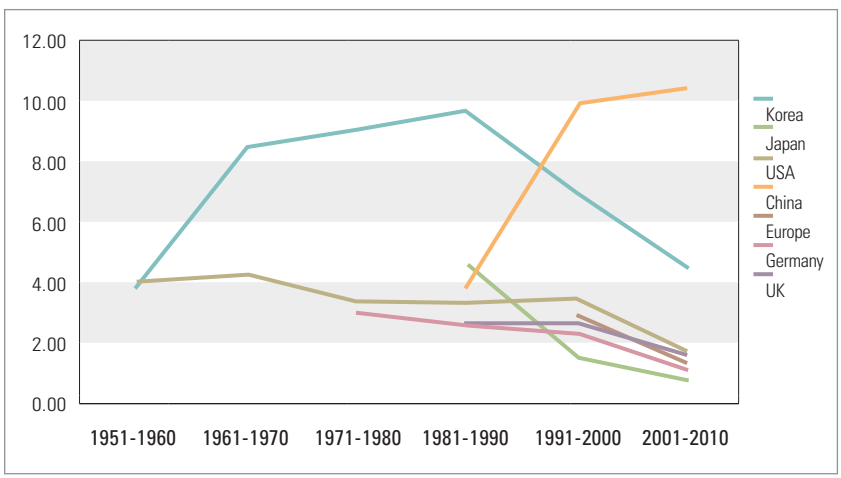
South Koreans Transform from Asian Peasants into Global Netizens

Reliable economic growth data are only available from the end of the Korean War. Figure 1 shows, in comparison with the United States, Japan, and Europe, the remarkable pace of economic growth by South Korea starting from mid-1950s. The growth rate in terms of GDP increased about threefold from 1953 through the 1970s. This growth was accompanied by an exploding population, which rose 50 percent from 1953-55 to 1970-72. While this staggering population growth restricted the annual increase in per capita GDP, that growth expanded private consumption, including imports.

From the 1960s to 1980s, South Korea's economic boom far outpaced that of the rest of the world, engendering a sense of confidence in the market system and elevating East Asia to a powerful position in the global economy. South Korea's achievement ushered all of Asia, which had suffered through colonial domination and the devastation of war, into better economic times. The significant period of economic growth for South Korea was during the 1960s to 1970s. After the Korean War, the economic benefits achieved in East Asia were characterized by more favorable civil participation compared with the sinister militaristic edge of the Japanese economy in the 1930s.

Figure 1 shows that the GDP growth of South Korea during the 1960s to 1980s was among the highest in the world. South Korea, in the early 1990s, was an industrialized country with a standard of living among the highest in the world. The World Economic Forum

Fig. 1 GDP Growth Rates (%)



Source: Bank of Korea, http://ecos.bok.or.kr

ranked South Korea first in competitiveness. South Korea has been a member of the OECD since 1990s. One hundred years ago in 1910, Korea was a colonized and poor agrarian country, and, as recently as the 1870s, a significant part of the population suffered serious disease and famine.

Figures 2 and 3 show the percentage of employed persons between 1910 and 2010, according to industry. During Japanese colonialism, the share of agriculture slowly dropped from 85 percent of total employment in the 1910s to 70 percent. However, after World War Two, agriculture's share temporarily rose as people returned from Manchuria. From the 1960s, with the Han Miracle, the share in total employment of the agricultural, forestry and fisheries industries declined rapidly from 68 percent in the 1950s to only 7 percent in 2010, including the fishery and forestry industries.

One historical change in sectoral shares was the shift in the labor force from agriculture to manufacturing, community, social and personal services, and education. The share of manufacturing in total employment increased from 1 percent in the 1910s to 17 in 2010. Services, especially communication, increased rapidly over the last hundred years, and in 2010, almost 34 percent of the total workforce was engaged in public service, community, and personal services, and education.

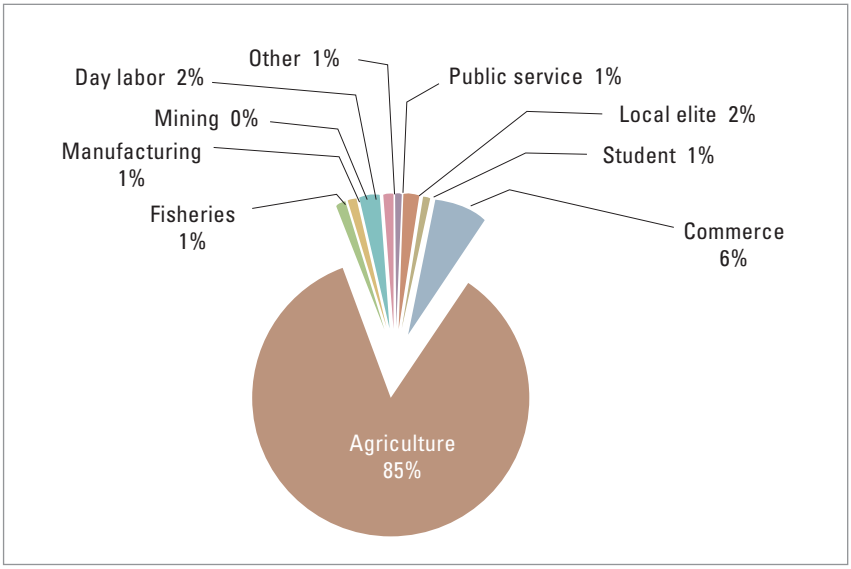
Industrialization, the expansion of the wage-laborer class, and structural changes in the labor force all took place in South Korea around the Han Miracle time period, that is, in the middle of the twentieth century. This was, of course, relatively late compared with Western countries. At the beginning of the twenty-first century, South Korean netizens became intermediaries between the local populace and global citizens.

Beyond the Wars to Peaceful Growth

After the Korean War, rapid economic growth created dynamic changes, helping South Korea to become second to only Japan in East Asia in terms of economy. To fully understand what this means, an in-depth analysis of East Asian economic growth is needed. Figure 4 show us the history of the Japanese manufacturing sector. For Japan, the Sino-Japanese War, World War One and World War Two constituted the most important economic growth of the last centuries, but the wars' effects fluctuated widely, and World War Two decisively resulted in a significant depression. In Figure 3, the rate of increase (1885-1940) and rate of decrease (1940-1944) in mining and manufacturing were higher than in other sector. In particular, Japan's interwar growth rates for mining and manufacturing almost doubled compared to those of other periods. Japan's annual GDP was also double those of interwar Europe. Colonial manufacturing growth in Korea also averaged 10 percent growth per annum. Around the 1930s, Japan and Korea had the world's highest rates of growth in heavy industry. Kaname Akmatscu elaborated his famous "flying geese" model of industrial development.[1]

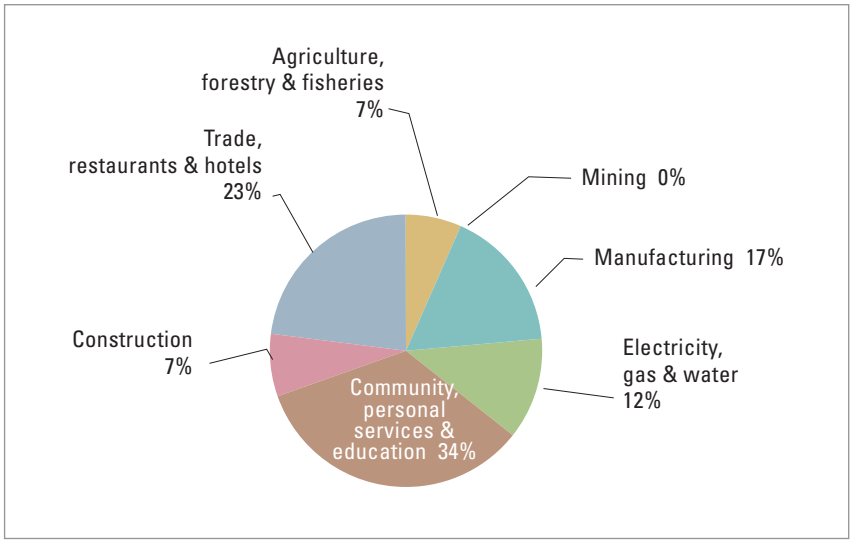
Economic growth of Japan and Korea during the inter-war period, especially in manufacturing, actually benefited from World War One, as the two countries were not involved. War incentive growth caused stagnation in the agricultural productivity of Japan, resulting in a controlled and monopolized economy. After the Great Depression in the West, the Japanese government started to regulate the economy following the outbreak of the Sino-Japanese war in 1937. As a result, the main industries of Korea shifted to heavy

Fig. 2 Employment by Industry or Occupation 1910 (%)



Source: Lee Hun-chang, A Study on Minj ökt'onggyep'yo and SAS Data Analysis, Korea University 1997

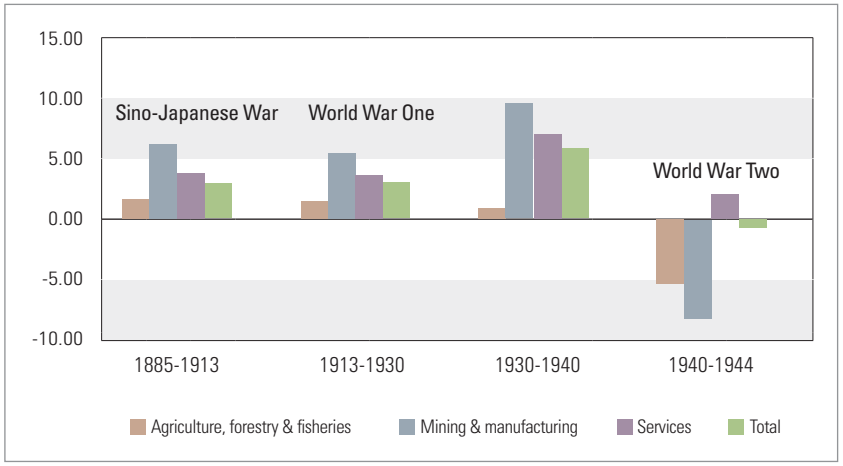
Fig. 3 Employment by Industry 2010 (%)



Source: Bank of Korea, http://ecos.bok.or.kr

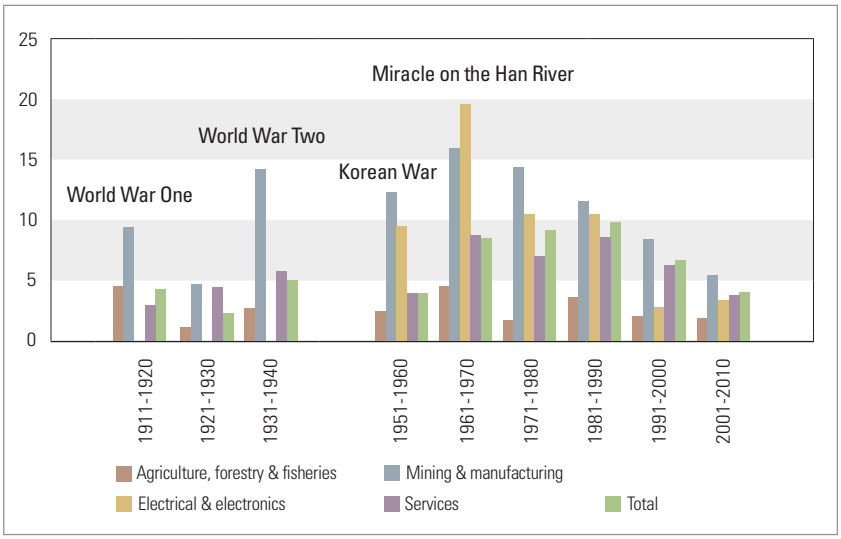
industrialization for military purposes, which did not improve living standards. Without sovereignty, economic growth destroyed the willingness to engage in economic activity.

Fig. 4 Growth of Sectoral GDP Japan 1885-1945 (%)



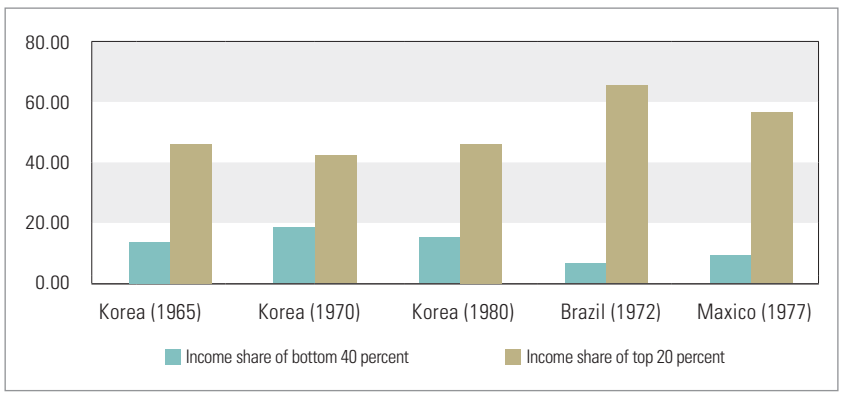
Source: Mizoguchi and Umemura (1988); Ohkawa, Shinohara and Umemura (1974) [2]

Fig. 5 Growth of Sectoral GDP, Korea 1910-2010 (%)



Source: Bank of Korea, http://ecos.bok.or.kr

Fig. 6 Income Distribution in 1960s-1980s, Comparison (%)



Source: World Bank World Development Report 1986

Figure 5 shows the GDP growth rates of South Korea during the Han Miracle time period. As shown in the figure, the GDP of South Korea kept pace with that of the United States, Japan, and Europe. During this time, South Korea started to appear as a leader in East Asia and did so by not following the policies of Japan, thereby steadily increasing its share in the global economy while maintaining an open domestic market. South Korea's superior performance resulted in a world market surplus. Even given current uncertainties about the world economy, South Korea continues to be a leading economy. South Korea adjusted successfully to transition from gold to paper currency in 1972, the oil crisis in the Middle East, and the debt shock of the early 1980s.

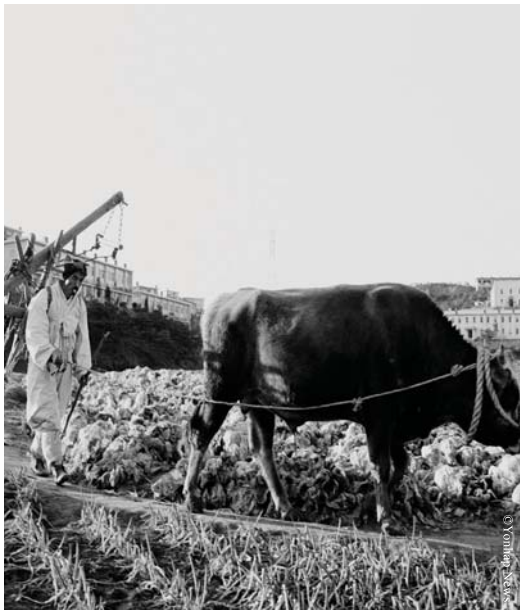
Improvement of Income Distribution during the Han Miracle

Income distribution and its effects on economic growth are important indicators of sustainable economic growth. Changes in inequality reflect changes in living standards. If economic growth is focused on the top twenty percent of people, we can observe deterioration in income distribution. The Korean miracle on the Han represents an interesting case study since it was characterized by mostly equal distribution throughout the populace. Periods of rapid economic growth are often accompanied by deterioration in the income distribution, but the situation was different in the case of South Korea: income distribution in South Korea actually improved from 1965. Figure 6 shows that the rapid economic growth of South Korea was extraordinarily different from that of Latin America. The levels recorded since the first oil crises in the 1970s were much lower than those in earlier periods and after the 1970s. There was deterioration in income distribution due to shortages of human capital, but traditional education in South Korea effectively provided human capital from the 1950s, with well-educated people moving from rural areas to urban cities. In addition, the government goal was to escape from absolute poverty.

The Han Miracle Created a Global Market-friendly Model for South Korea: From Import-led Exports to Export-led Imports

The openness of the global market was crucial to East Asia's accelerated growth and structural changes, such that the government's goal was toward achieving a laissez-faire economy. The

A street of Seoul that was devastated during the Korean War



A farm village of South Korea in the 1960s. South Korea had been an agricultural nation until the 1960s.

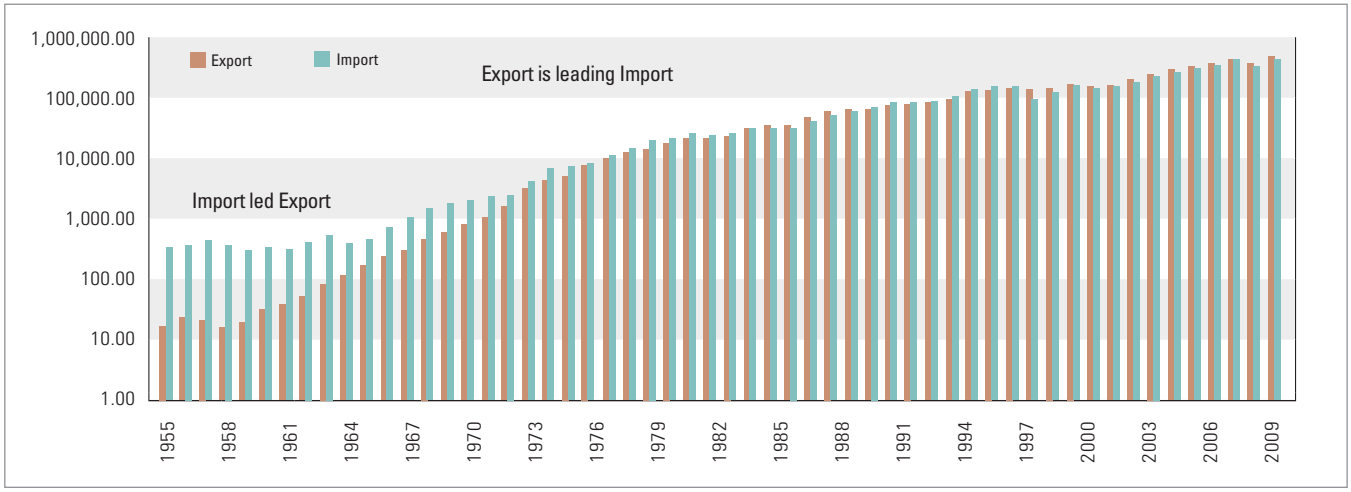
Citizens are queuing up in a crooked line in order to buy petroleum during the oil crisis. South Korea has achieved high economic growth by overcoming lots of economic crises including the global oil crisis.

Korean miracle on the Han proves the importance of manufactured goods exports and government policies that play a crucial role in stimulating growth. The Korean experience provides evidence for exports as an effective means of enhancing absorption of international technology and boosting productivity as well as output growth.[3] South Korean openness has played a role in technological advancement and the promotion of productivity-based growth. Figure 7 illustrates the view that exports and imports result in accelerated growth. The positive relationship between openness and productivity came to fruition in the 1990s due to the impact of R&D investment in productivity. However, controversy persists as to whether or not the South Korean economy remains protected by unusually high invisible barriers.

A striking characteristic of the South Korean economy is the growing share of exports in GDP and the changing composition of its trade, which suggests that in little more than twenty years, South Korea transformed from a commodity exporter to a net importer of commodities and exporter of manufactured goods. The reorientation of the economy toward trade is equally apparent in import penetration and export ratios. In manufacturing, the ratio of exports to total production increased during 1970-83 from 11 percent to 21 percent, whereas the import content of the manufacturing sec-

Fig. 7 Exports-Imports Korea (1955-2010)

(Y-axis: Log value, Unit: Million dollars)



Source: OECD's Structural Statistics for Industry and Services (SSIS) Database

The Han River in the 1950s

The Han River of today

tor rose from 17.3 percent to 22.2 percent. The ratio of imports to domestic production in the manufacturing sector has declined over the past fifteen years from almost 20 percent to only 15 percent.

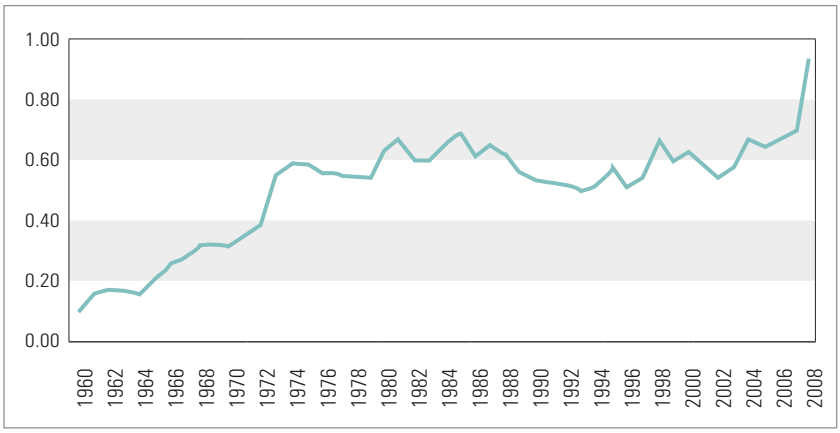
What is real national wealth? Is it based on gold, silver, or bullionism? Perhaps it is based on international business or global communication. The vast extensions of Confucian communication gave rise to the most important problem in international politico-economic relations. According to Smith, colonization was the continuation of monopolization through other means. Nothing is more passionately and constantly condemned throughout *The Wealth of Nations* than this monopolistic drive, both in general and in its particular manifestation in colonial policies. Japanese colonial policies were nevertheless, in Smith's estimation, causing Japan itself very serious harm, rendering the whole of Japanese industry and commerce less secure and the body politic less healthful.

In contrast to Latin America, which is economically stagnant and debt-laden, South Korea has maintained a high level of economic growth, relatively low levels of inflation, relatively good flexibility in adjusting, and relatively equal distribution of income. Regarding the reason behind South Korea's economic prosperity, we should recall those who generalized the theory of market self-adjustment, though with several and, in some cases, important exceptions throughout the economic cosmos, both domestically and internationally, as well as micro-economically and macro-economically.

When Smith was writing, East Asia's eclipse had hardly begun. On the contrary, the remarkable peace, prosperity, and demographic growth that East Asia later underwent influenced leading figures of the European Enlightenment. Leibniz, Voltaire, and Quesnay, among others, "…looked to China for moral instruction, guidance in institutional development, and supporting evidence for their advocacy of causes as varied as benevolent absolutism, meritocracy, and an agriculturally based national economy.[4] Quesnay mentioned East Asia, "a characterization that was echoed in Smith's remark that the extent of China's 'home market' [was] not much inferior to the market of all the different countries of Europe put together."[5] The rise and fall of Confucianism within East Asia, especially Korea, was first of all related to the rise and fall of the popular perception that East Asia was much more advanced than Europe both economically and politically. This perception was grounded on the specific inter-civilizational balance of power in the early modern global economy.

However, North Korea has continued planning and controlling, being bitterly opposed to the individualistic values of the neo-classical school (which recognizes that markets are rooted in subjective, individual choices) and still maintaining a stance enthusiastically supporting a national socialistic system, similar to Japan, Italy, and Germany before World War Two—and after World

Fig. 8 Openness of the South Korean Economy (1960-2009)



Source: Bank of Korea http://ecos.bok.or.kr (1981-2010) ; World Bank Statistics, http://data.worldbank.org

War Two—Russia under Stalin. The Han Miracle clearly raises questions concerning not only how it might be applied to other developing countries, but also how North Korea affects and is affected by industrialized countries. Confucian tradition's stress on the role of *laissez-faire* in promoting economic progress has even been described as Smith's suggestion in *The Wealth of Nations*, and there are clearly some similarities to the development of Korea. Smith's point is not simply the importance of *laissez-faire* economies, but how, within the simple system of natural liberty, individual frugality and initiative can be fully and smoothly implemented, as well as converted into economic achievement, without any intervention.

How can we summarize the growth and transformation of South Korea since the Korean War? This essay clearly names the specific characteristics of the South Korean transformation into a global market-friendly model, not only through export-led industrialization, or an export promotion model, or an outward-looking industrialization model. Globalization is currently transforming the relationships between states and the role they play in constructing markets themselves. The global economy has resulted in large part from the weakening and even destruction of institutional buffers between national economies and global markets. Now, states find themselves trying to respond to pressures from local societies and global markets simultaneously without the breathing room previously offered by control of transnational trade, finance, and production.

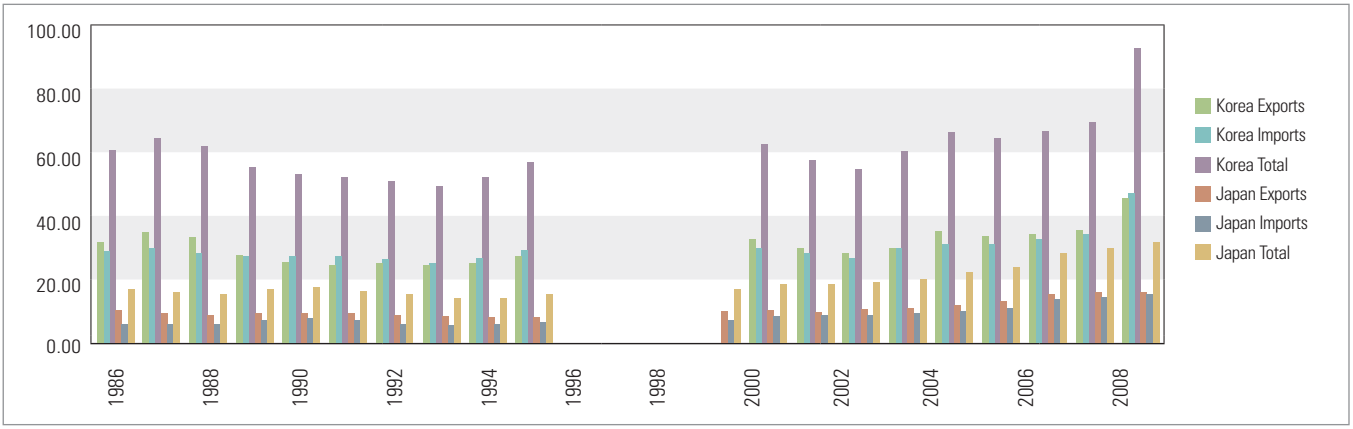
South Korea has manifested the following three dominant factors of state-market interaction on its path to a successful global *laissez-faire* market economy.

A: Liberal factors (export-led, liberal importation of goods) that promote market dominance of society
B: Human rights factors that put social limits on monopolies
C: Developmental or dynamic factors in which states and societies coordinate market strategies for globalization

G-20 Seoul Summit 2010

1. Bruce Cumings, "The Origins and Development of the Northeast Asian Political Economy: Industrial Sectors, Product Cycles, and Political Consequences" *International Organization*, Vol.38, No. 2(1984) 1-40, at p. 2.
2. Mizoguchi and Umemura, *Basic Economic Statistics of Former Japanese Colonies, 1895-1938* (Tokyo: Toyo Keizai, 1988); Ohkawa, Shinohara and Umemura, *Estimates of Long-term Economic Statistics of Japan Since 1868* (Tokyo: Toyo Keizai, 1974).
3. World Bank, *The East Asian Miracle* (New York: Oxford University Press, 1993) ; Robert Z. Lawrence and David E. Weinstein, "Trade and Growth: Import led or export led? Evidence from Japan and Korea," Chapter 10 in *Rethinking the East Asian Miracle* edited by Joseph E. Stiglitz and Shahid Yusuf (Oxford University Press, 2001).
4. Giovanni Arrighi, *Adam Smith in Beijing: Lineages of the Twenty-First Century* (Verso, 2007), at p. 3.
5. Francois Quesnay, "Despotism in China" in F.Schurmann and O.Schell, eds, *Imperial China* (New York: Vintage, 1969) at p. 11; Smith, *Wealth of Nations* Vol. 2, p. 202.

Fig. 9 Comparison of Openness of Economies: Korea vs. Japan (%)

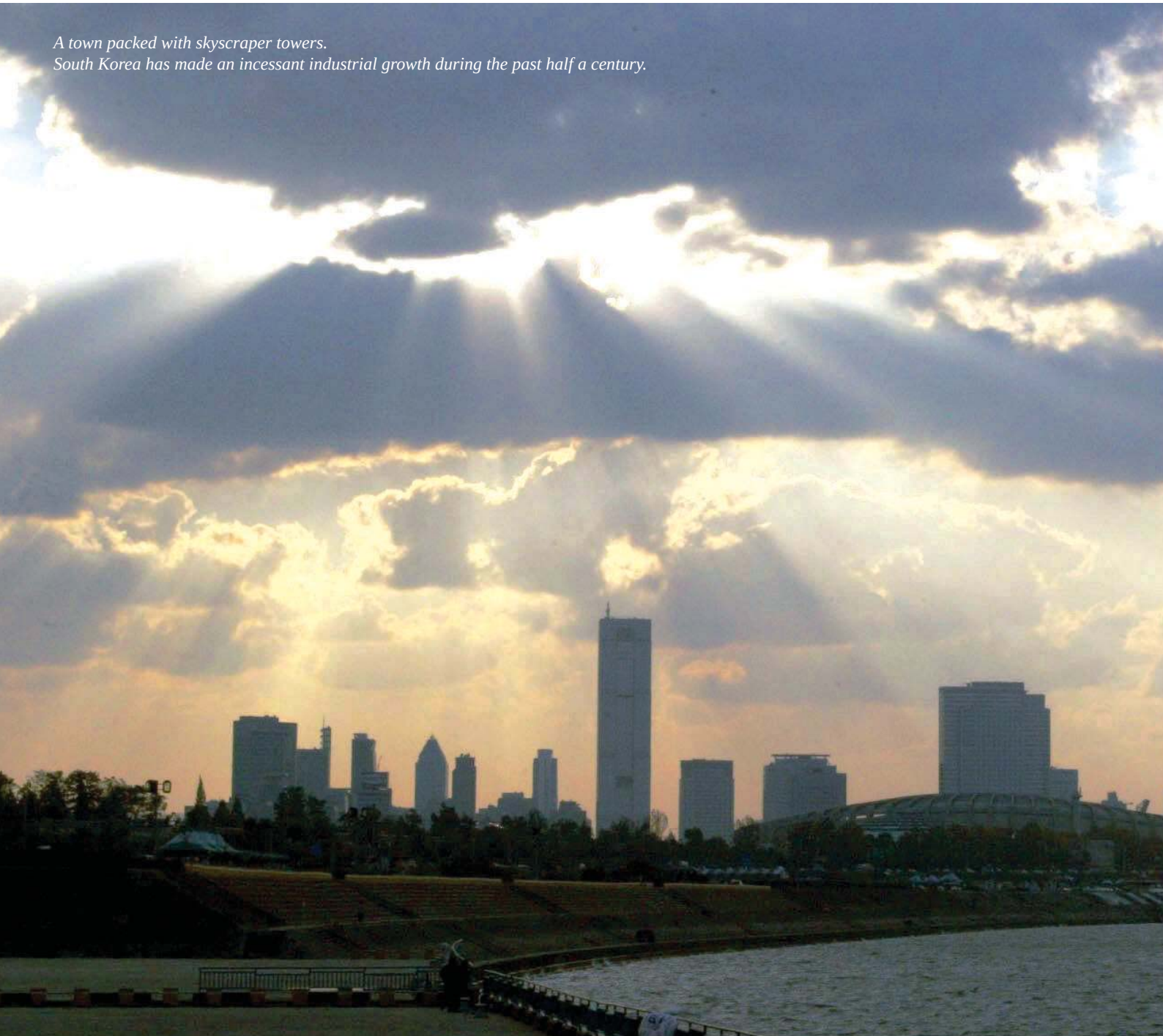


Source: Bank of Korea, http://ecos.bok.or.kr (1981-2010) ; World Bank Statistics http://data.worldbank.org

LESSON

Miracle on the Han River

GRADE LEVEL: **9-12**
AUTHOR: **Ellen Leader Pike**
SUBJECT: **Economics, World History, World Cultures, Global Studies**
TIME REQUIRED: **3-5 class periods**



A town packed with skyscraper towers.
South Korea has made an incessant industrial growth during the past half a century.

OBJECTIVES

1. Work in small groups to gather information and data on why Korea's industrial revolution might have occurred when it did.
2. Analyze the impact of industrialization on Korean economy, society and politics.
3. Identify the factors that contribute to "late stage" industrialization.

MATERIALS REQUIRED

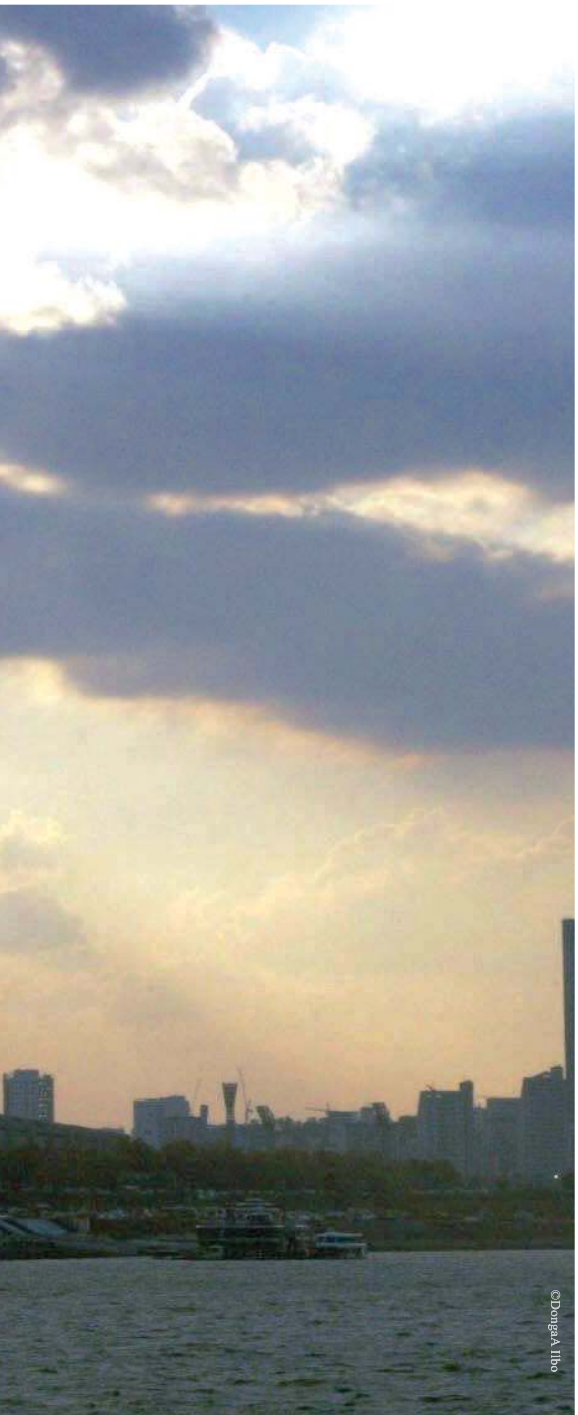
Various reference books: encyclopedias, world atlases, world almanacs, histories, periodicals, etc.

BACKGROUND

By the time students reach high school, they think they know all about the Industrial Revolution: It began in England in the late 1700s, spread not long after to other parts of northwestern Europe, reaching the United States by the early 1820s, and then it was over. The chronological, sequential nature of much of our social studies teaching often makes it difficult for students to understand that the "Industrial Revolution" represents a continuing global historical process. Indeed, it did begin more than two centuries ago in England, but since then it has bounced across the globe, arriving in South Korea in the early 1960s.

World historians identify three phases of the "Industrial Revolution." The first phase, which occurred in England, parts of Western Europe and the United States from the late 1700s to the early 1800s, is the most familiar form of industrialization. The second phase occurred in Russia, Japan, parts of southern, eastern and central Europe, Canada and Australia around the 1880s. The third phase, or what is sometimes referred to as the "late stage industrialization," began in Korea in the 1960s and spread to other parts of the Pacific Rim. But no matter where or when it spread, the "Industrial Revolution" was accompanied by enormous waves of change in all aspects of human life.

Koreans brought few particular advantages to the process of industrialization. In fact, by the early 1960s, Korea seemed like a most unlikely candidate for an industrial revolution. On the heels of the end of thirty-five years of Japanese colonial oppression, Korea was divided in 1945. Three years of war from 1950-1953 was physically and psychologically devastating. As a result of the war, tens of thousands of people were displaced from their local communities. Nonetheless, industrialization in Korea moved with great speed and became the keystone of a massive economic, social and political transformation. Looking at Korea in 1945 or 1953 no one would ever have predicted such enormous economic success. Therefore, because of its bewildering speed and the numerous hurdles it had to overcome, Korea's industrial revolution provides students a fascinating exploration into the nature of "late stage industrialization."



PROCEDURE

CLASS PERIOD 1

1. Have students brainstorm the following:
   a) "What do we know about Korea today?"
   b) "What is an Industrial Revolution?"
   c) "What are the characteristics of an industrial society?"

2. Explain the reason for studying this lesson (i.e. Korea is an excellent example of "late stage industrialization.") By examining Korea's industrial revolution students will be able to see that industrial revolutions are not inevitable but occur only in those locations where certain preconditions exist. They will also understand why Korea moved to the forefront of the world economy so rapidly.

3. Introduce the following vocabulary: industrialization, light industry, heavy industry, import substitution industrialization (ISI), export-oriented industrialization (EOI), *chaebol* (large-scale industrial conglomerates).

4. Next, explain that in a jigsaw activity, students are about to explore why, when and how Korea went through its "Industrial Revolution." Explain how the jigsaw cooperative activity will work and remind students of their responsibility to their groups. Student roles in each group include questioners, researchers and recorders.

5. Divide the class into the following expert groups (the size and number of groups depend on the class size; remind students that each group is to examine information from the past that would help explain the reason Korea industrialized when it did):

- *GEOGRAPHY:* this group will examine Korea's physical features and natural resources to determine the geographic advantages and disadvantages Korea brought to industrialization.
- *HISTORY:* this group will examine the impact of Japanese colonialism, World War II and the Korean War to determine how these experiences might have affected industrialization.
- *SOCIETY:* this group will examine the legacy of Confucianism, Korean family life and traditional attitudes towards levels of education to determine how these factors might have affected industrialization.
- *GOVERNMENT:* this group will examine the nature of Korea's political system and its economic policies to determine how government support might have affected industrialization.
- *INTERNATIONAL:* this group will examine how the Cold War, the Korean War, the Vietnam War and the Saudi Arabian construction boom of the 1970's affected industrialization.
- *STATISTICS:* this group will gather data on GNP/GDP growth rates, population growth rates, import/export ratios, etc. to identify patterns of industrial growth in Korea.

Korea was liberated from the 35-year-long Japanese colonial occupation in 1945.

- *BIOGRAPHY:* this group will research some key figures to determine their impact on Korean businesses and industries during this period. Examples include Park Chung-hee and entrepreneurs such as Chung Ju-yung (Hyundai), Lee Byung-chul (Samsung), and Kim Woo-choong (Daewoo).

CLASS PERIOD 2-3

1. Expert groups continue research.
2. When students have completed research, each group prepares a list of key factors on its topic that affected industrialization.
3. Regroup students so that new groups have at least one expert on each of the topics researched. Each student shares its group's findings with other students.

CLASS PERIOD 4-5

1. In their new jigsaw groups, have students prepare two lists: one on the advantages Korea brought to the industrialization and the other on the disadvantages.
2. Groups should also determine what special factors enabled industrialization to proceed so rapidly in Korea.
3. Organize a class discussion on the following topics
   a) how Korea's "Industrial Revolution" was similar to and different from other they have studied
   b) what factors make "late stage industrialization" different from earlier examples of industrialization.(Students might offer the following: benefits from prior developments in industry and technology, heavy government support, authoritarian political patterns, strong contacts with the West, particularly the USA)
   c) the impact of industrialization on Korean economy, society and politics.

EVALUATION

Considering their prior research and discussion, ask students to write and illustrate an article for a news magazine on the topic: "Can Other Countries Mimic the Korean Economic Miracle?"

ENRICHMENT

Have students search current periodicals to speculate on the present condition and future prospects of Korea's economy and on the likelihood of "new" industrial revolutions in other world areas.

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The Han River of today

President's Letter

Since its inauguration in 1978, the Academy of Korean Studies has endeavored to promote in-depth research and education in Korean culture. It has also produced numerous scholars in the area of Korean studies as well as remarkable academic achievements, thus growing into a distinguished academic institute recognized by academic communities both at home and abroad by propagating the information it has accumulated.

Infokorea has been published as the magazine of the Academy of Korean Studies aimed at offering precise and updated information and useful content on Korea. The current issue deals with the latest statistics, articles on Korean economy, and a teaching lesson. The special articles deal with how Korea has made rapid economic growth by overcoming major economic crises in the world during the past 50 years.

Infokorea plans series on such issues as high-standard cultures of Korea, cultural achievements of Korea, political democratization of Korea and Green Growth that have been keenly noted by the people of the world. We hope Infokorea will be of great help to educators of the world as well as others who are interested in Korea when they want to acquire and utilize proper information on Korea.

Chung Chung Kil

President Academy of Korean Studies

Graduate School of Korean Studies

The Graduate School of Korean Studies at the Academy of Korean Studies celebrated the 31st anniversary of its foundation in 2011. During the past 30 years since its foundation in 1980, the Graduate School of Korean Studies has made significant contributions to the development of Korean studies through its in-depth research in the areas of humanities and social science related to Korean studies. It also has cultivated professional researchers who will play a pivotal role in the promotion of Korean studies learning and the globalization of Korean studies. It has so far produced a total of 620 MA graduates and 350 PhD graduates who are laying a cornerstone for the development of Korean studies by engaging in education and research activities at universities, research institutes and cultural organizations both at home and abroad. Currently, a total of 250 students are enrolled in either MA or PhD programs at the Academy of Korean Studies, including 126 foreign students from 36 nations.

Encyclopedia of Korean Culture

Net surfers can get access to the services of the Encyclopedia of Korean Culture now available in cyberspace. The Encyclopedia of Korean Culture is a comprehensive and specialized encyclopedia on Korean culture completed by as many as 3,800 participating scholars of Korean studies. It offers services not only on the Academy of Korean Studies' encyclopedia web site (http://encykorea.aks.ac.kr) but also on Naver (http://terms.naver.com/minbaek) and Nate (http://100.nate.com/minbaek), which are two of the most representative portal sites in Korea. Operators of the Encyclopedia of Korean Culture are striving to expand the number of search engines in order to help web surfers get access to its services more easily under the changing map of digital devices -- characterized by smart phones and tablet PCs -- amidst the diversification of mobile web environment.

Training Fellowships for Textbook Experts

In 2011, the Academy of Korean Studies (AKS) held Korean culture training fellowships and invited editors of textbook publishing companies, officials in charge of social studies curriculums at ministries of education, and professors and teachers from the United States, Germany, India and Australia. Both the host Korea and the participating nations promoted their understanding of the education environment and education policies of the respective nations during seminars on the promotion of textbooks and, at the same time, shared ideas for promoting mutual understanding. The participants in the Korean culture fellowships heard lectures on the history, economy and cultures of Korea and visited major historical sites and industrial settings to broaden their views of Korea.

Civilization and Peace

The Global Forum Civilization and Peace was founded by the Academy of Korean Studies in order to contribute to the settlement of world peace based on Korea's experience of going through a period of turbulence during the past 60 years after its liberation from Japan in 1945. Under the theme of "Resolution of Conflict in Korea, East Asia and Beyond : Humanistic Approach," the 2011 Civilization and Peace forum was held at the Plaza Hotel Seoul between Oct. 10 (Monday) to Oct. 12 (Wednesday) in 2011. The forum featured the keynote speech by Prof. Jürgen Kocka, a leading scholar of the history of German society, as well as 10 presentations in five subject areas.

Participants in a fellowship training program are having a friendly chat while listening to a lecture.

The Academy of Korean Studies created the Center for International Affairs (CEFIA) in March 2003. The Center's mission is to promote a better understanding of Korean history, society, and culture throughout the world.

THE ACADEMY OF KOREAN STUDIES
CEFIA Center for International Affairs