

HRI Quarterly Economic Review

I. Economic Issues Facing Korea
II. North Korean Issues
[Annex] Domestic and Global
Economic indices

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Devoting to economic research
and human resource development
with intellectual conscience and sincerity,
the Hyundai Research Institute leads
the advancement of Korean Economy
in the 21st century by proposing
creative policy alternatives.

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< Executive Summary >

I . Economic Issues Facing Korea

『Estimates of Potential Growth Rate by Industry』

The potential growth rate of the Korean domestic economy is on a downward trend due to decreasing labor, capital injection and the absence of productivity enhancement to compensate the negative trend. This report examines the potential growth rate of key Korean industries, such as manufacturing, service and construction industries, as well as the growth factors divided into factor accumulation and technological improvement based on which the characteristics of the changes of potential growth rate was examined by the industry.

『The Advent of the 4th Industrial Revolution and Implications』

The global economy is suffering low growth owing to the weakening growth engine as a direct result of falling total factor productivity. As the 4th industrial revolution is emerging as a driving force for future growth, major nations are actively promoting ways to strengthen their industrial cutting edge advancement in relation to the 4th industrial revolution. Therefore, we would like to examine the significance and the ripple effect of the 4th industrial revolution and analyze changes of industrial structure and businesses related to the 4th industrial revolution of the major nations.

『Household Consumption Comparison in a Period of Economic Recession and Implications』

The Korean economy is lately experiencing a swamp-type recession both at home and abroad. The recovery of household consumption is urgently required in view of the protracting depression caused by a lack of aggregate demand of both the domestic as well as export markets. Therefore, this report examines the relations between the economic cycle, domestic demand and private consumption, particularly the household consumption pattern in a period of economic depression.

II . The North Korean Issues

『Survey on Current Issues between the Two Koreas and Opinion on Unification』

A survey on the latest issues between the two Koreas and perception of unification was conducted on 93 specialists in the areas of unification, diplomacy and national security, from July 11 to July 19.

I . Economic Issues Facing Korea

1. Estimates of Potential Growth Rate by Industry

Summary

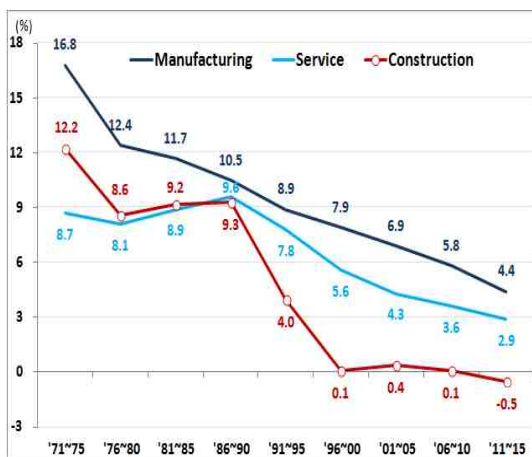
The potential growth rate of the Korean domestic economy is on a downward trend due to decreasing labor, capital injection and the absence of productivity enhancement to compensate the negative trend. This report examines the potential growth rate of key Korean industries, such as manufacturing, service and construction industries, as well as the growth factors divided into factor accumulation(labor, capital) and technological improvement(gross factor productivity), based on which the characteristics of the changes of potential growth rate was examined by the industry.

Estimates of Potential Growth Rate by Industry

The potential growth rate of the manufacturing industry was an average 4.4% in the period between 2011 and 2015, higher than those of the service and construction industries, but the slowdown rate of the manufacturing industry's potential growth rate is bigger than that of other industries. The potential growth rate of the manufacturing industry gradually dropped from an average of 8.9% in the period between 1991 and 1995, to 7.9% between 1996 and 2000, 6.9% between 2001 and 2005 and 5.8% between 2006 and 2010, an average fall of approximately 1% in every 5 years. However, the latest manufacturing industry's potential growth rate(2006 to 2010) showed 4.4%, a drop of 1.4%p from the previous 5-year period. The potential growth rate

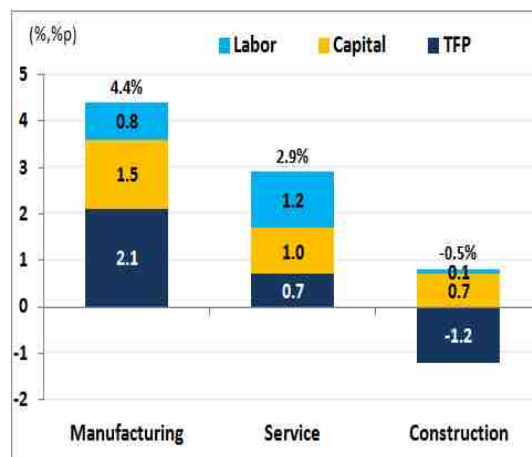
of the service industry marked 2.9% in the period between 2011 and 2015. The potential growth rate of the service industry marked 2.9% in the period between 2011 and 2015, experiencing significant decline in the wake of the financial crisis. It fell to 4.3% in the period between 2001 and 2005, 3.6% between 2006 and 2010 and 2.9% between 2011 and 2015. The potential growth rate of the construction industry recorded a negative growth of -0.5% in the 5 year-period between 2011 and 2015, having heavily decreased from 4% in 1991-1995 to 0.1% in 1996-2000. Its downward trend has since continued, showing 0.4% of growth rate in 2001-2005 and 0.1% in 2006-2010. The potential growth rate of the Korean domestic economy is estimated to have fallen from 3.9% in 2006-2010 to 3.2% in 2011-2015, which is believed to be mainly due to the struggling performances of the manufacturing and service industries, considering the greater shares played by both key industries of Korea.

<Potential Growth Rate Trends of Manufacturing, Service, & Construction Industry>



Source : Estimated by HRI.

<Potential Growth Rate factors Analysis of Manufacturing, Service, & Construction Industry>



Source : Estimated by HRI.

Note : Based on potential growth rate of 2011-2015.

Implications

To prevent further drop of the potential growth rate of domestic industries:

First. Creative activities are required to recover the growth rates of key Korean industries through structural reform of the labor market and market competition.

Second. Government policy should be focused on productivity enhancement, securement of core technology and discovery of new growth engines through the 4th round of the industrial revolution to increase the growth potential of the manufacturing industry.

Third. Positive actions should be taken for increasing R&D investment and expansion of firm size to evolve the Korean service industry into a capital and technology-oriented advanced industrial structure.

Fourth. Enhancing added value in the construction industry should be vigorously promoted together with exploring new markets and the industry's natural structural readjustment.

2. The Advent of the 4th Industrial Revolution and Implications

Advent of the 4th Industrial Revolution

The global economy is suffering low growth owing to the weakening growth engine as a direct result of falling total factor productivity. As the 4th industrial revolution is emerging as a driving force for future growth, major nations are actively

promoting ways to strengthen their industrial cutting edge advancement in relation to the 4th industrial revolution. Therefore, we would like to examine the significance and the ripple effect of the 4th industrial revolution and analyze changes of industrial structure and businesses related to the 4th industrial revolution of the major nations.

Significance and Ripple Effect of the 4th Industrial Revolution

The 4th industrial revolution refers to a technological revolution which dissolves boundaries between the digital, physical, biological and other areas and converges them into a single branch. In particular, groundbreaking technological development, reorganization of all industries by destructive technology and overall system upgrade are typical examples and clearly differentiated from the 3rd industrial revolution. As a part of the 4th industrial revolution, 3D printing, robotics, internet of things(IoT) and big data are emerging and look set to create added value with all these technologies converged. When the 4th industrial revolution is examined from an industrial aspect, online-based sharing economy for lending and sharing things between people and on-demand economy, which facilitates an immediate response to the demands of consumers, are expected to be in the limelight. Businesses utilizing such technology-based platforms will increase and grow fast. When examined from the perspective of the labor market, white collar jobs will decrease with robots, artificial intelligence and automation replacing the labor market. A survey conducted on 15 countries indicates that approximately 5 million jobs will disappear in the next five

years. The 4th industrial revolution requires largely five requisite elements: flexibility of the labor market, technological level, educational system, SOC level and legal protection. Major nations were evaluated based on the five elements mentioned above, the result of which reveals that Swiss ranking is 1st, the USA 5th, Japan 15th and Korea is 25th mainly due to the lack of flexibility of the labor market.

Changes of Businesses and Industrial Structure of Major Nations in relation to the 4th Industrial Revolution

The outcome of analysis based on the listed companies of Korea, Germany, Japan, USA, and China shows:

First. The growth of industries related to the 4th industrial revolution appears to be faster compared to other industries. In particular, the growth trends of software, service, pharmaceuticals and the biotech industry of Korea are assessed to be higher than other industries.

Second. In terms of the performance of Korean businesses, the growth rate of annual turnover and operating profit rate of enterprises related to the 4th industrial revolution are assessed to have fallen compared to the performances of businesses of major nations.

Third. In terms of the industrial ecosystem, Korea's industrial dynamics appears to lag behind other major nations due to the low entry and exit rate of businesses.

Fourth. Industrial structure-wise, the share of industries related to the 4th industrial revolution is fast increasing and industrial concentration on a particular industry is considerably higher compared to major nations.

<Major Nations' Average Annual Growth rate of Market Capitalization of Industries related to the 4th Industrial Revolution>

Section	Korea	Germany	Japan	USA	China
Capital Goods	15.3	4.1	1.7	5.2	36.3
Pharmaceutical & Bio-engineering	29.5	22.8	4.4	11.5	33.2
Semiconductor & Semiconductor Equipment	24.8	4.4	-2.8	2.6	38.7
Software & Service	37.2	6.0	1.3	13.0	44.8
Technological Hardware & Equipment	11.4	-0.7	0.5	8.9	33.4
Telecommunication Service	3.6	1.6	4.4	10.8	10.0
Growth Rate of the Total Market Capitalization	14.6	9.2	-0.1	2.4	32.4

Source : Calculated by HRI based on Bloomberg Data.

Note : Average annual growth rate in the period of 2006-2015.

Policy Suggestions

With the emerging '4th Industrial Revolution', the following actions should be taken to cope with changes of the new technology-oriented industrial structure and labor market:

First. Efforts for change prediction for the future should be made in relation to the emerging 4th industrial revolution when planning mid-long term vision and strategy. Second. A preemptive countermeasure system is required to capture the technological market, such as Internet of Things and Artificial Intelligence, which will lead the 4th industrial revolution. Third. Anticipatory countermeasures should be prepared by individuals, companies and the government to deal with the changing environment in relation to the overall employment and job competency to be created by the 4th industrial revolution. Fourth. Businesses should establish strategies from a global vision and long-range perspective when dealing with technology-oriented platform projects such as sharing economy and On-demand economy. Fifth. The government should improve investment efficiency by prioritizing a business-friendly manner in relation to regulation and tax systems in order to help businesses strengthen their competitive edge.

3. Household Consumption Comparison in a Period of Economic Recession and Implications

Summary

The Korean economy is lately experiencing a swamp-type recession both at home and abroad. The recovery of household consumption is urgently required in view of the protracting depression caused by a lack of aggregate demand of both the domestic as well as export markets. Therefore, this report examines the relations between the economic cycle, domestic demand and private consumption, particularly the household consumption pattern in a period of economic depression.

Relations between Economic Cycle and Income/Consumption

The growth rates of Korea's private consumption and retails sales have been on the decrease since 2000. The growth rate of private consumption in 2000 accounted for 12.7%, but it dropped to no more than 2.1% in 2016. When examined from the point of the economic cycle, the private consumption shows a pro-cyclic tendency and low growth rate of consumption compared to income, the longer the economic recession period.

The average disposable household income has shown an upward trend since 2000 in economic depression, except in 2008 when the global financial crisis broke out. Although consumption expenditure shows a continued increase except for the financial crisis period as with the disposable income, it shows a clear sign of drifting aside since the latest economic recession(since 2011).

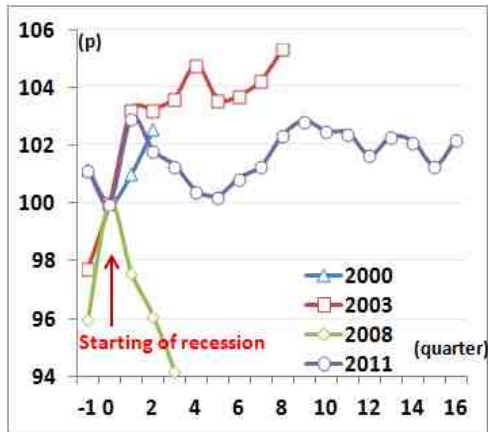
Consumption Pattern Comparison by Income Bracket during the Period of Economic Cycle(Contraction Phase)

(Durable Goods) Generally, household consumption of durable goods is known to decrease in a phase of economic depression. Although the household consumption of durable goods fell in the period of recession beginning from the year 2000, it has shown a rise in the latest economic depression. Analyzed by income level, the consumption of durable goods has increased regardless of income bracket and, in particular, the consumption of durable goods by the higher income bracket was relatively higher.

(Non-Durable Goods) The household consumption of non-durable goods in the periods of economic recession since 2000 showed rises in 2000 and 2003 and drops in 2008 and 2011. Unlike the sharp increase of durable goods in the current economic recession, the consumption of non-durable goods has declined to some extent. When examined by income bracket, the degree of decline of the lower income bracket is higher than other income groups, which is a cause for concern as it indicates the living standard of lower income groups is deteriorating.

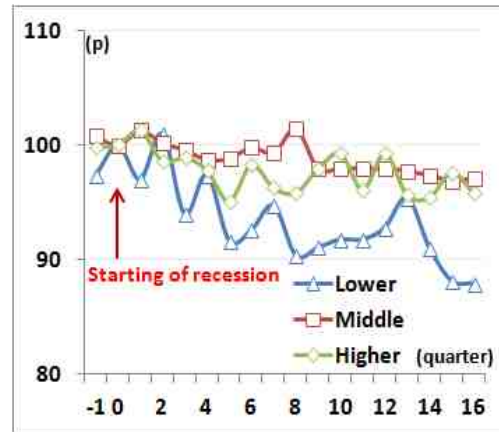
(Service) The household consumption of service in the periods of economic stagnation beginning from the year 2000 indicates a similar trend to that of non-durable goods. The service consumption was rising in 2000 and 2003 while falling in 2008 and 2011, and again, the degree of decline of the lower income bracket is higher compared to other income groups.

< Household Consumption Comparison in the Periods of Economic Recession since 2000 >



Source : Household Survey Data.
 Note 1) Based on urban households of 2 or more.
 2) Setting starting point of recession as a standard of 100.
 3) Seasonally-adjusted real average household consumption.

< Household Non-durable Goods Consumption Comparison by Income Bracket in the Current Economic Recession >



Source : Estimated based on the Household Survey Data.
 Note 1) Based on urban households of 2 or more.
 2) Setting starting point of recession as a standard of 100.
 3) Seasonally-adjusted real average household consumption.

Policy Suggestions

Effort to boost domestic demand focusing on private consumption is required as the Korean economy has lately shown a swamp-type recession due to the lack of total demand and, therefore, the government should:

First. Maintain expansionary fiscal and monetary policy and focus on removing non-economic uncertainty to enhance the possibility of economic recovery.

Second. Prepare tailor-made policies for different income brackets to expand domestic demand through encouraging private consumption.

Third. Enhance capabilities for job creation by introducing a positive employment market policy as the rise of household income is a prerequisite to increasing domestic demand.

II. North Korean Issues

1. Survey on Current Issues between the Two Koreas and Opinion on Unification

Survey Summary

A survey on the latest issues between the two Koreas and perception of unification was conducted on 93 specialists in the areas of unification, diplomacy and national security, from July 11 to July 19.

Key Contents

(Latest Issues between the Two Koreas) Four specialists out of ten responded that North Korea may suggest an event for the reunion of separated families around August 15th, the 71 year anniversary of Korean independence. A vast majority of 90% of respondents thought that the South should accept the suggestion and have a dialogue with the North, should the North make the first move. Approximately half(47.8%) of the specialists responded that preparations for the reunion event should be made for the successful management of the event, not to mention the need for dialogue, and 42.2% of specialists expressed an optimistic view of the dialogue for the event. Meanwhile, 6 out of 10(58.9%) were of the opinion that Kim Jong Un, Chairman of the National Affairs Commission, is highly likely to visit China in an effort to break out of the international sanction on N. Korea and economic and diplomatic isolation through a friendly diplomacy with traditional allies such as China and Russia. A great majority of specialists(73.3%) also predicted that

the North is likely to launch a 5th nuclear test.

(Specialists' Opinion on Unification) An outright majority(97.8%) agreed on the need of unification and believed that the unification is useful to the national interest. As in the previous year's survey, respondents appeared to prefer 'Peaceful Coexistence of One nation with Two systems'(44.1%) to 'Complete Unification'(30.0%). A considerable number of specialists(69.0%) believe that the unification will take more than 11 years and 2 out of 3 respondents(63.4%) approved of the introduction of unification tax with more than half(57.7%) of the respondents willing to pay US\$100 a year for the tax.

(Influence of Neighboring Nations on Korean Unification) While the influence percentage of the USA on Korean unification has declined in comparison to the survey result of 2015(63.2% in July, 2015→54.4% in July 2016), the impact of China has increased during the same period (36.8%→45.6%). More than half of the respondents appear to perceive China as the single biggest obstacle to Korean unification, which explains the 6.3%p increase in the negative perception of China by Korea in comparison to the survey result of 2015.

<Perception of Major Nations of the Unification of Korea>

(%)

Section		2012.10	2013.11	2015.7	2016.7
Nations likely to give maximum support for the unification	USA	68.2	56.2	49.5	57.8
	China	18.8	38.5	42.5	36.7
	Japan	1.4	0.0	0.0	0.0
	Russia	11.6	5.3	8.0	5.5
Nations likely to be the biggest obstacle to the unification	USA	11.3	28.0	25.3	23.3
	China	69.0	55.0	44.8	51.1
	Japan	19.7	17.0	27.6	25.6
	Russia	0.0	0.0	2.3	0.0

Source : Hyundai Research Institute, 2012.10, 2013.11, 2015.7, 2016.7.

[Annex] Domestic and Global Economic Indices

Global Growth Rate

Category	2014					2015					2016
	Annual	1/4	2/4	3/4	4/4	Annual	1/4	2/4	3/4	4/4	Annual(E)
US	2.4	-1.2	4.0	5.0	2.3	2.4	2.0	2.6	2.0	0.9	2.2
Euro Region	0.9	0.2	0.1	0.3	0.4	1.7	0.6	0.4	0.3	0.4	1.6
Japan	0.0	1.3	-2.1	-0.6	0.5	-0.4	1.2	-0.4	0.5	-0.4	0.3
China	7.3	7.4	7.5	7.1	7.2	6.9	7.0	7.0	6.9	6.8	6.6

Note 1) IMF figures of July 2016 for 2016 global projections.

2) Annual rates were compared with those of previous term for the US and Japan, with the rates of the previous term for Euro region, and with the same term in the previous year for China.

Economic Indicators of South Korea

Division		2014	2015			2016(E)		
			the first half	the second half	Annual	the first half	the second half	Annual
National Account	Economic Growth rate (%)	3.3	2.3	2.8	2.6	3.0	2.1	2.5
	Private Consumption (%)	1.8	1.6	2.7	2.1	2.7	1.1	1.9
	Construction Investment (%)	1.0	1.2	6.5	4.0	10.3	4.8	7.3
	Facility Investment (%)	5.8	5.4	5.0	5.2	-3.6	-1.5	-2.5
Foreign Trade	Current Account (100 million Dollars)	892	504	555	1,059	499	496	995
	Exports Increase rate (%)	2.8	-5.2	-10.8	-8.0	-10.0	-0.3	-5.2
	Imports Increase rate (%)	1.9	-15.6	-18.3	-16.9	-13.3	-1.5	-7.5
Consumer Price (Average, %)		1.3	0.6	0.9	0.7	0.9	0.8	0.9
Employment rate (15~64, Average, %)		65.3	65.4	66.1	65.7	65.6	66.3	66.0

Economic Indicators of North Korea

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Per capita GNI (10,000 won)		104	114	119	124	133	137	138	139	139
Amount of Trade by Year (USD million)	South-to-North	1,033	888	745	868	800	897	521	1,136	1,262
	North-to-South	765	932	934	1,044	914	1,074	615	1,206	1,452
	Total	1,798	1,820	1,679	1,912	1,714	1,971	1,136	2,343	2,714

Source : THE BANK OF KOREA, Ministry of Unification.

Hyundai Research Institute

Current Status

HRI is established by Chung Ju-yung, the first CEO, founder and honorary chairman of Hyundai Group in 1986. HRI is a leading Korean research think tank committed to studying and analyzing the economic and industrial environment as well as reunification economy of Korea. HRI, further, has its own businesses such as business consulting, education and training service, and knowledge-content business.

Main Research Topics

HRI is mainly composed of four divisions. The major working areas of each part are as following :

Research Sector deals with the macroeconomic issues relating to domestic-and-international economy as well as the industrial trends and issues. Reunification Economy Center is one of its sub-sectors, specialized in both the North Korean political and economic issues.

Business Consulting Sector devotes to helping domestic and international companies improve their competitiveness by providing strategic solutions.

Knowledge-Business Sector produces a great deal of invaluable online-and-offline contents such as educational videos and reading materials.

Human Resource Development and Education Sector provides HR development consulting services to companies for improved talent management, and also provides educational services such as training and lectures.

Messages to Future-Cooperation Partner

HRI is prepared for cooperation and coworks with your institute, especially in the field of survey, economic trend analysis and business consulting. For more information on cooperation, please contact us.

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